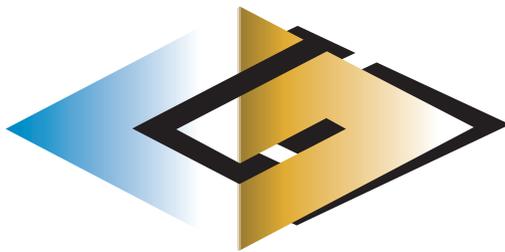


Greco Systems

WinDCS

Operation Manual

OM-3034



Greco Systems

A division of e-DNC Inc.

SAFETY

Protect yourself! Follow these precautions:

- **Never bypass a power cord ground lead by breaking off the ground pin, or by using inappropriate extension cords or adapters.**
- **Never plug a power cord into the AC power source until you have made sure that all installation, cabling, and power levels, are proper, and that the applicable procedures in this manual have been followed.**
- **Do not attempt to have equipment repaired by under qualified personnel. Especially, personnel should be trained in working with hazardous voltages.**
- **Heed the WARNING statements. These statements point out situations that could cause injury or death.**
- **Heed the CAUTION statements. These statements point out the situations that could cause damage to the equipment.**
- **Some instruments may contain a LITHIUM BATTERY for timekeeping. Small quantities of these batteries may be disposed of as regular waste.
HOWEVER: DISPOSAL BY FIRE, OR INCINERATION, SHOULD ALWAYS BE AVOIDED.
Prior to disposal: It is recommended that the leads of the battery be cut off and the exposed metal poles to be completely isolated with tape. Completely discharged or mechanically damaged cells should be wrapped in strong packing material.**

Contents

SAFETY	1
CONTENTS	2
DOCUMENTATION POLICY	7
DISCLAIMER	7
COPYRIGHT	7
ACKNOWLEDGMENTS	7
INTRODUCTION	9
OVERVIEW	9
COMPATIBILITY	10
DEPENDABILITY	10
SECURITY	10
INSTALLATION	11
IMPORTANT SPECIFIERS.....	11
INSTALLATION PROCEDURES.....	11
<i>Installing the Communications Hardware</i>	12
<i>Installing the WinDCS Software</i>	12
<i>Installing the Hardware Key and System Password</i>	12
CONFIGURATION	15
<i>GNSERVER Window</i>	15
<i>Adding a New Machine</i>	17
<i>Configuring a Machine</i>	17
WINDCS MAIN SCREEN FUNCTIONAL DESCRIPTIONS	22
STARTING WINDCS	22
WINDCS MAIN SCREEN CONTROLS	23
<i>System Control Buttons (Top of Screen)</i>	24
<i>GrecoNet Diagram Graphics Field</i>	25
<i>Show-File/Activity-Log Panel</i>	25
<i>Files Panel</i>	25
<i>Command Line Field</i>	26
<i>DNC Functions Buttons</i>	26
<i>Status/Activity Panel</i>	26
STANDARD BUTTONS	27
LOGIN DIALOG	29
<i>Purpose</i>	29
<i>Access</i>	29
<i>Description</i>	29

WINNC EDITOR SCREEN	30
<i>Purpose</i>	30
<i>Access</i>	30
<i>Description</i>	30
ADMINISTRATION SCREEN	32
<i>Purpose</i>	32
<i>Access</i>	32
<i>Description</i>	33
SELECT OPTIONS WINDOW	34
<i>Purpose</i>	34
<i>Access</i>	35
<i>Description</i>	35
<i>Set File Start Position Window</i>	36
<i>Purpose</i>	36
<i>Access</i>	36
<i>Description</i>	36
RECEIVE FILE WINDOW	38
<i>Purpose</i>	38
<i>Access</i>	38
<i>Description</i>	38
DEVICE WINDOW	39
<i>Purpose</i>	39
<i>Access</i>	39
<i>Description</i>	39
PRINT DIALOG.....	41
<i>Purpose</i>	41
<i>Access</i>	41
<i>Description</i>	41
KEYBOARD SCREEN	42
<i>Purpose</i>	42
<i>Access</i>	42
<i>Description</i>	42
ADMINISTRATION SCREEN FUNCTIONAL DESCRIPTIONS	44
CONFIGURATION TAB	44
<i>Purpose</i>	44
<i>Access</i>	44
<i>Description</i>	45
USER LOG IN/OUT.....	45
<i>Purpose</i>	45
<i>Access</i>	45
ADD FOLDER.....	46
<i>Purpose</i>	46
<i>Access</i>	46
ADD FILE EXTENSIONS	48

<i>Purpose</i>	48
ACCESS	48
UTILITY CFG TAB	50
<i>Purpose</i>	50
<i>Access</i>	50
<i>Description</i>	51
<i>Add Button Label</i>	51
<i>Access</i>	51
<i>Log File Option</i>	52
<i>Access</i>	52
FILE MANAGER TAB.....	55
<i>Purpose</i>	55
<i>Access</i>	55
<i>Description</i>	55
PART LIBRARY TAB	58
SETUP AND CONFIGURATION.....	58
TO CONFIGURE THE CONTROL PANEL APPLLET:	58
TO CONFIGURE WINDCS:	60
TO CREATE AND MAINTAIN THE DATABASE:.....	60
TO ENTER A NEW PART NUMBER:.....	61
TO USE THE PART LIBRARY IN WINDCS:.....	61
CONFIGURATION SCREEN FUNCTIONAL DESCRIPTIONS	62
USER LOGIN DIALOG BOX	62
<i>Purpose</i>	62
<i>Access</i>	62
<i>Description</i>	62
PURPOSE	63
<i>Access</i>	63
<i>Description</i>	64
<i>WinDCS Edit User Access Window</i>	65
<i>Access</i>	65
GNSERVER SYSTEM CONFIGURATION WINDOW	71
<i>Purpose</i>	71
<i>Access</i>	71
<i>Description</i>	71
<i>GrecoNet Module Configuration Dialog</i>	74
NETWORK MACHINE DEFAULT CONFIGURATION WINDOW	75
<i>Purpose</i>	76
<i>Access</i>	76
NETWORK MACHINE CONFIGURATION WINDOW	77
<i>Purpose</i>	77
<i>Access</i>	77
<i>Description</i>	78
NETWORK FUNCTION DEFAULT OPTIONS WINDOW	80

<i>Purpose</i>	80
<i>Access</i>	80
<i>Description</i>	80
MTIC CONFIGURATION WINDOW	82
<i>Purpose</i>	82
<i>Access</i>	82
<i>Description</i>	83
DIRECT-CONNECT PROTOCOL CONFIGURATION WINDOW	86
<i>Purpose</i>	86
<i>Access</i>	86
<i>Description</i>	87
<i>Remote Calldown Configuration Dialog</i>	90
GRECO NET CONFIGURATION WINDOW	94
<i>Purpose</i>	94
<i>Access</i>	94
<i>Description</i>	95
COMMUNICATIONS INTERFACE DIALOGS	98
<i>Purpose</i>	99
<i>Access</i>	99
<i>Descriptions</i>	99
SAMPLE PROCEDURES	101
STARTING WINDCS	101
SENDING A FILE TO A GRECO DEVICE	101
RECEIVING A FILE FROM A GRECO DEVICE	102
SENDING A FILE "PASSTHRU" THROUGH A DEVICE TO A MACHINE.....	102
RECEIVING FILE "PASSTHRU" THROUGH A DEVICE FROM A MACHINE	103
SENDING A FILE FROM A GRECO DEVICE TO A MACHINE	104
SENDING A FILE FROM A MACHINE TO A GRECO DEVICE.....	104
SENDING A FILE TO A DIRECT CONNECT MACHINE.....	105
RECEIVING A FILE FROM A DIRECT CONNECT MACHINE.....	105
REMOTE CALLDOWN PROCEDURE.....	106
CREATING A SYSTEM ADMINISTRATOR ACCOUNT	106
ASSIGNING OPERATOR ACCESS RIGHTS	108
RECOVERY	108
APPENDIX I: PART DATABASE	109
SETUP AND CONFIGURATION	109
TO CONFIGURE THE CONTROL PANEL APPLETT:.....	109
TO CONFIGURE WINDCS:	111
TO CREATE AND MAINTAIN THE DATABASE:.....	111
TO ENTER A NEW PART NUMBER:	112
TO USE THE PART LIBRARY IN WINDCS:.....	112
APPENDIX II: ACTIVE LOG.....	113
SETUP AND CONFIGURATION	113
TO CONFIGURE THE CONTROL PANEL APPLETT:.....	113

TO CONFIGURE WINDCS:	115
APPENDIX III: REMOTE CALL.....	117
<i>REQUIREMENTS</i>	117
<i>THEORY OF OPERATION</i>	117
<i>CONSIDERATIONS</i>	117
<i>EXAMPLES</i>	118
<i>SYMPTOMS AND SOLUTIONS</i>	118
APPENDIX IV: PROTOCOLS.....	120
GLOSSARY	123
INDEX I-1	

Documentation Policy

Disclaimer

This manual is based upon the data available at the time of publication. While sincere effort has been made to make the manual accurate, the information contained herein does not purport to cover all the details or variation in hardware, software, or firmware; nor to provide for every possible contingency in connection with the installation, operation, maintenance, repair or replacement. Also, features may be described here in which are not present in all hardware, software, or firmware configurations.

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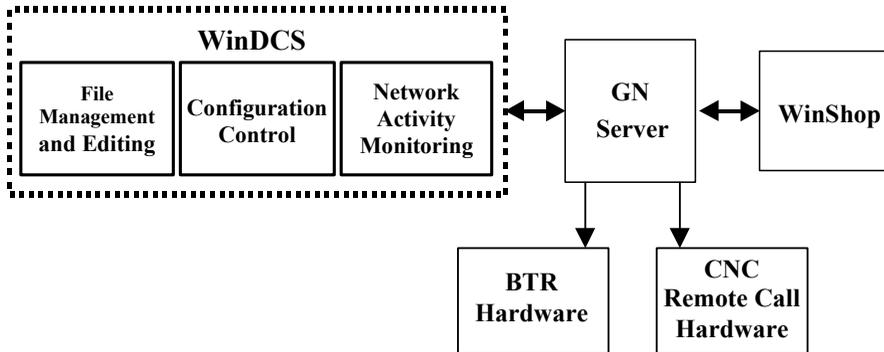
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Introduction

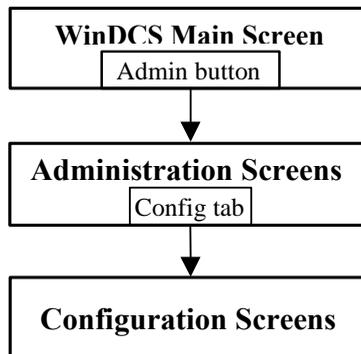
Overview

WinDCS is part of Greco Systems' Machine Tool Management System (MTMS[®]) Suite. The Suite also includes WinShop and the WinNC Editor, with the GrecoNet Server software always running in the background. These software modules are illustrated in the diagram below.



GNSERVER quietly provides all of the networking functions, while WinDCS contributes (1) storage, transfer and editing of program, graphics and instruction files, (2) configuration control of machine interfaces, (3) network activity monitoring. The system works without WinShop. However when added, WinShop integrates fully and smoothly with the entire system.

The illustration below shows the hierarchy of screens within the WinDCS application.



This hierarchy is reflected in the organization of screen descriptions in this manual. The corresponding sections of the manual are:

WinDCS Main Screen Functional Descriptions
Administration Screen Functional Descriptions
Configuration Screen Functional Descriptions.

Compatibility

WinDCS provides a full 32 bit Distributive Control Software application, which communicates with DNC networkable machine tools while continuing to support, and enhance, older machine tools. Installation is flexible enough to be implemented in any shop, regardless of the size of the shop or the age of the equipment.

Greco Systems products support almost any readily available communication interface hardware in common use by industry today. Some are listed here:

- The GrecoNet Network Interface Unit.
- Standard PC serial and parallel ports, including RS-232, RS-422, and others.
- Multiple serial port adapters (4, 8, 16 and 32) of almost any manufacturer.
- *Ethernet 100/10BaseT, using FTP.*

During Network Machine Configuration there is a Device Protocol procedure where the desired protocol is selected from a list. Only those modules that will actually be used are loaded into memory, making efficient use of available RAM.

Dependability

WinDCS can make a local copy of a part program file before sending it to the machine. By running from the local copy, the machine can complete the job, even if the network should fail. The Greco Systems GNSERVER networking software, operating in the background, enhances the flow of data between machines, operators, and supervision, and allows simultaneous access to data, including part programs. WinDCS can also be run on a PC by itself without being connected to a network server.

Security

WinDCS can be set up for password security. Specific individuals or groups can be given complete access, limited access, or sole access to specific screens, simplifying the task of securing your data.

Installation

WinDCS installation is automated to make sure it as complete and intuitive as possible. You start the program and answer the questions the program asks you. Nevertheless, these procedures should be performed by **qualified personnel only**, preferably by a Greco Systems representative (by arrangement) or your facility's Systems Administrator. If this software is installed by Greco Systems, then it should require no further attention, except perhaps some simple setup options such as password security.

This software can be installed on a network or on a single stand-alone PC.

Important Specifiers

The following specifiers are used to reference the ACTUAL directories. In all cases, the ACTUAL paths (appropriate to your system) are to be entered in place of the specifiers.

{WINDIR}	This specifier indicates the main Windows directory in the target system. For example, C:\WINDOWS for Win95, C:\WIN98 for Win98, or C:\WINNT for NT.
{WINROOT}	This specifier indicates the drive letter of the disk containing the Windows directory. For example, C:.
{REMOTEROOT}	This specifier indicates the drive letter of the mounted/mapped disk containing the shared database.
{REMOTE_DB}	This specifier indicates the full path to the directory on the mounted/mapped disk where the shared database resides. (For example, e:\nc_progs\dnc\sfcsvr)
[OPTIONAL]	Anything enclosed within square brackets [] is optional.

When this manual asks you to enter/type in values, the values may be delineated by quotation marks, enter the values **without** the quotation marks.

Installation Procedures

The specific steps for installing WinDCS will depend on the interface hardware you use for communications. Currently available options will be covered here as thoroughly as possible. Detailed discussions on the use of all of the WinDCS setup and configuration screens appear in *Administration Screen Functional Descriptions* and *Configuration Screens Functional Descriptions* later in this manual. For a typical installation, you will:

1. Install the communications hardware.

2. Install the software.
3. Install a hardware key and/or system password.
4. Configure the software.

Installing the Communications Hardware

Follow the installation instructions that come with the communications hardware you are using. Some hardware may require installation inside your PC, while others may be connected to it externally. All communications hardware shipped by Greco Systems is accompanied by complete installation instructions.

Greco Systems products support almost any readily available hardware in common use by industry today, and WinDCS has the most extensive list of built-in protocols in the industry. Among these are:

- EZLink, Fanuc, GE IPP, Heidenhain Blockwise, Kermit, Mazak Conversational.

Installing the software will require configuring it for the correct protocols.

Installing the WinDCS Software

As part of the following installation, the setup program creates a Greco Systems folder (**Start | Programs | Greco Systems**) where it installs the icons you use to start the Greco applications.

1. On the computer you are going to run the machine tools from, insert the installation disk in the appropriate drive, and run the WinDCS setup program from the disk.
2. Check the README file. It may contain additional instructions as a result of last minute improvements. It may also contain a list of any new features and changes that may not yet have made their way into this manual.
3. Continue clicking NEXT until complete.
4. At the end you will be asked to reboot your computer.

Installing the Hardware Key and System Password

The “system” password is separate from the security passwords that you assign to your users. It is a one-time password that is tied to a hardware key. Together, the hardware key and system password allow the GrecoNet GNSERVER software to talk to your machines.

Before your system is paid for, you will receive a temporary system password. The temporary password has an automatic expiration date. Once you have paid for your system, you will receive a permanent system password that is tied to the serial number of your hardware key.

This new password does not have the date limitation imposed by the demo password. The hardware key attaches to the LPT1 printer port on your PC.

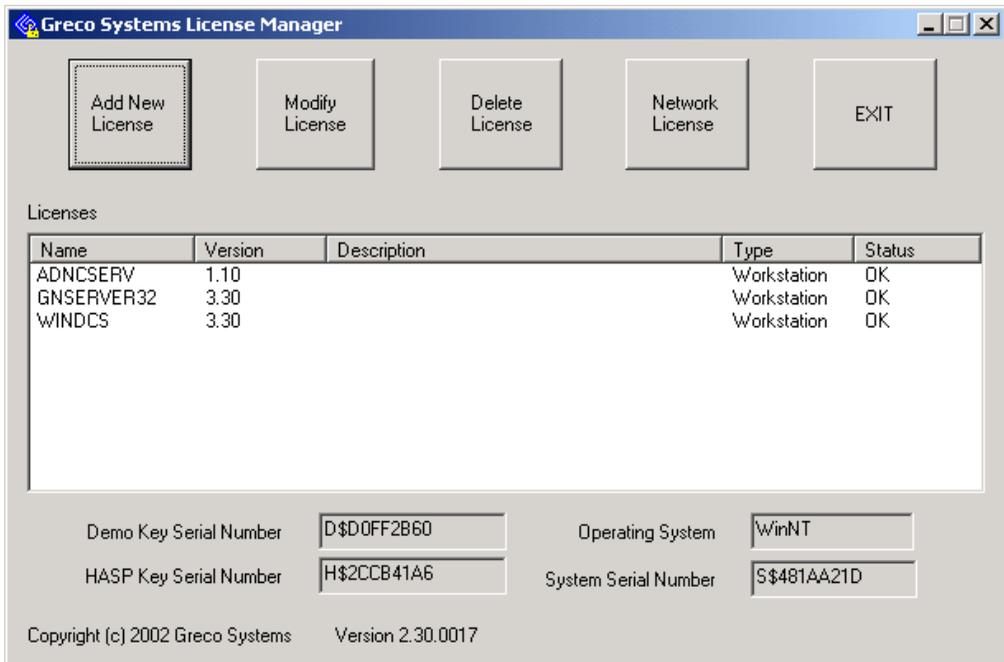
Installing the Hardware Key

1. If a printer is connected to the LPT1 port, unplug the printer cable from the port.
2. Plug the hardware key into the printer port.
3. If you have unplugged a printer to install the key, you can connect it again by plugging the printer cable into the installed hardware key.

The hardware key will not interfere with the printer in any way.

Installing the System Password Using License Manager

License Manager is a software module that must be installed along with Greco Systems MTMS software. To access this module, click **Start | Programs | Greco Systems | License Manager**, and from there click the License Manager icon. Its screen is shown in the figure below.



None of the fields on this screen can be changed by typing directly into the field. Follow the instructions within the definitions of the screen elements listed below. See the separate *License Manager Installation Manual* for a complete description of all License Manager screens and procedures.

Note: *The key type, key serial number, license type and expiration date, can be found packed with the software. When a permanent password is received, you can edit the entry in the window. If you are not renewing the license, it can be deleted.*

<p>Licenses field</p>	<p>Shows a list of all current Greco Systems licenses on your system. This field is the only one on this screen that can be changed, and it can only be changed by using the add, modify and delete buttons at the top of the screen. See button descriptions below.</p> <p>Name column: License name of software that license applies to.</p> <p>Version column: Version of software that license applies to.</p> <p>Description column: Description of software that license applies to.</p> <p>Type Column: Whether network or Workstation license.</p> <p>Status: Current status of license:</p> <p>OK Permanent license.</p> <p>Expired Expired temporary license.</p> <p>Bad Password doesn't match license information.</p> <p><u>N</u> Days <u>n</u> = number of days left on temporary license.</p> <p>1 Day Today is the last day of the temporary license.</p>
<p>Network License button</p>	<p>To add, delete or modify a NETWORK license to the License list, click this button. The Greco Systems <i>Network License Manager</i> window appears. (See description later in this manual.) Type your changes into the appropriate <i>License Editor</i> fields. (See Modify License button.) When you are done editing, click on the EXIT button in the Network License window.</p>
<p>Delete License button</p>	<p>If you are not renewing a license, click on its name in the Name column. Then click this button to delete it.</p>

Modify License button	When you receive your permanent password you can modify the associated entry by clicking on its name in the Name column and clicking this button. A Greco Systems License Editor dialog box appears. Type your changes in the appropriate dialog box fields. When you are done editing, click the OK button in the License Editor dialog.
Add New License button	To add a new license to the License list, click this button. Type Greco issued changes and the Systems License Editor dialog box will appear. Type your changes into the appropriate dialog box fields. When you are done editing, click on the OK button in the License Editor screen.
Operating System field	Automatically filled in to match the operating system you are using on your computer or “Any.”
Demo Serial Number field	Automatically filled in if a demo serial number is current for your system.
Key Serial Number field	Automatically filled out if a Hardware key is present on the parallel printer port and the Key driver is installed on your computer.
System Key Serial Number field	Automatically filled out based upon the hardware I.D. on the PC.
OK button	Click to save changes and exit the License Manager.

Configuration

Note: The below is only for purposes of familiarization. The application note(s), purchased from Greco Systems, should be followed when actually configuring WinDCS for use with your machines.

GNSERVER Window

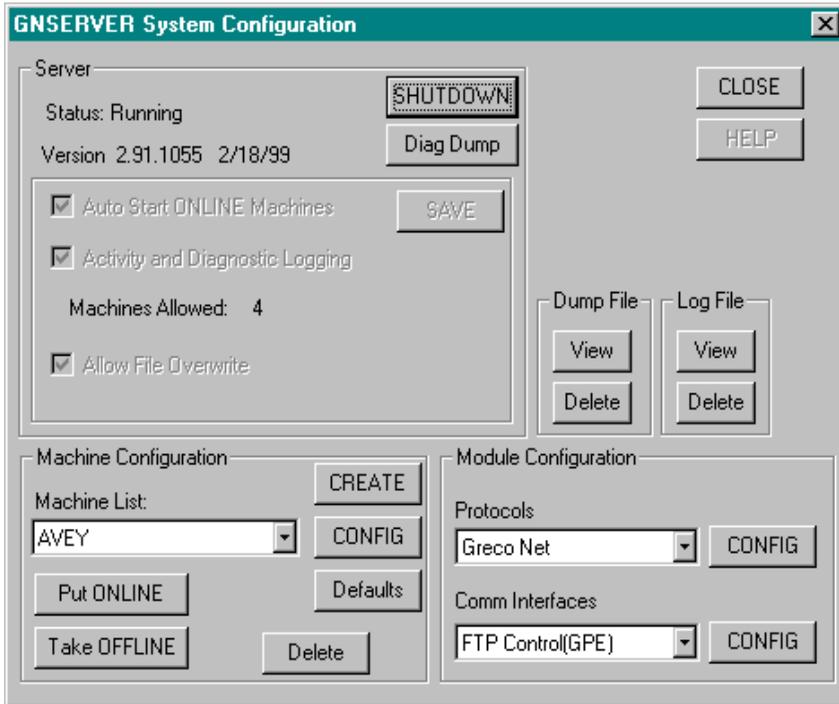
Now you must inform WinDCS of the devices and protocols you expect it to work with. You will use the GNSERVER System Configuration window, illustrated below. To bring up this window:

Note: *If your WinDCS is already started, skip step 1, and go on to step 2.*

1. On the **Task Bar** click **Start**, then **Programs**, then **Greco Systems**, then **WinDCS**, then **WinDCS**.
2. In the WinDCS window, click the **Admin Screen** button. (See *Operator Screen Functional Descriptions* section.)

3. In the Administration window that appears, click the **Configuration** tab. (See *Configuration Screen Functional Descriptions* section for complete descriptions of this an all configuration screens.)
4. In the Configuration screen click the **Machine Configuration** button.

The GNSERVER System Configuration window appears. This window has a Machine Configuration section.



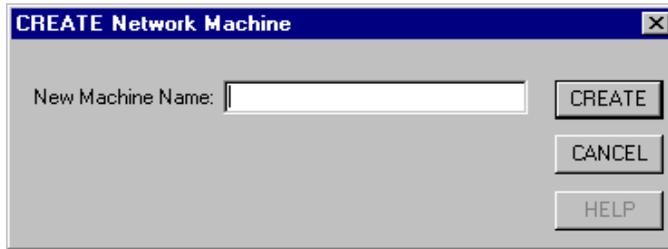
Note: *If you are going to add a new machine as part of this installation, do **Adding a New Machine**, below, next.*

Note: *If this installation is an upgrade or reinstall, and you already have your database of machines, you can select the machine you want to configure from the **Machine List** field in the **Machine Configuration** section. Ignore the **Adding a New Machine** procedure below, and skip to the **Configuring a Machine** procedure.*

Note: Detailed instructions for all of the controls in the GNSERVER System Configuration window are found in the **Configuration Window Functional Descriptions** section later in this manual.

Adding a New Machine

1. In the GNSERVER System Configuration window described above, in the Machine Configuration section, click on the CREATE button

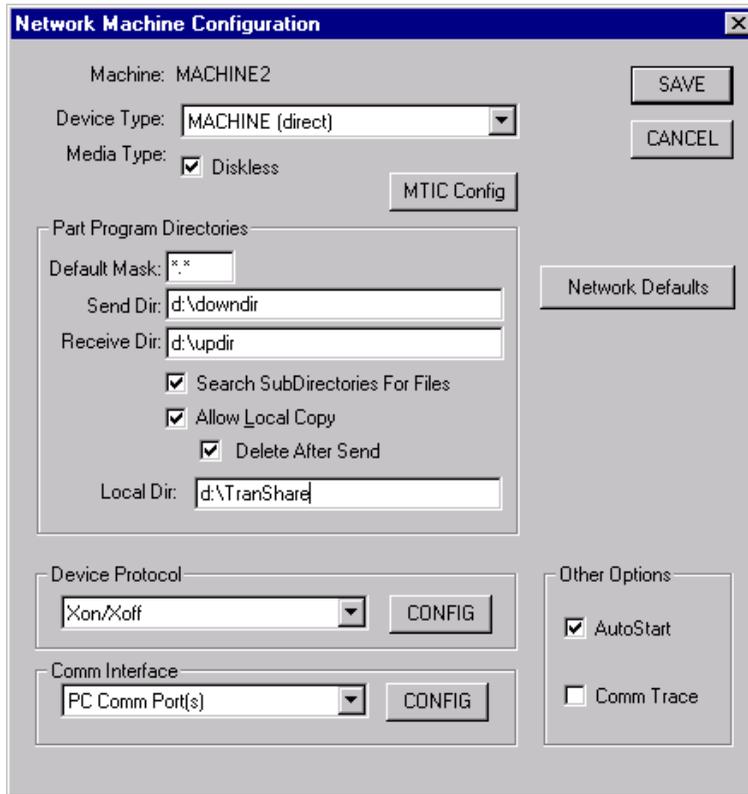


2. In the CREATE Network Machine dialog that appears, type in the name of the new machine. You can use up to 18 characters. You can use any characters except the dash or space.
3. Click the CREATE button.

The Network Machine Configuration screen appears, and you can go on to step 2 of the following Configuring a Machine procedure.

Configuring a Machine

1. In the GNSERVER System Configuration window described above, in the Machine Configuration section, click on the CONFIG button. *Take the machine offline if you get a message to do so. The Network Machine Configuration window will appear (See Network Machine Configuration description).*



2. **Allow Local Copy:** In order to prevent from stopping to send data when network goes down (if “Send Dir” directory is not in the local machine) during machine is transferring data, user can check “Allow Local Copy” check box. Before sending data, the selected file from “Send Dir” directory is copied to the “Local Dir” directory. If “Delete After Send” box is checked, then after the selected file was sent, this file in the “Local Dir” directory is deleted (See Network Machine Configuration Window description).
3. **Device Protocol:** In the Network Machine Configuration window, in the Device Protocol section of the screen, select the desired protocol from the protocol field, and then click on the CONFIG button next to it (See “Direct-Connect Protocol Configuration” Window description).

Note: *A protocol dialog screen will appear. Each protocol type has its own version of this screen.*

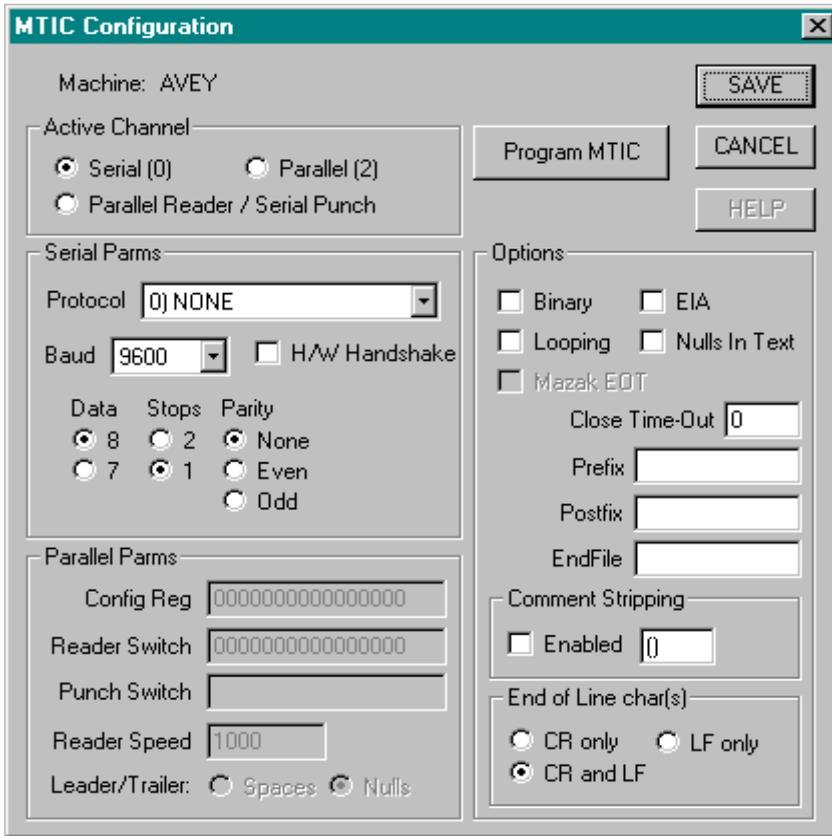
4. Make all necessary changes to the parameters in this screen, using the Greco Systems Application Notes and then click on the SAVE button to save the settings and return to the GNSERVER System Configuration window.
5. In the Network Machine Configuration window, then in the Comm Interface section, select the Config Button communications interface from the dropdown menu.

Note: *A comm interface dialog screen will appear. Each interface type has its own version of this screen.*

6. Make any necessary changes to the parameters in this screen then click on Config Button.

Note: *If you are specifying a port from a multiport interface, the value specified must match the actual hardware port that the device is physically connected to.*

7. (a) If this machine is not a machine tool interface control (MTIC) device, click on the SAVE button to save the settings and return to the GNSERVER System Configuration window. *You will be given the opportunity at this time to place the machine back on line or to wait and do it later.*
 - (b) If this machine is an MTIC device, then in the Network Machine Configuration window, click on the MTIC Config button.



8. Make the necessary changes to the MTIC Configuration screen, and then:
 - (a) If the MTIC is already powered up, and is connected to the network, and GNSERVER is running, then click on the Program MTIC button to immediately program the settings into the MTIC.
 - (b) If the MTIC is not already powered up, Click on the SAVE button to save the settings to the server. *You will then be returned to the Network Machine Configuration window.*

Note *If step b above applies, you must return later to enter these settings into the MTIC device itself, after the machine is powered up and connected to the network, before the new settings will take effect.*

9. On the Network Machine Configuration screen, click the Network Defaults button to bring up the Network Function Default Options dialog.

10. Set the appropriate network file transfer options for the specific machine you are configuring..
11. Click the SAVE button, and when you are returned to the Network Machine Configuration screen, click the SAVE button there also. Then close the GNSERVER and Administration windows in turn to return to the WinDCS window.
12. If this is a reconfiguration of a machine that you have configured before, you can quit the configuration procedure now. If this is a new machine that you have just configured for the first time, then exit WinDCS and start it up again, in order for the creation of the new machine to take effect.

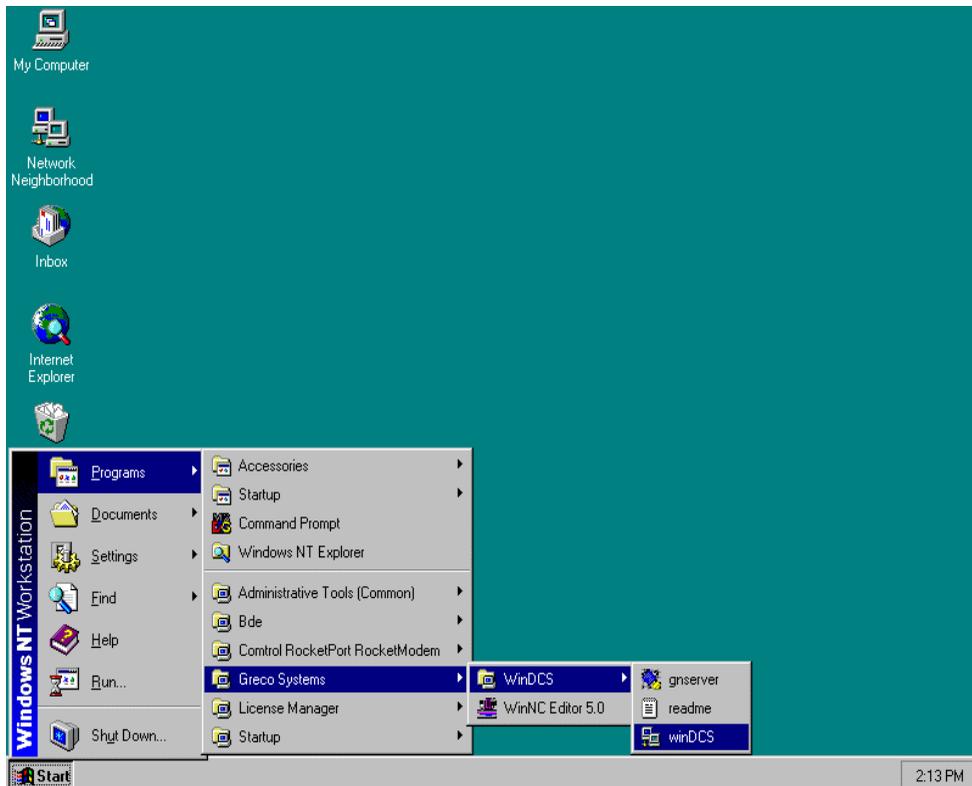
WinDCS Main Screen Functional Descriptions

When you start WinDCS, the WinDCS main screen appears. All WinDCS operations are launched from this window. This section talks about starting WinDCS and describes the controls available on the WinDCS main screen. An item by item description of the controls available on the WinDCS main screen follows the main screen illustration.

Starting WinDCS

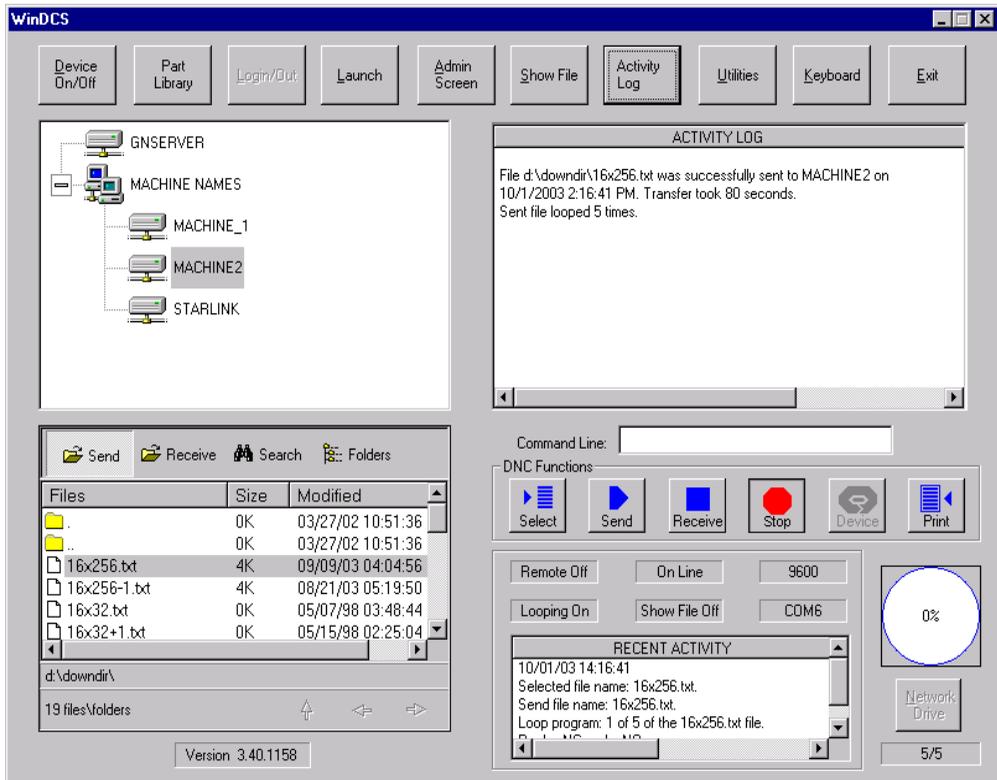
In a typical MTMS installation, WinDCS is configured to start automatically, along with GNSERVER, when your computer boots. This is done by first placing GNSERVER then WinDCS in the Startup folder.

To start WinDCS manually: From the Task Bar, click **Start | Programs | Greco Systems | WinDCS**. From there, click the **WinDCS** icon. See illustration below.



WinDCS Main Screen Controls

When you start WinDCS the window illustrated below appears. All WinDCS production related operations are launched from this window. An item by item description of the controls available on this screen follows the illustration.



System Control Buttons (Top of Screen)

Device On/Off	Highlight a device on the system diagram in the upper left graphics field of the window, and then click this button to toggle the device ON or OFF. CAUTION: Choosing Device Off when GNSERVER is highlighted will open the server shutdown dialog. (You can choose Cancel to back out.) See <i>Configuration Windows</i> section.
Part Library	Active only if the Part Library database was created. Click for access to the database.
Login/Out	Active only if system security is enforced. Click to open the Login or Logout screen, as appropriate.
Launch	Highlight a file name and then click this button to Launch the associated program, determined by the file extension.
Admin Screen	Opens the Administration window, which allows the user to do limited editing on configuration, file management, and tool buttons. This window is described in greater detail later in this section.
Show File	Displays the part program in the show-file fields. Displays character-for-character, in real time. The top field shows characters that have left the port or Greco device. The bottom field shows the characters before they are sent.
Activity Log	Displays a log in the show-file/activity-log field describing the periods of recent activity for the device highlighted in the system diagram.
Utilities	Displays buttons that take you to other applications, if any are defined. Use the Admin Utility Cfg screen to define these buttons.
Keyboard	Displays an image of a keyboard. On Touch Station computers, the operator can touch the keys to type on the keyboard image to enter data into a field. If you have a mouse, you can place the mouse cursor on the keys and click to type.
Exit	Displays Quit dialog. Asks if you want to quit. If yes, quits WinDCS and leaves GrecoNet Server running.

GrecoNet Diagram Graphics Field

This is the large panel in the upper left quadrant of screen. The field displays a diagram of the existing system. The diagram shows which devices are currently connected to, and can communicate with the software and the rest of the system.

The operator highlights a device on this diagram to select it. Operations that the operator performs in other parts of the WinDCS window then apply to the selected device.

Show-File/Activity-Log Panel

Show File Mode

When the Show File button is clicked, this panel displays the part program in two Show-File fields, in real time. The top field shows the program character-for-character as they exit the port or Greco Systems device. The bottom field shows character-for-character as they are about to exit the port or Greco Device.

Activity Log Mode

When the Activity Log button is clicked, this panel displays a log of periods of recent activity for the device highlighted in the system diagram.

Utilities Mode

If any utility buttons are defined, then you can click the Utilities button to display those buttons in the show-file/activity-log field. The utility buttons are used to open other applications from WinDCS. Use the **WinDCS | Administration | Utility Cfg** screen to create these buttons.

Files Panel

The files panel is in the lower left quarter of screen. It includes a Files field that lists your DNC files and folders. You can browse here to find the files that you want to send. By default it starts in the folder for parts programs for the machine selected in the GrecoNet graphics field diagram above it. The path for the directory you are in is displayed below the files list.

There are several buttons associated with this window. They are listed here:

Send folder	Opens the Send folder for the highlighted device.
Receive folder	Opens the Receive folder for the highlighted device.
Search	Opens a Find file dialog box from where you can start a search for the file name you enter into the dialog.

Folders	Drops down the list of other folders available. Use the Admin Add Folders to define.
Up, Left, and Right arrow	Can be used for moving to another, highlighted folder within the files list. An arrow is inactive unless red (showing that a folder is highlighted).

Command Line Field

This field is in the lower right quarter of the WinDCS window. Type a file name into this field, and then click the DNC Functions Send button to download it.

DNC Functions Buttons

When you have selected the device, and the file to be sent or received, you then select the DNC Function. This row of buttons is in the lower right quadrant of the screen.

Select button	Opens the Select Options window, where you choose aspects of how this file will be sent. This dialog is described in detail later in this section.
Send button	Sends the file you have selected to the machine you selected.
Receive button	Opens the Receive File window, where you select or name the file to receive from the machine you have selected. Described in detail later in this section.
Stop button	Stops the transmission of the file, and ends the task.
Device button	Opens Device window, which lists the files on the diskette from the currently selected Greco device. If the device is not a Greco device or does not have a diskette, this button is grayed out. Described later in section.
Print button	Opens Print Options dialog allowing you to choose options, and then send file to the printer.

Status/Activity Panel

The Status/Activity panel is in the lower right corner of the window, underneath the DNC Functions buttons. These fields are not directly editable. They display status and configuration.

Device name	The name of the selected device.
Remote On/Off	Indicates whether the Remote function is ON or OFF.

Looping On/Off	Indicates whether the Looping function is ON or OFF. Determined in DNC Functions Select Select Options window.
On/Off Line	Indicates whether the selected device is ON or OFF line.
Show File On/Off	Indicates whether the Show File function is ON or OFF.
Baud rate	Shows rate of data transmission in BAUD for the selected device.
COM#	Shows which communications port, of the selected device, is being used for the current transmission.
Recent Activity	Displays a log of the most recent activity of the selected device.
Pie Chart	Shows graphically, in real time, how much of the file transmission is completed. Chart is accompanied by a numerical display of the percentage of completion.
Network Drive	Button for returning to network drive when the LAN returns to operation. Active only with the Local Copy feature, after the local directory was used.
1/1	This field, in the extreme bottom right corner, shows the number of times the file is to be transmitted (bottom number) and the iteration number it is currently on (top number). Displays the word “infinite” when infinite times are chosen. Repetitions determined in DNC Functions Select Select Options window.

Standard Buttons

The following buttons are standard windows controls, and they appear in many of the applications screens in this book. To avoid constant repetition these buttons are described just once, here.

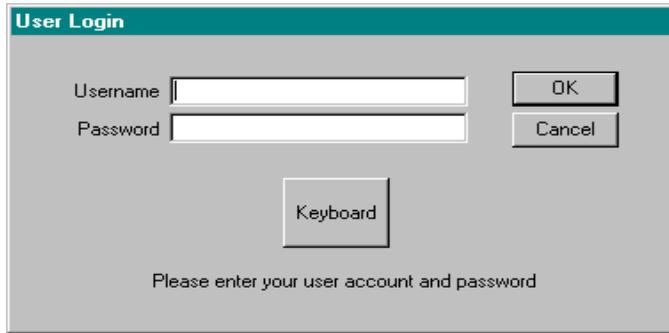
OK	Closes the message or dialog box. If this is an editable window, it saves any changes you have made, and then closes the window.
Save	Saves any changes you may have made, and closes the window or dialog box.
Cancel	Closes the window or dialog box without saving any changes you may have made.
Help	Not implemented at time of this writing.

The Keyboard button has a special meaning within WinDCS windows and dialog boxes:

Keyboard Displays an image of a keyboard for use with touch screen computers. See *WinDCS Main Screen, Main/System Buttons*, above.

Note: *The following sections describe the screens subordinate to the WinDCS main screen.*

Login Dialog



Purpose

When security is enforced in your copy of this software, you will have to log in with your user name and password in order to use WinDCS. You will have access only to those user functions assigned to you by the System Administrator.

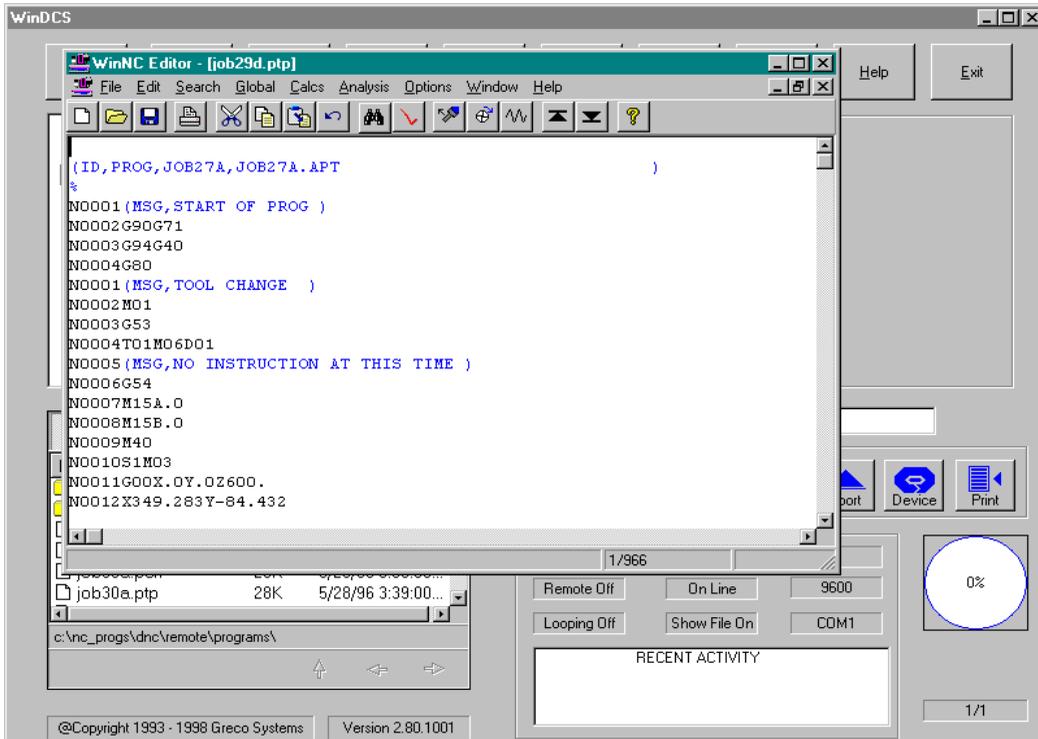
Access

When security is enforced in your copy of this software, click the **Login/Out** button. If security is not being enforced, this button will be grayed out.

Description

Username	Enter the unique name assigned to you, by which the computer security program will recognize you as a legitimate user.
Password	Enter the unique password assigned to your username, by which the computer security program can assume that you are truly the user whose username you gave. The password will not print out on your screen, but instead, each of its letters will appear as asterisks.

WinNC Editor Screen



Purpose

Use the WinNC Editor to view or change the text in a file.

Access

In the WinDCS Main Screen, double click on an associated file in the Files Panel or highlight it and click the Launch button. See *Add File Extensions*.

Description

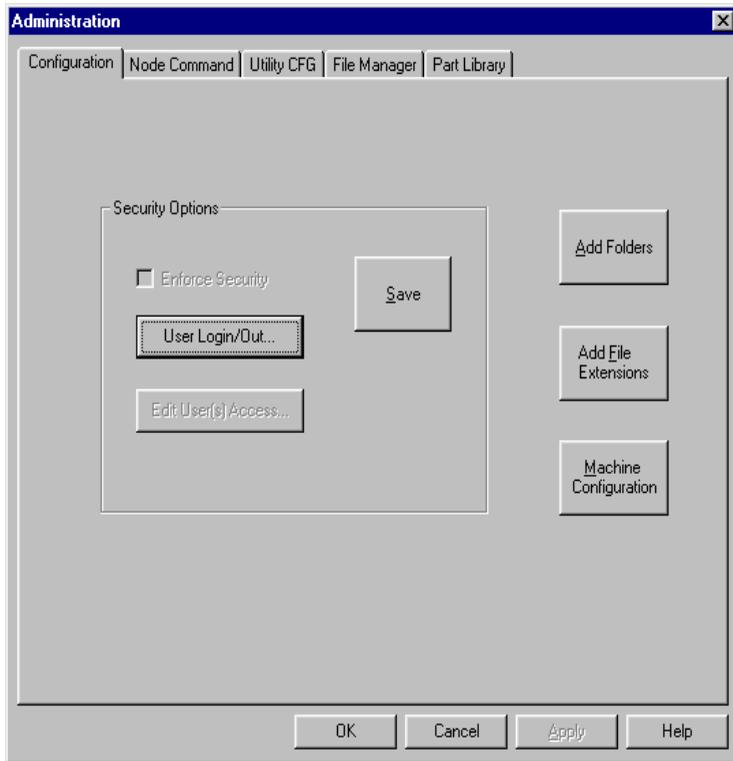
The WinNC Editor has its own manual, which is delivered with the software. Refer to that manual for details. Note that the disposition of your edited file will depend on how you save it.

- Saving it with a new name will save both the new and the original file in the original directory.

- Saving it with a new path will place the changed file in a different directory and leave the original file in the original directory.

CAUTION: Be sure to save the edited file such that it can be used as intended.

Administration Screen



Purpose

This window is used for originally setting up the system after installation (See *Installation* section), and also for adding and reconfiguring devices later, for upgrades and recovery.

This description penetrates to the second level (to the five tabs) only. The windows subordinate to this window are described in the *Administration Screen Functional Descriptions* section, later in this manual.

Access

From the main WinDCS window, in the Main Screen Control Buttons, click the **Admin Screen** button.

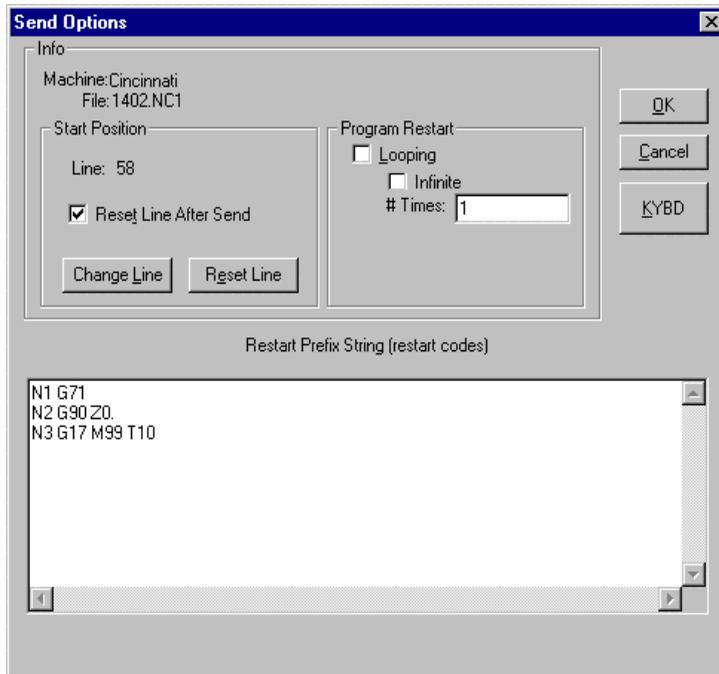
Description

Besides the following description, refer to the *Administration Screen Functional Descriptions* section where the tab screens are described in detail.

Configuration tab	Add Folders button	This buttons opens the Add Folders window. Use of this window is described in greater detail in the <i>Configuration Screen Functional Descriptions</i> section.
	Add File Extensions button	This button opens the Add File Extensions List window. Use of this window is described in greater detail in the <i>Configuration Screen Functional Descriptions</i> section.
	Machine Configuration button	This button opens the ActiveDNC Server Configuration applet. Use of this window is described in greater detail in the ActiveDNC Server Configuration Program section.
	Security Options panel	Check Enforce Security to make users log in to use the system. The User Login/Out button opens the User Login dialog. The Edit Users Access button allows you to create, change, or delete a user name and/or password. See <i>Configuration Screen Functional Descriptions</i> section.
Utility CFG tab	Label Button Options	Allows you to create, define and label up to five Utilities buttons. See <i>WinDCS Main Screen</i> buttons, above.
	Add Label button	Save current button configuration.
	Browse button	Browse to define the button-launched application.
	Delete Label button	Delete the selected button label.

	Log Files Option	Allows you to enable the creation of log files and the time intervals covered by each one.
File Manager tab	The individual controls on this screen are described later.	Browse, copy, rename, delete, or print files in your directories. See <i>Administration Screen Functional Descriptions</i> .
Part Library tab	Enable Part Library box	Select or de-select.
	Save Part Library button	Put above box into effect.

Select Options Window



Purpose

With this window you can choose to:

- Start a program at some point other than the beginning.

- Repeat the send automatically a specified number of times.
- Edit the NC code restart table.

Access

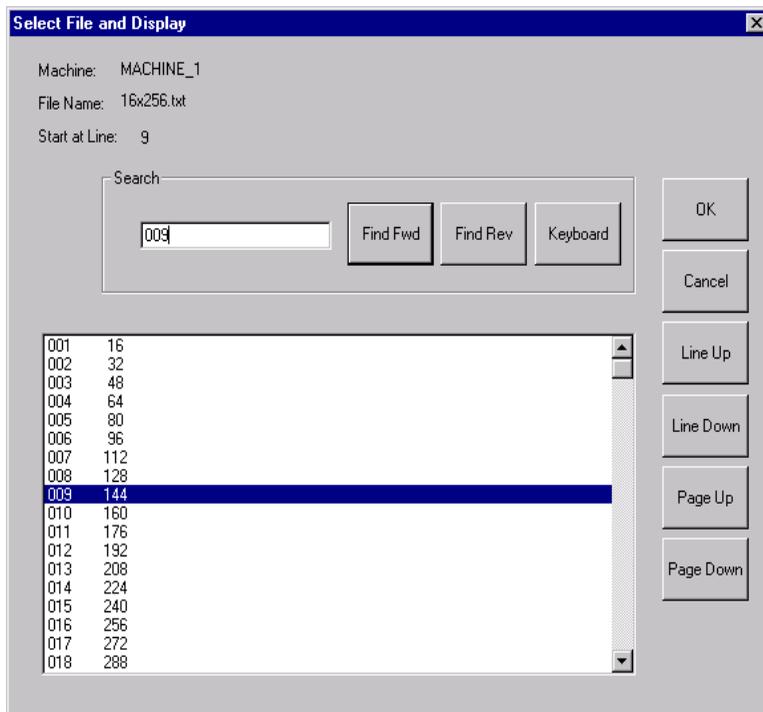
From the WinDCS main screen, among the DNC Function buttons, click the **Select** button.

Description

Info panel Header identifying the machine and the program file being used.	Machine field	Displays the name of the selected machine.
	File field	Displays the name of the selected program file to be sent.
Start Position panel Set parameters associated with starting programs on a line other than the first. See CAUTION at end of this table.	Line # field	Displays the number of the line in the program where the program will begin sending. See Change Line button.
	Reset Line After Send	If start line number is not one, you can check here to automatically reset the start line to one in the original file once the send is completed.
	Change Line button	Click to open Set File Start Position window. Used to set program start line.
	Reset Line button	Click to manually reset the start line to one.
Program Restart panel Set parameters associated with automatically repeated file sends.	Looping check box	Check to allow multiple sends.
	Infinite check box	Check to allow infinite repetitions. (Until manually stopped. See DNC Functions buttons in main window.)
	# Times field	Number of repeated sends (if Infinite is not checked).
Restart Prefix String area	Type in whatever sequence numbers, word addresses, special function codes, etc. that need to be sent to the machine prior to the restart point in the program.	

CAUTION: *Starting program sends at places other than the beginning can be dangerous to parts, machines and personnel. Ensure that the machine is properly positioned and readied by the Restart Prefix String.*

Set File Start Position Window



Purpose

Choose the precise line in the program where the program will start sending.

Access

From the Select Options window, in the Start Position panel, click the **Change Line** button.

Description

You can find the line several ways:

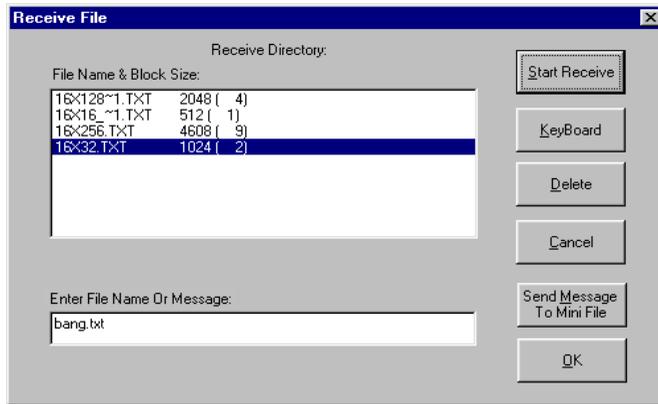
- Scroll up or down the lines of code one line at a time.

- Scroll up or down the lines of code one page at a time.

- Type some of the line of code into the Search window, and click a Find button.

Machine field	Displays the name of the selected machine.
Filename field	Displays the name of the program file being searched.
Start at field	Displays the line number of the currently selected line.
Top Line = field	Displays the number of the first line in the display.
Program display field	Displays the contents of the program file. In this field you can scroll through the program and highlight the line you want to start on. When you have found the line, then you must click on it to highlight (select) it.
Search field	Type the first part of the line you want to start on and then click the Find button.
Find Fwd button	Type the first part of the line you want to start on and then click this button to search down through the code for a matching line.
Find Rev button	Type the first part of the line you want to start on and then click this button to search up through the code for a matching line.
Line Up button	Click to scroll up one line of code.
Keyboard	Click to display soft keyboard to enter data in the Search edit box.
Line Down button	Click to scroll down one line of code.
Page Up button	Click to scroll up one page of code.
Page Down button	Click to scroll down one page of code.
OK button	Click to save line choice and exit this window.

Receive File Window



Purpose

Use this window to browse the Greco device on the machine you have selected and select the file you want to receive from that device, or enter the name of the receive file from a directly connected machine.

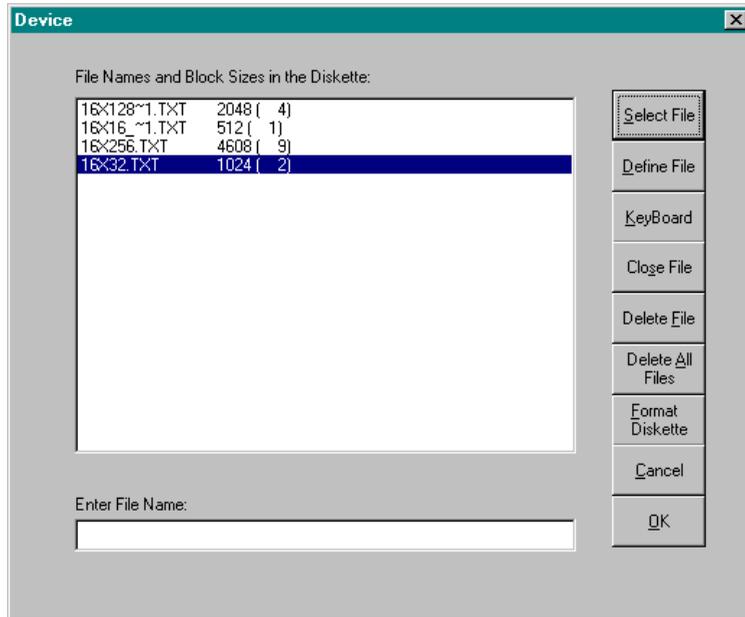
Access

From the WinDCS main window, among the DNC Functions buttons, click the **Receive** button.

Description

File Name and Block Size field	Displays the file name and block size of all files stored on the Greco device at the machine.
Start Receive button	Click button to start receiving the selected file from a Greco Device to the PC Receive directory.
File Name or Message field	Enter file name to be received if not a Greco device.
Delete button	Click to delete the selected file from the Greco device at the machine. (Grayed-out if not a Greco device).
Send Message to Minifile button	Type a message in the Enter File Name or Message field, then click Send Message to Minifile button to send the message to the Minifile. (Grayed-out if not a Greco device).

Device Window



Purpose

This window lists the files on the diskette of the currently selected Greco device. If the device is not a Greco device or does not have a diskette, this screen is not accessible.

Access

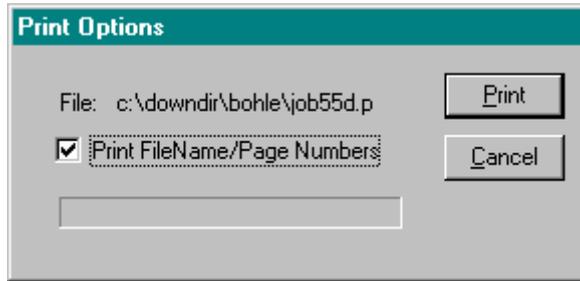
From the WinDCS main window, among the DNC Functions buttons, click the **Device** button. If the device is not a Greco device or does not have a diskette, this button is grayed out.

Description

File Names and Block Sizes in the Diskette	This field lists the names and block sizes of the files stored on the device diskette. Highlight the file you want to receive into your PC or delete.
Enter File Name	Enter the name of the file to be stored on the device diskette, then click Define File button.
Select File button	Highlight a file name from a device. Click this button to send

	contents of the file to another machine or control.
Define File button	If you used the Enter File Name field, click this button to create the new file name you entered. After creating the file at the PC, you can then go to the machine or device and send the contents of the new file. After closing communications, the new file is stored in the drive in the device.
Close File button	Click to close the file on the drive on the Greco device, after it is transferred between the device and the machine control. When closed, a message appears.
Delete File button	When clicked, deletes any file you have highlighted in the File Names and Block Sizes... field.
Delete All Files button	Click to delete all files from the drive on the Greco device.
Format Diskette button	Click to format a new, unformatted diskette on the selected Greco device . The device must be on line. <i>CAUTION: If the diskette has been used, formatting will completely erase everything on the diskette.</i>

Print Dialog



Purpose

Use this dialog box to tell the printer to print, or not print, the file name and page number on each page of the printout.

Access

This dialog box appears when you click the DNC Functions **Print** button to print a file.

Description

File field	Displays the name of the file selected for printing.
Print File Name/Page Numbers Check box	When checked, the file name and page number of will be printed on each page of the printout.

Keyboard Screen



Purpose

The keyboard screen is used when a hardware keyboard is unavailable or inconvenient, such as when the computer is a touch screen station in a shop environment. It allows the operator to enter and edit data in applications windows by touching the image keys (on a touch screen computer) or by clicking the image keys with a mouse.

Access

Click the **Keyboard** button from any screen on which the button is included. Each screen that requires the keyboard function includes the Keyboard button.

Description

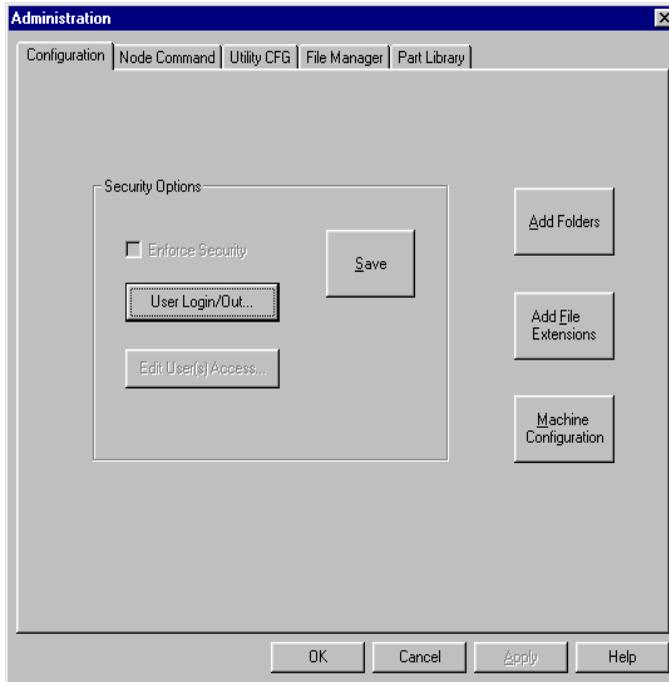
Type/Edit field	What you type on the image keys is readable in this field. When you are done, you click or touch the OK button. Then, what is typed into this field enters the field on the application screen where you left your cursor before calling up the keyboard.
Number/Symbol keys	These keys are unaffected by the Upper/Lower Case button. They always type the character just as they are labeled.
Alphabetical keys	These keys will type upper case or lower case alphabetical characters. When the Case button reads Upper Case the typed characters are upper case, and likewise for Lower Case.

Upper/Lower Case button	When the Case button reads Upper Case, any alphabetical characters you type appear in upper case. Likewise for Lower Case.
Space bar	When typed between two characters, this button places a space between the characters that is equal to the spacing between words.
Cancel button	Closes the keyboard screen without entering any of the data typed.
OK button	When you click or touch the OK button, what you typed into the Keyboard Type/Edit field enters the field on the application screen where you left your cursor before calling up the keyboard.

Administration Screen Functional Descriptions

The Administration window is used for originally setting up the system after installation, and also for adding and reconfiguring devices later, for upgrades and recovery. This section describes the purpose of each of the tabbed sections of the Administration screen.

Configuration Tab



Purpose

Use this screen to call up all windows used for setting up security options and configuring machine interfaces and protocols.

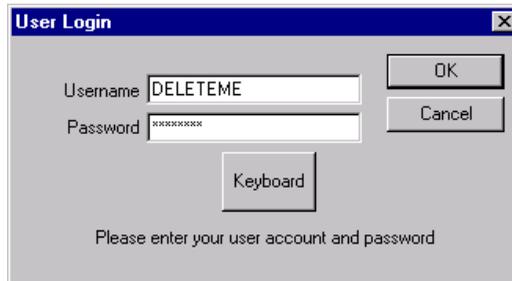
Access

1. From the WinDCS main window, click the Admin Screen button.
2. From the Administration window, click the Configuration tab.

Description

Add Folders button	This button opens the Add Folders window. Use of this window is described in detail in the <i>Configuration Screen Functional Descriptions</i> section.
Add File Extensions button	This button opens the Add File Extensions List window. Use of this window is described in detail in the <i>Configuration Screen Functional Descriptions</i> section.
Machine Configuration button	This button opens the GNSERVER System Configuration window. Use of this window is described in the <i>Configuration Screen Functional Descriptions</i> section.
Security Options panel	Enforce Security: Check to make users log on to use the system. User Login/Out: This button opens the User Login dialog. Edit Users Access: This button allows you to create, change, or delete a user name and/or password. See <i>Configuration Screen Functional Descriptions</i> section.

User Log In/Out



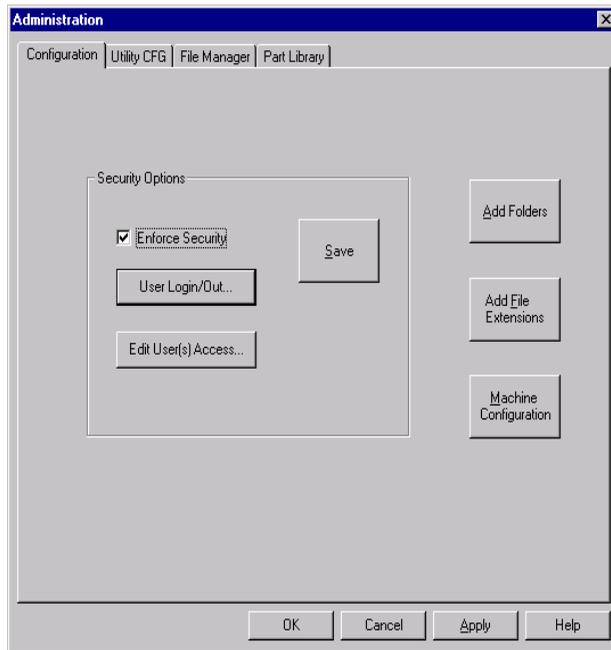
Purpose

Use this window to enter user log in or out.

Access

1. From WinDCS, click on Admin Screen button.
2. From Configuration tab click on the Login/Out button.

3. The User Login window will be displayed.
 - Type in the Username and Password. (default: Username – DELETEME, Password – deleteme)
 - Click OK to enable the security features and return to previous level.
4. Check Enforce Security checkbox to activate the enforcement of the security settings.



5. Click SAVE to save the Enforce Security checkbox setting.

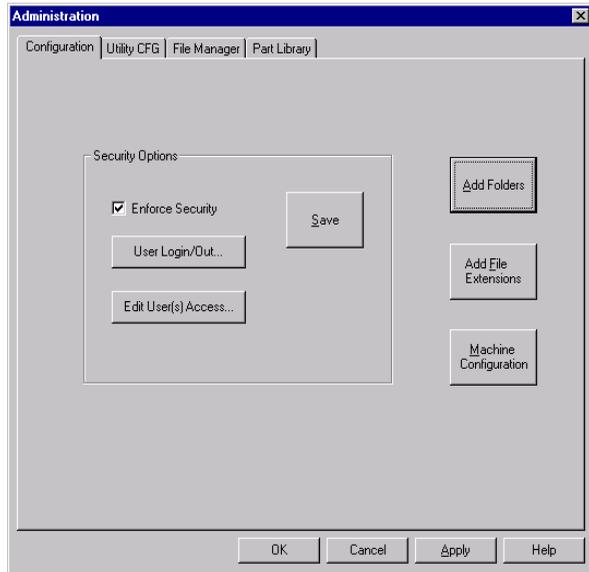
Add Folder

Purpose

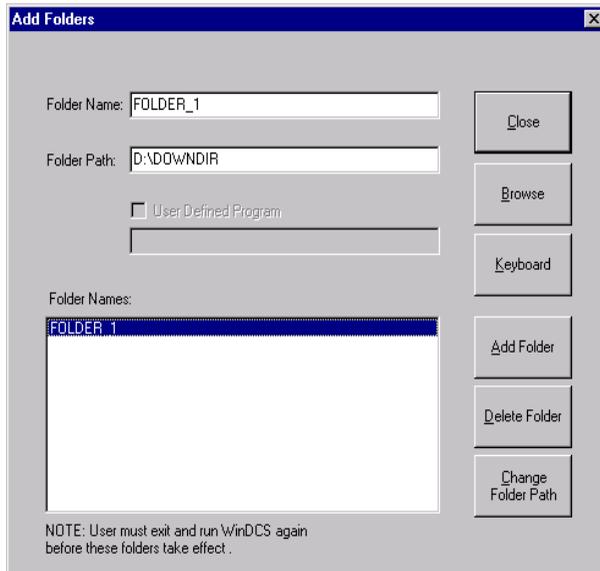
Use this window to create different folders with different paths to store data.

Access

1. From WinDCS main window, click on Admin Screen button to display the Administration window.



2. From Configuration tab, click on Add Folders to display the Add Folders window.



- Type the folder name in the Folder Name edit box (i.e. FOLDER_1).

- Use the Browse button to enter the path name for the folder (i.e. \\servername\folder_1).
 - Click on the Add Folder button to add the folder to the list.
 - From the Add Folders window, the user can add, delete, and change the folder path.
3. Close the Add Folders window and exit WinDCS to update the new data.
 4. Invoke WinDCS again.
 5. From WinDCS main window, in the Files Panel, click on “folders” button and select a defined folder (e.i. FOLDER_1).
 6. Data from the defined folder will be displayed.
 7. The user can delete a folder by selecting the folder name and click on the Delete Folder button.
 8. The user can change the Folder path by selecting the folder name and clicking on the Change Folder Path button. The user must exit and re-invoke WinDCS again.

Add File extensions

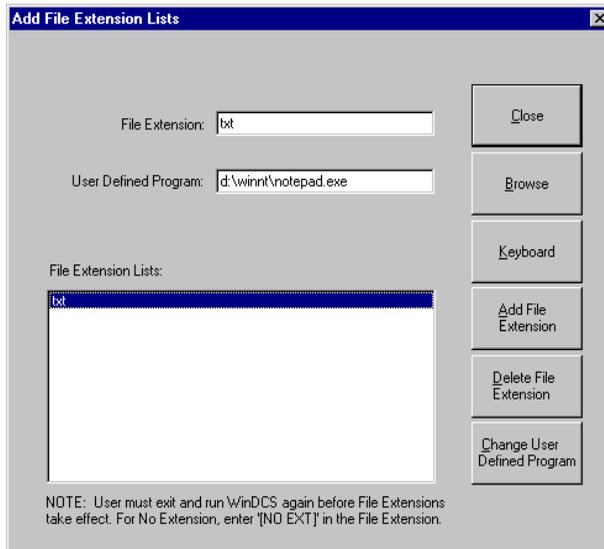
Purpose

Use this window to create different file extensions to invoke different user defined programs.

For example: with file extension such as *.txt, the user can double click or use the launch button to run the user defined program “c:\windows\notepad.exe program to view/edit a *.txt file.

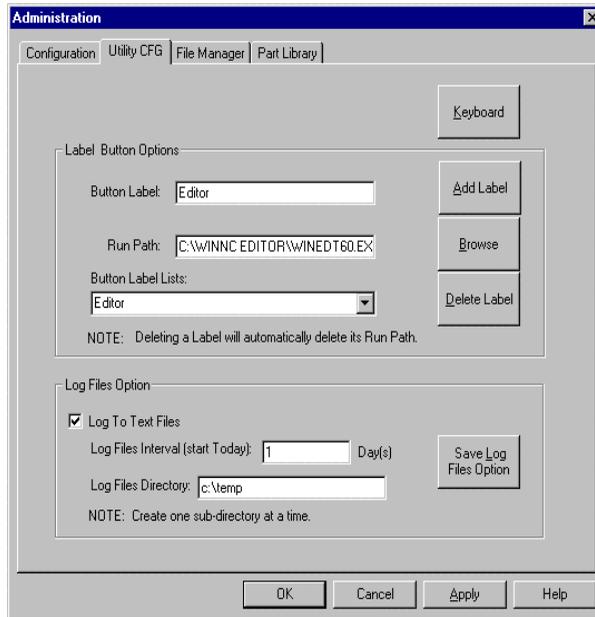
Access

1. From WinDCS, click on the Admin Screen button to display the Administration window.
2. From Configuration tab, click Add File Extension button.
3. The Add File Extension Lists window will be displayed.



- Enter the file extension (i.e. txt).
 - Use the Browse button to select the program (i.e. c:\winnt\notepad.exe).
 - Click on the Add File Extension button.
 - From Add File Extensions window, the user can add and delete File extensions and the defined programs.
4. Close the Add File Extension Lists window and exit WinDCS to update the new data.
 5. Invoke WinDCS again.
 6. From WinDCS main window, select machine name for example MACHINE_1.
 - Highlight the file name (i.e. 16x256.TXT).
 - Double click or click the Launch button to have the program Notepad.exe open this file for editing (only files with the extension of *.txt will be invoked by notepad.exe).

Utility CFG Tab



Purpose

Use this screen to create, define and label the **Utilities** buttons, which appear in the WinDCS Main Screen when the **Utilities** button is clicked; and to enable and configure the Log Files option. See *WinDCS Main Screen Functional Descriptions*, above.

Access

1. From the WinDCS main window, click the Admin Screen button.
2. From the Administration window, click the Utility CFG tab.
3. Define a button by associating it with a path to the .exe file of another application. These can be accessories such as Notepad, or associated applications such as the WinShop Production Ticket.

Description

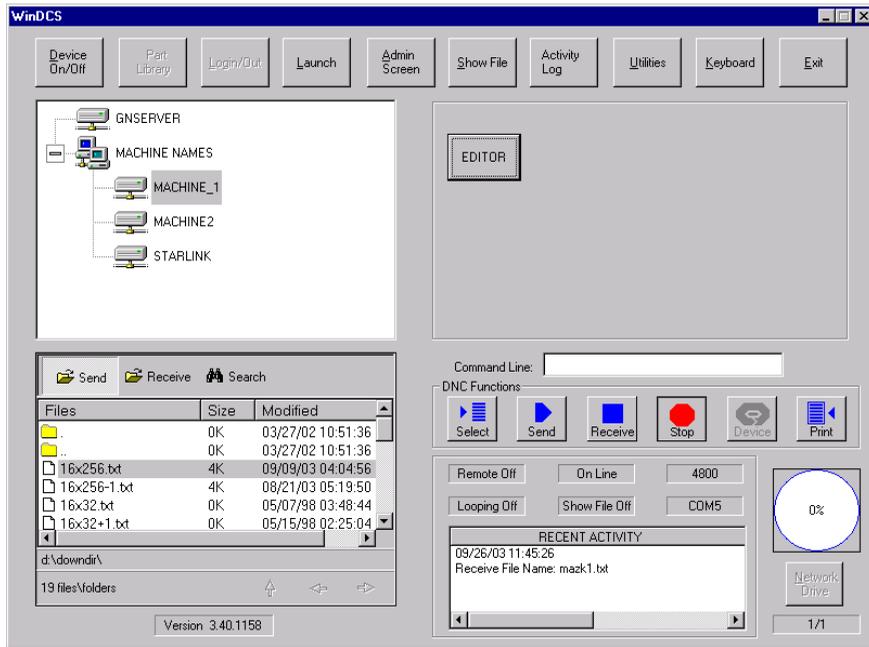
Label Button Options Create, define and label the Utilities buttons. (See <i>WinDCS Main Screen</i> buttons, above.)	Button Label field	Type in the name that will appear on the utility button you are creating.
	Run Path field	Type in the path to the .exe file of the application you want started by this button.
	Button Label Lists field	Dropdown list of buttons already created. Each new button created is automatically added to the list. Only five can be created.
Add Label button	Click to add new button label.	
Browse button	Click to browse to .exe file. Run path will be filled when done.	
Delete Label button	Click to delete the highlighted button label.	
Log to Text Files	Place a checkmark there to enable the creation of log files. Remove checkmark to disable.	
Log Files Interval (start Today)	Whole number of days covered by the log files. For instance, if set to 7, a new file will be created each week.	
Log Files Directory	Folder in which to store the log files. The entire path may be entered. If a non-existent folder name is entered it will be created as a sub folder of the WinDNC32 directory.	

Add Button Label

Access

1. From the WinDCS main window, click the Admin Screen button.
2. From the Administration window, click the Utility CFG tab.
 - Define a button by associating it with a path to the .exe file of another application. These can be accessories such as Notepad, or associated applications. Enter Button label name: for example “Editor”.
 - Enter Run path (i.e. \\winnt\system32\notepad.exe).
 - Click on the Add label button to create and save the button.
 - The user can create a maximum of 6 button labels.
 - Click the OK button to return the WinDCS main window.

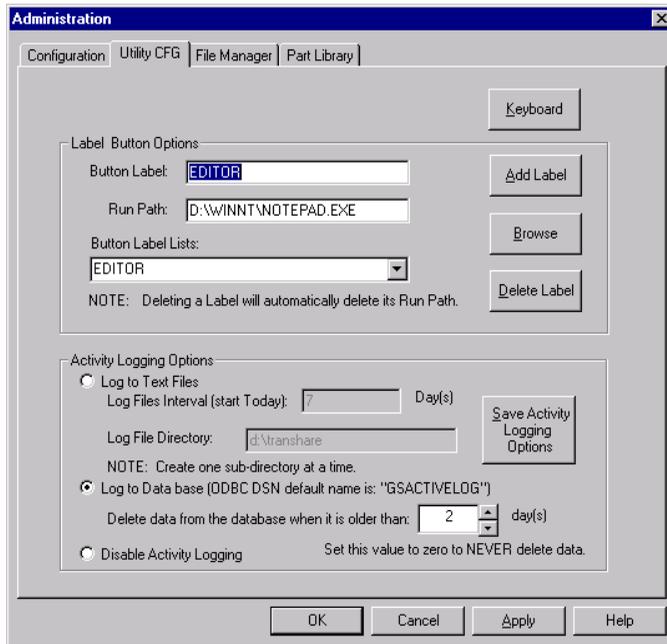
3. From the WinDCS main window, click Utilities button.
 - The below Main WinDCS window shows that after the user clicks the Utilities button the Editor button will be displayed.
 - Highlight a file name and then click the “Editor” button. The Notepad.exe program will be invoked to open this file for editing.



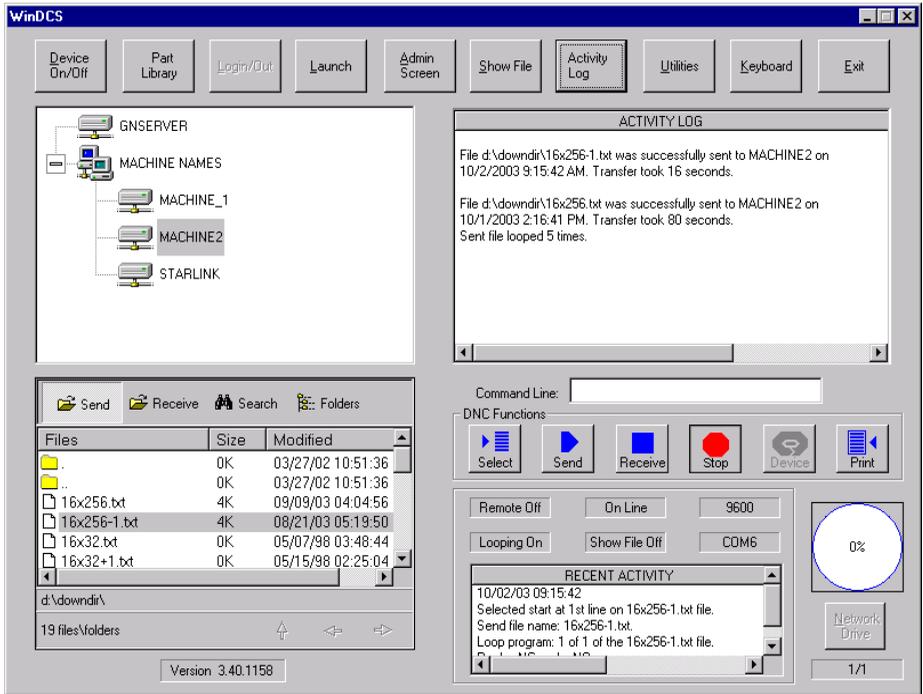
Log File Option

Access

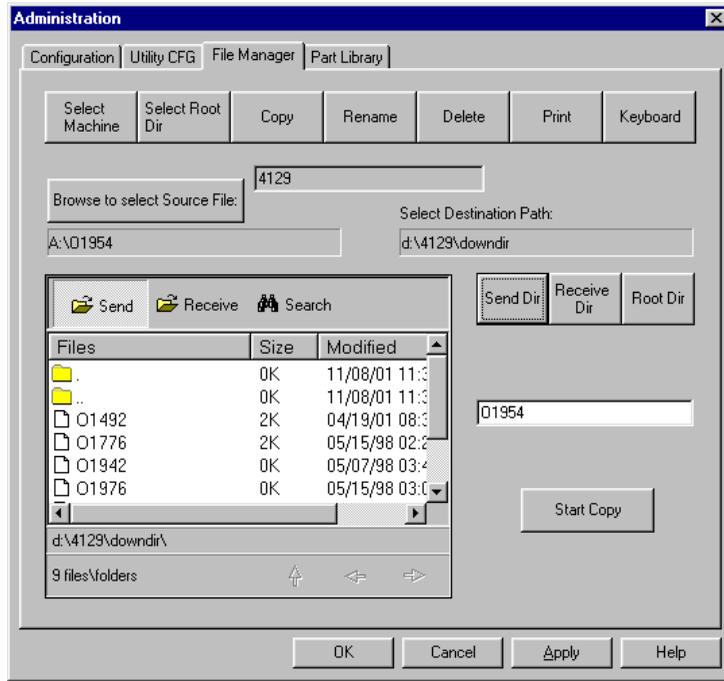
1. From the WinDCS main window, click the Admin Screen button.
2. From the Administration window, click the Utility CFG tab to access the Log File options.



- User can either select Log to Text File, Log to Database or Disable Activity Logging option.
 - Enter Log File Interval (i.e. 3 days).
 - Enter Log file directory. Make sure that the directory allows full access (read and write), if Log to Text Files option is selected. For this option user must delete log files if they are no longer needed.
 - If user selects Log to Database option, he must run ODBC to locate database.
 - Click on the Save Log File Option button to save the Log Files Option setting.
 - If user does not want any log file, select Disable Activity Logging option.
3. The selection of the “Log to Database File” option will result in the Activity Log being displayed in the upper right window of the WinDCS main screen when the Activity Log button is clicked on.



File Manager Tab



Purpose

Use this screen to browse, copy, rename, delete, or print files from your directories.

Access

From the Main WinDCS window, in the Main Screen Control Buttons, click **Admin Screen | File Manager (tab)**.

Description

The File Manager tab illustration, above, shows the screen as it appears when the Copy button is clicked. In the Copy mode all of the possible controls are visible. In the other modes, some of the buttons disappear because they are not functional in those modes.

<p>Mode buttons</p> <p>These buttons, along the top row of the screen, prepare the screen for each of the basic file management operations.</p>	<p>Select Machine</p>	<p>This button brings up the Select Machine dialog box. User selects a machine name to do copying, rename, delete, print associated with this machine.</p>
	<p>Select Root Dir</p>	<p>This button toggles the browse field (in lower left quarter of screen) between the root directory and either the send or the receive directory.</p>
	<p>Copy</p>	<p>Opens the Copy mode of this screen. Displays all of the Copy mode controls.</p>
	<p>Rename</p>	<p>Opens the Rename mode of this screen. Displays the Rename mode controls.</p>
	<p>Delete</p>	<p>Opens the Delete mode of this screen. Displays the Delete mode controls.</p>
	<p>Print</p>	<p>Opens the Print mode of this screen. Displays the Print mode controls.</p>
	<p>Keyboard</p>	<p>Brings up the screen keyboard for touch use.</p>
<p>Browse button</p>	<p>Browse to select Source File</p>	<p>Opens browse dialogs for copy, rename and delete file sources if security is not enforced or DOS dir is checked.</p>
<p>Select Button</p>	<p>Select Source File:</p>	<p>Selects highlighted file from Source File area if security is enforced and DOS dir is not checked.</p>

<p>Source File area</p> <p>When copying a file, you need to specify both a source file and a destination file.</p>	<p>Select Source File button</p>	<p>Select a file name in the browse field, click the Select Source button, and the file name will appear in the Select Source field below it.</p>
	<p>Select Source File field</p>	
	<p>Destination Path field</p>	
<p>Destination File area</p> <p>When copying, sending, or receiving a file, you need to specify a destination file path and name as well as a source file.</p>	<p>Send Dir button (Only present in Copy mode.)</p>	<p>The appropriate path to the directory of the destination file (for machine you selected in the main window) is automatically entered here.</p>
	<p>Receive Dir button (Only present in Copy mode.)</p>	<p>Automatically loads the appropriate destination path of send directory (for machine you selected in the main window) into the destination field.</p>
	<p>Root Dir button (Only present in Copy mode.)</p>	<p>Opens browse dialogs if security is not enforced or DOS dir is checked.</p>
	<p>Destination/New File field (Exact name depends on file management Mode.)</p>	<p>Enter the name of the destination file. (Will be the same as source file if not modified and directory is different.)</p>
	<p>Start Copy/Rename/Delete button (Exact name depends on file management Mode.)</p>	<p>Once all the necessary parameters are entered into this screen, click this button to execute the command.</p>

Part Library Tab

The Part Database option allows greater flexibility in the organization of files used for production. In standard DNC, part programs sent to a machine must be in a particular directory. The part database allows programs to be sent from any legitimate Windows directory.

For each machine, all files relevant to the production of a certain part are entered into the database by part number. Then, using the Part Library rather than the standard Files Panel, operators can access part programs, instructions, drawings, etc. by selecting the machine, the part, and the file.

Setup and Configuration

1. First determine a location for the database and database application. This can be anywhere as long as each WinDCS workstation can map to it.
2. Place the WinDCS CD in your drive.
3. Exit the installation window after it pops up.
4. Open Explorer.
5. Click on your CD ROM drive.
6. Double click on the Part Library folder.
7. Hold the shift key and click both dbutility.exe and gspartlib.mdb.
8. Drag them both onto the folder determined in step 1. (Ensure that gspartlib.mdb is not marked as read only).

To configure the Control Panel applet:

1. Close all applications.
2. Click **Start|Settings|Control Panel** then double click the icon for ODBC (if Windows 2000, double click the Administrative Tools icon first). See below if there is no applet for ODBC.
3. Click the Drivers tab.
4. If the name Microsoft Access Driver (*.mdb) is not listed, see below.
5. If it is, skip the next part.

If there is no applet for ODBC or it does not contain the above driver, perform the following:

1. Close the Control Panel and/or any applications.
2. Place the WinDCS CD in your drive.
3. Once the installation window pops up, highlight an application to activate the Browse button.
4. Click the Browse button.
5. Double click on the Part Library folder.
6. Double click on Mdac_typ.exe.
7. Click the Yes button.
8. Click the Continue button.
9. Click the Complete button.
10. Click the OK button when finished.
11. Click Start|Settings|Control Panel then double click the ODBC icon.
12. Resume according to the following.

To configure the Control Panel applet (cont.):

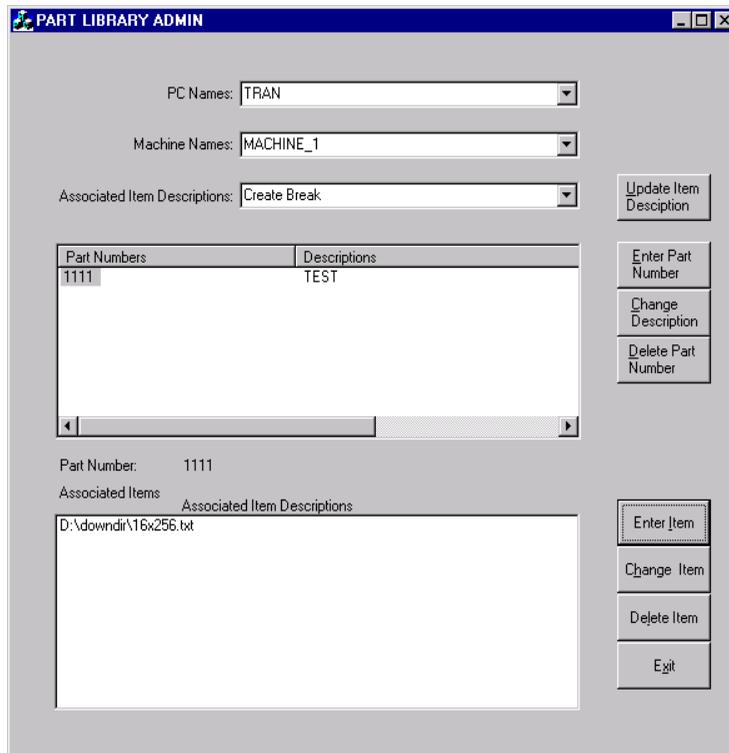
1. Click the System DSN tab.
2. Click the Add button.
3. Select the Microsoft Access Driver (*.mdb) and click Finish.
4. Type GS PART LIB into the Data Source Name field.
5. Click the Select button.
6. Using the file dialog box, find and select "gspartlib" in the folder in which you placed it.
7. Click OK.
8. Click OK.
9. Click OK.
10. Close the Control Panel.

To configure WinDCS:

1. From the WinDCS main window, click the Admin Screen button.
2. Click the Part Library tab.
3. Click the Enable Part Library check box.
4. Click the Save Part Library button.
5. Click OK.

To create and maintain the database:

Run dbutility.exe from the directory in which you placed it.



The screenshot shows the 'PART LIBRARY ADMIN' window. At the top, there are three dropdown menus: 'PC Names' with 'TRAN' selected, 'Machine Names' with 'MACHINE_1' selected, and 'Associated Item Descriptions' with 'Create Break' selected. Below these is a table with two columns: 'Part Numbers' and 'Descriptions'. The table contains one row with '1111' in the first column and 'TEST' in the second. To the right of the table are four buttons: 'Update Item Description', 'Enter Part Number', 'Change Description', and 'Delete Part Number'. Below the table, there is a 'Part Number:' label with the value '1111'. Underneath that is a section for 'Associated Items' with a sub-label 'Associated Item Descriptions' and a text area containing 'D:\down\dir\16x256.txt'. To the right of this text area are four buttons: 'Enter Item', 'Change Item', 'Delete Item', and 'Exit'.

To enter a new part number:

1. Use the drop down arrow next to Machine Names and choose the appropriate machine.
2. Click the Enter Part Number button.
3. Enter the part number.
4. Enter the description.
5. Click the SAVE button.
6. To populate a part's associated items, highlight the part number, open Explorer and simply drag and drop all drawing, instruction and program files into the Associated Items box. Use Network Neighborhood to drag files with the proper network (UNC) path. Alternatively, click the Enter Item button, enter the path and file name for an item; or click the Browse button, change extension on file mask if desired, browse for the folder, click OK, browse for the desired file, double click on it then click the OK button.
7. To remove an item from a part, highlight the part number, the item, the Delete Item button, then click OK.
8. To change an item's name, highlight the part number, highlight the item, click the Change Item button, edit the file name, and then click the OK button.
9. To change a part's description, highlight the part number, click the Change Description button, edit the description, then click OK.
10. To remove a part number, highlight the part, click the Delete Part Number button, then click OK.
11. Click the EXIT button when done.

To use the Part Library in WinDCS:

1. Highlight the machine.
2. Click the Part Library button (this will toggle between Part Library and File Manager).
3. Double click the desired part number.

Double clicking on an item will open it within the defined application (see Add File Extensions). Highlighting an item (part program) and clicking the Send button will send it to the machine.

Configuration Screen Functional Descriptions

The screens described here are the windows and dialogs subordinate to the Configuration screen, which is accessed from the Administration window.

Add Folders button

This buttons opens the Add Folders window. Use of this window is described in greater detail in the *Configuration Screen Functional Descriptions* section.

User Login Dialog Box



The image shows a 'User Login' dialog box with a teal title bar. It contains two input fields: 'Username' with the text 'DELETEME' and 'Password' with masked characters '*****'. To the right of the input fields are 'OK' and 'Cancel' buttons. Below the input fields is a 'Keyboard' button. At the bottom of the dialog, there is a prompt: 'Please enter your user account and password'.

Purpose

Use this dialog to gain access to your authorized level of access. When security is enforced, all users must log in. To gain access to System Administration functions, security is always enforced, and user must log in as System Administrator.

Access

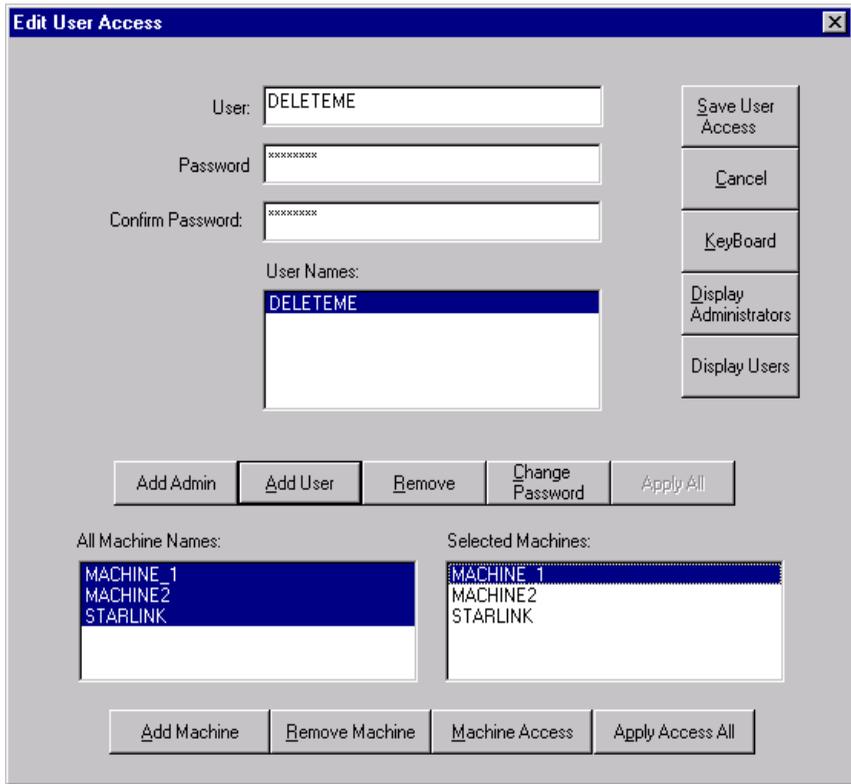
1. From the WinDCS main screen, click the Admin Screen button.
2. From the Administration window, choose the Configuration tab.
3. On the Configuration screen, click the User Login/Out button.

Description

Username field: Enter the unique string used to identify you as an authorized user.

Password field: Enter the unique password assigned to you as the user named above.

The user name and password “DELETEME” is used to initially access Security configuration and can be deleted once another administrative user is created.



Purpose

Use this window to authorize a new user, to change a user's password or username, and/or to authorize user for a new machine. The System administrator must first use this window to create a System Administrator account for himself. Then he can open accounts for other users with various degrees of access, tied to their username and password. See *Creating a System Administrator Account* in the *Sample Procedures* section, below.

Access

The System Administrator would normally reserve access to this window to himself alone. The user would therefore have to log in as System Administrator to access this window.

1. From the WinDCS main screen, click the **Admin Screen** button.
2. From the Administration window, choose the **Configuration** tab.
3. On the Configuration screen, click the **Edit User Access** button.

Description

User field	Enter the username.
Password field	Enter the password.
Confirm Password field	Enter the password again.
User Names field	View existing administrator user names. You can switch between lists using the Display Administrators and Display Users button.
Add Admin button	Click to add currently entered user information to database of administrators
Add User button	Click to add currently entered user information to database of users.
Remove button	Click to remove currently highlighted user or administrator from database of users.
Change Password button	Click to change to the new password for the currently entered user.
Apply to All button	Click to apply settings to all listed users or administrators.
All Machine Names field	List of all machines available for assignment. To authorize a machine for the currently entered user, see Add Machine button, below.
Selected Machines field	List of all machines authorized to the user entered in the User field. To assign which machine functions to allow the currently entered user, see Machine Access button, below.
Add Machine button	In the All Machine Names field, highlight the machine(s) to be authorized. Then click Add Machine button.
Remove Machine button	In the Selected Machines field, highlight a machine, then click the Remove Machine button. The machine name will be removed from the Selected Machines field.
Machine Access button	In the Selected Machine field, highlight a machine name. Then click the Machine Access button. The WinDCS Edit User Access window appears. See <i>WinDCS Edit User Access Window</i> , below.
Apply to All Accesses button	Highlight a machine that already performs “Machine Access” in the Selected Machine Dialog box, then click Apply to All Accesses button to apply settings to all select machines.

WinDCS Edit User Access Window

In the Edit User Access window, above, when you highlight a machine name in the **Selected Machines** field and click the **Machine Access** button, this window appears. The **machine** name and the **user** name appear at the top of the window.

This window allows assignment of all possible machine functions of the named machine to the named user. It further allows assignment of any DNC and WinDCS functions to this combination of machine and user.

The System Administrator would normally reserve access to this window to himself alone.

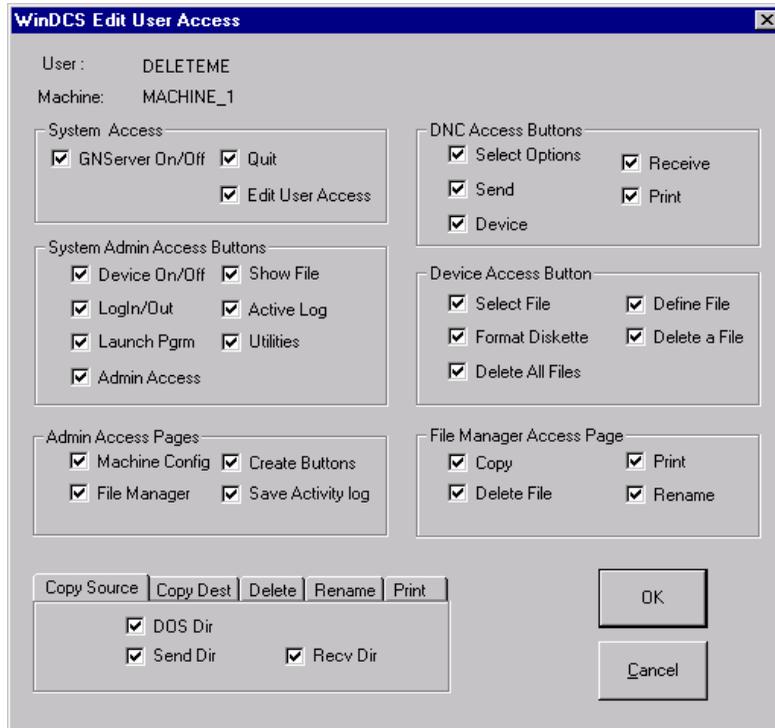
Access

The System Administrator would normally reserve access to this window to himself alone. The user would therefore have to log in as System Administrator to access this window.

1. From the WinDCS main screen, click the **Admin Screen** button.
2. From the Administration window, choose the **Configuration** tab.
3. On the Configuration screen, click the **Edit User(s) Access** button.

The screenshot shows the 'Edit User Access' dialog box. The 'User' field contains 'DELETEME'. The 'Password' and 'Confirm Password' fields are masked with asterisks. The 'User Names' list contains 'DELETEME'. The 'All Machine Names' list contains 'MACHINE_1', 'MACHINE2', and 'STARLINK'. The 'Selected Machines' list contains 'MACHINE_1', 'MACHINE2', and 'STARLINK'. The 'Machine Access' button is highlighted with a dotted border.

4. Select DELETEME name.
5. Select all of the machine names listed in the “All Machine Names” window.
6. Click on the Add Machine button. The selected machines will appear in the “Selected Machines” window.
7. From the “Selected Machines” window, highlight a machine.
8. Click on the Machine Access button.



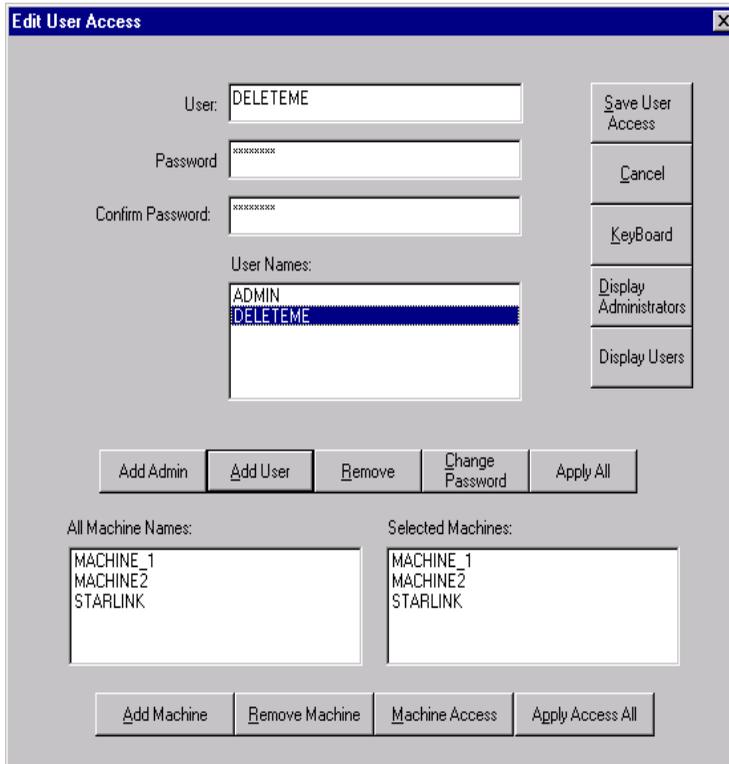
9. From DNC Access Buttons field, uncheck Print, it means that the print function is disabled.
10. Click SAVE, to save the changes and return to the Edit User Access dialog box.
11. From Edit User Access dialog box, click “Apply Access to all machines” button to have all machines assigned the same access.
12. Click SAVE ALL to save all accesses.

Add Administrator: Type in Administrator name: ADMIN

1. Enter password: ADMIN
2. Confirm password: ADMIN
3. Click Add Admin button.

The screenshot shows the 'Edit User Access' dialog box. It has a title bar with 'Edit User Access' and a close button. The main area contains several input fields and lists. The 'User' field is filled with 'ADMIN'. The 'Password' and 'Confirm Password' fields are filled with '*****'. Below these is a 'User Names' list box containing 'ADMIN' and 'DELETEME'. To the right of the input fields are four buttons: 'Save User Access', 'Cancel', 'KeyBoard', and 'Display Administrators'. Below the 'User Names' list is a row of five buttons: 'Add Admin', 'Add User', 'Remove', 'Change Password', and 'Apply All'. At the bottom, there are two list boxes: 'All Machine Names' containing 'MACHINE_1', 'MACHINE2', and 'STARLINK', and 'Selected Machines' which is empty. Below these are four buttons: 'Add Machine', 'Remove Machine', 'Machine Access', and 'Apply Access All'.

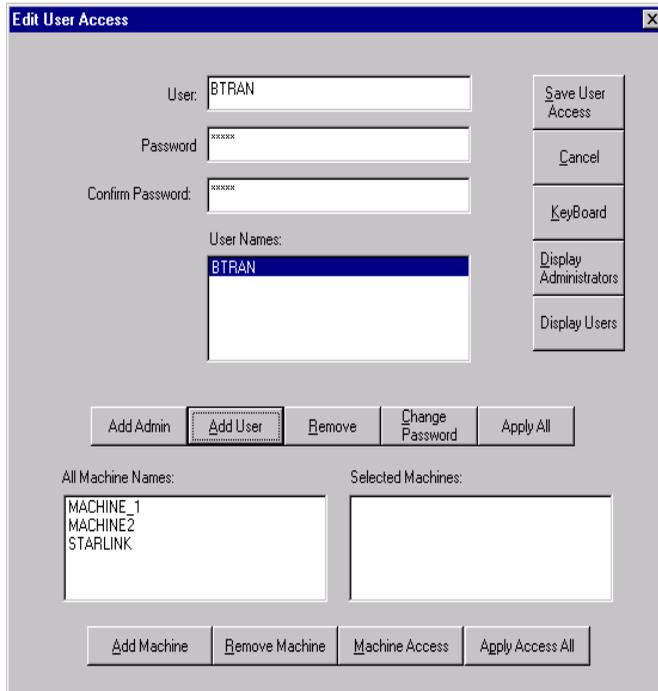
4. Click **Display Administrators** button.
5. From **User Names** field, select DELETEME.
6. Select “Apply All” button to all Admin or Users. ADMIN now has the same machine access as DELETEME.



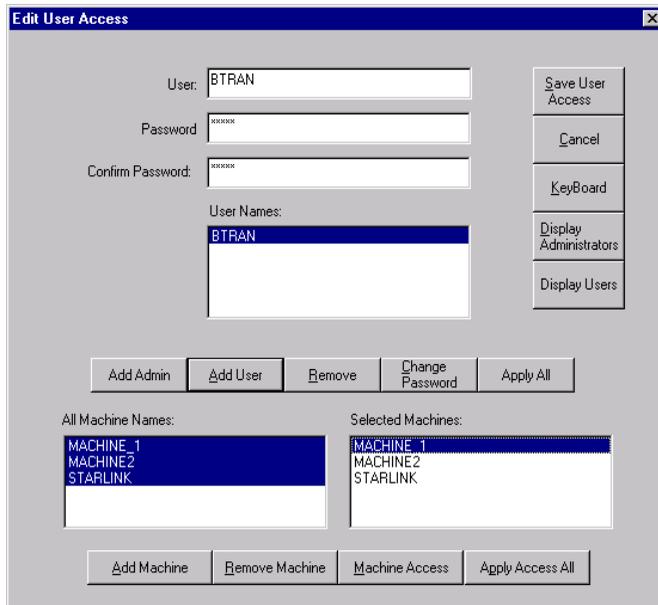
7. Click on the “SAVE ALL” button to save these settings.

Add User: Type into the **User** field: BTRAN

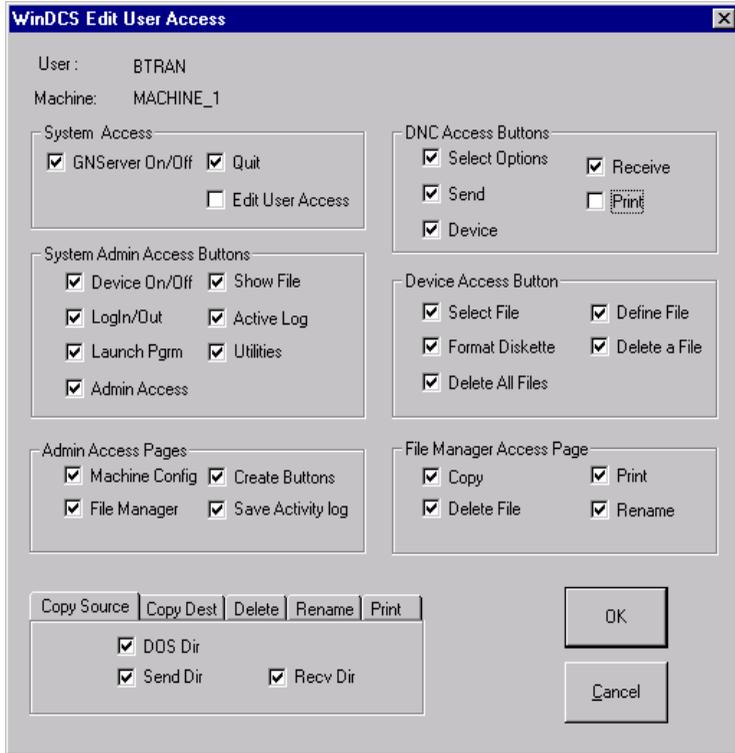
1. Enter password: BTRAN
2. Confirm password: BTRAN
3. Click the **Add User** button.
4. Select BTRAN user name
5. Highlight all of the machine names in the “All machine Names” window.
6. Click on the **Add Machines** button.



7. From the “Selected Machines” window, highlight a machine.



8. Click on the **Machine Access** button. The user can check or uncheck the appropriate fields. Click on the “OK” button to return to the “Edit User Access” window.



Note: User BTRAN does not have the “Edit User Access” privilege.

9. From the “Selected Machines” window, highlight a machine.
10. From “Edit User Access” dialog box, click on the “Apply Access All”. Now, all machines have the same checked or unchecked options.
11. Click on the “SAVE ALL” button to complete the login setup for user name BTRAN.

GNSERVER System Configuration Window

Purpose

This is the initial machine and module configuration window. All other machine and module configuration screens are accessed through this Window.

Access

1. From the main **WinDCS** window, click on the **Admin Screen** button.
2. From the **Administration** window, click on the **Configuration** tab.
3. On the Configuration tab screen, click the **Machine Configuration** button.

Description

Server, Log File, DumpFile

Server panel	Status field	This field displays the status of the GNSERVER software (OFF or RUNNING). Depending on the Status some screen items are grayed out, because they are not functional during that time.
	Start/Shutdown button	Button is labeled Start when the Status field is OFF. Choose Start to start GNSERVER. Button is labeled Shutdown when the status field is RUNNING. Choose Shutdown to bring up the GNSERVER Shutdown window, described later.
	Auto Start ONLINE Machines check box	Check to automatically place all AutoStart machines on line when system is started.
	Diagnostic Logging check box	Check to command GNSERVER to keep a continuous log of diagnostic data. Do this when troubleshooting to gather diagnostic data. See Diag Dump button, just below. Not used during normal operation.
	Diag Dump button (Active when Server Status is RUNNING.)	Commands GNSERVER to create a file containing diagnostics data for software debugging. See Diagnostic Logging , just above.

	Save button	Click (with Status OFF) to save the current settings in this panel. Settings will remain until the authorized user changes them again.
	Allow File Overwrite	When checked, received files of identical names are replaced. When not checked, incremental extensions are added.
Dump File panel	View button	Brings up the last Dump File created, if not deleted.
	Delete button	Deletes the Dump File.
Log File panel	View button	Brings up the last Log File created. If old Log File is not deleted new log is appended to the old.
	Delete button	Deletes the existing diagnostics Log File.

Machine Configuration

Machine Configuration panel	Machine List field	Displays the name of the machine to be configured. Click on arrowhead to show machine list. On list, click machine to be configured.
	Put ONLINE button	Puts machine displayed in Machine List on line after configuration. If you forget, you'll be prompted by a message box.
	Take OFFLINE button	Takes machine displayed in Machine List off line to be configured. If you forget you'll be prompted by a message box.
	CREATE button	Opens a simple Create Network Machine dialog box. Allows you to name a new machine to add to the network. Name will be added to Machine List.
	CONFIG button	Opens Network Machine Configuration window, described later. Allows you to reconfigure an existing networked machine, or configure one you just added.

	Defaults button	Opens Network Machine Configuration window, for imaginary machine called DEFAULT. This screen allows you to specify the starting (default) configuration values for any newly added machine. New machine is configured by changing the starting (default) values.
	Delete button	Click to delete the machine displayed in the Machine List field from the network. Opens a simple delete verification dialog, as a precaution.

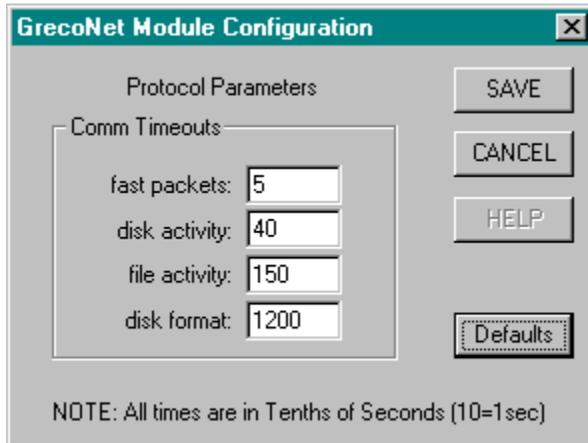
Module Configuration

Module Configuration panel	Protocols field and CONFIG button	<p>This field displays the protocol to be configured. Click arrowhead to show all protocols available. Click CONFIG button to open Module Configuration dialog box for selected protocol.</p> <p>If no configuration of type selected is required for this device, then when CONFIG is clicked, a message saying that there is nothing to configure is displayed.</p> <p>This panel provides limited access. Detailed configuration is done at Network Machine level. Description to follow.</p> <p>When Greco Net is selected, GrecoNet Module Configuration dialog, shown below, is opened.</p>
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	<p>Comm Interfaces field and CONFIG button</p>	<p>This field displays the communications interface to be configured. Click the arrowhead to show all interfaces available. Click the CONFIG button to open the Module Configuration dialog box for the selected interface. Each type of interface has its own version of this dialog.</p> <p>If an interface is selected that is inappropriate for this device, a message saying that there is nothing to configure is displayed.</p> <p>This panel provides limited access. Detailed configuration is done at Network Machine level. Description to follow.</p>
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GrecoNet Module Configuration Dialog

In the GNSERVER System Configuration window, Module Configuration panel, When **Greco Net** Protocol is selected, the GrecoNet Module Configuration dialog, shown below, is opened. The parameters in this dialog are timeout delays that apply to all Greco devices using the GrecoNet protocol. Timeouts speed up operations by allowing the system to go on with other actions if a device addressed does not respond in a reasonable time. The reasonable amount of time depends on the type of data transmitted and the type of device accessed. These parameters specify those reasonable delays.



Defaults button	Click this button to automatically enter predetermined default values into all of the Comm Timeouts fields.
Fast packets	Special category attached to transmissions that require almost no wait time, regardless of the type of device, such as those that do not require disk access.
Disk activity	The delay allowed when the transmission requires a single read or write to a disk.
File activity	The delay allowed when a disk might have to be accessed several times. For example: opening, closing, and deleting files.
Disk format	Time allowed for disk format and disk init commands (formatting and initializing disks). These typically take the longest.

Network Machine Default Configuration Window

The screenshot shows the 'Network Machine Configuration' dialog box. At the top, it displays 'Machine: DEFAULT'. Below this, there are fields for 'Device Type' (set to 'MACHINE [direct]'), 'Media Type' (with a checked 'Diskless' option), and an 'MTIC Config' button. On the right side, there are 'SAVE' and 'CANCEL' buttons, and a 'Network Defaults' button. The 'Part Program Directories' section includes 'Default Mask' (set to '*.*'), 'Send Dir' (D:\DOWNDIR), 'Receive Dir' (D:\UPDIR), and 'Local Dir' (D:\TRANSHARE). There are three checked checkboxes: 'Search SubDirectories For Files', 'Allow Local Copy', and 'Delete After Send'. The 'Device Protocol' is set to 'Xon/Xoff' with a 'CONFIG' button. The 'Comm Interface' is set to 'PC Comm Port(s)' with a 'CONFIG' button. The 'Other Options' section has a checked 'AutoStart' checkbox and an unchecked 'Comm Trace' checkbox.

Purpose

The Network Machine Default Configuration window allows you to configure a template machine. After this configure was saved, this Machine Default Configuration will help user to create a real machine configuration faster. These configurations will be displayed when user clicks “CREATE” button to create a new machine.

Access

1. From the main WinDCS Window, click the **Admin Screen** button.
2. On the Administration screen, click the **Configuration** tab.
3. From the Configuration screen, click **Machine Configuration** button.
4. *The GNSERVER System Configuration window appears.* In its Machine Configuration panel, click the **Defaults** button.
5. Perform Device Protocol configuration by clicking CONFIG button.
6. Perform Comm Interface configuration by clicking CONFIG button.
7. Perform Network Defaults configuration by clicking Network Defaults button.
8. Save Network Machine Default Configuration by clicking SAVE button.

Network Machine Configuration Window

Machine: MONARCH_3907

Device Type: MACHINE (direct)

Media Type: Diskless

SAVE

CANCEL

MTIC Config

Part Program Directories

Default Mask: *.*

Send Dir: c:\send

Receive Dir: c:\receive

Search SubDirectories For Files

Allow Local Copy

Delete After Send

Local Dir: c:\local

Network Defaults

Device Protocol

Xon/Xoff

CONFIG

Comm Interface

PC Comm Port(s)

CONFIG

Other Options

AutoStart

Comm Trace

Purpose

The Network Machine Configuration window allows you to reconfigure an existing networked machine, or configure one you just added to your GrecoNet network. If you are configuring a new machine you just created, then the initial values in this window will match the DEFAULT device settings established in the GNSERVER System Configuration window.

Access

1. From the main WinDCS Window, click the **Admin Screen** button.
2. On the Administration screen, click the **Configuration** tab.

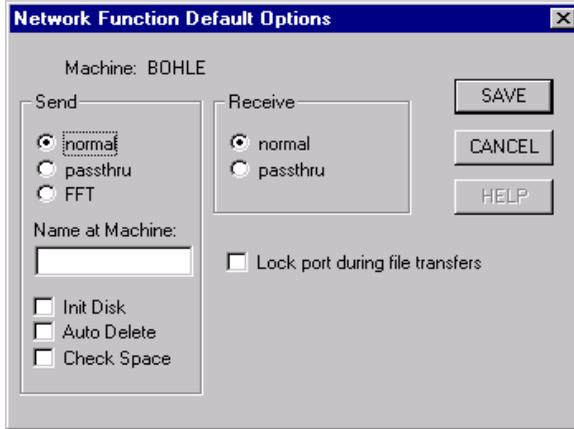
3. From the Configuration screen, click **Machine Configuration** button.
4. *The GNSERVER System Configuration window appears.* In its Machine Configuration panel, click the **CONFIG** button.

Description

Machine panel	Machine field	Displays the name of the machine being configured, as it was selected in the GNSERVER System Configuration window.
	Device Type field	Names the category to which the device you are configuring belongs.
	Media Type check box	Check here if this device does not have a data storage disk drive.
	Network Defaults button	Click to open Network Function Default Options window. Used to configure network send and receive parameters.
	MTIC Config button	If this is a machine tool interface (MTIC) device, click this button. The current configuration is saved, and the MTIC Configuration window opens. Use the MTIC window to complete the configuration.
Part Program Directories panel	Default Mask	Filters the file listings to allow through only those files with the extension you designate. *.* means display all (no mask). *.ptp means list only programs with the .ptp extension. Most helpful when you use a unique extension for each type of machine.
	Send Dir	DOS path to the Send directory.
	Receive Dir	DOS path to the Receive directory.
	Search subdirectories for files check box	Click to command system to continue a file search through existing subdirectories (if any) if file not found in directory where started.
Part Program Directories panel	Allow Local Copy check box	Allows the system to create a file copy, in the local copy file directory, of the send file.

	Delete After Send	When checked, files will be automatically deleted from the copy directory once sent. Unchecked, the Network Drive button may be used to switch to the local directory when the network is down then used again to return to the network drive when it is up
	Local Dir field	Specify the directory where the send files are stored on the local work station computer.
Device Protocol panel	Device Protocol field and CONFIG button	Displays the selected device protocol. Click arrowhead to show a list. Click a protocol to select it. Click CONFIG to bring up the appropriate configuration screen for selected protocol.
Comm Interface panel	Comm Interface field and CONFIG button	Displays the selected communications interface. Click arrowhead to show a list. Click an interface to select it. Click CONFIG to bring up the appropriate configuration screen for selected interface.
Other Options panel	AutoStart check box	When checked, GNSERVER automatically puts this device on line if Auto Start online machines is selected. When not checked, this device remains off line when GNSERVER starts.
	Comm Trace check box	When checked, and if GNSERVER Diagnostic Logging is enabled, information on device/server communications is written to the log file and saved. If Diagnostic Logging is not enabled, Comm Trace is ignored.

Network Function Default Options Window



Purpose

These network-related settings are separately programmed, through this window, for each Greco device connected using GrecoNet protocol.

Access

1. From the main WinDCS Window, click the **Admin Screen** button.
2. On the Administration screen, click the **Machine Configuration** button.
3. *The GNSERVER System Configuration window appears.* In its Machine Configuration panel, click the **CONFIG** button.
4. *The Network Machine Configuration screen appears.* There, click the **Network Defaults** button to open the Network Function Default Options window.

Description

Send panel*	normal button	Files are copied from the server computer directly to the diskette or RAM disk on a “Greco” device.
	Passthrough button	Files are copied from the server computer, <i>via</i> a “Greco” device, bypassing storage device, directly to the machine tool control.

	FFT button	Files are copied from the server computer directly to the diskette or RAM disk on a “Greco” device. Then, is available when CNC commands the device to begin sending the file to the machine control.
	Name at Machine field	To name the file sent to the Greco drive, type the new name here. Leave blank to use original file name.
	Init Disk check box	When checked, deletes all files on diskette or RAM disk on “Greco” device before sending it a file. Has no effect when passthrough mode is used.
	Auto Delete check box	If checked, and “Name at Machine” field is blank: Any file on diskette or RAM disk on “Greco” device that has the same name as the sent file is deleted. If not checked, and “Name at Machine” field is blank: File send fails if there is already a file on the device that has the same name.
	Check Space check box	When checked, checks whether diskette or RAM disk has enough space <i>before</i> sending it a file.
Receive panel*	normal button	Copies files from the Greco device diskette or RAM disk to server disk.
	passthrough button	Copies file from the machine tool control, directly to the server, bypassing the Greco device diskette or RAM disk.
main panel	Machine field	Shows the name of the machine being configured.
	Lock port during file transfers check box	Prevents contention for access through the communications port while files are being transferred.
<p>* Note: <i>For diskless Greco devices, use passthrough mode for Send and Receive, and leave all Send check boxes unchecked.</i></p>		

MTIC Configuration Window

The screenshot shows the 'MTIC Configuration' window for a machine named 'AVEY'. The window is divided into several sections:

- Machine:** AVEY
- Active Channel:** Radio buttons for Serial (0) (selected), Parallel (2), and Parallel Reader / Serial Punch.
- Serial Params:** Protocol dropdown set to 'NONE', Baud rate set to '9600', and H/W Handshake checkbox unchecked. Data bits (8 selected, 7 unselected), Stops (2 selected, 1 unselected), and Parity (None selected, Even unselected, Odd unselected).
- Parallel Params:** Config Reg, Reader Switch, and Punch Switch fields all containing '0000000000000000'. Reader Speed set to '1000'. Leader/Trailer radio buttons for Spaces and Nulls (selected).
- Options:** Checkboxes for Binary, EIA, Looping, Mazak EOT, and Nulls In Text are all unchecked. Close Time-Out set to '0'. Prefix and Postfix fields are empty. EndFile field is empty.
- Comment Stripping:** Enabled checkbox is unchecked, with a value of '0' in the adjacent field.
- End of Line char(s):** Radio buttons for CR only, LF only, and CR and LF (selected).

Buttons for 'SAVE', 'Program MTIC', 'CANCEL', and 'HELP' are located in the top right area.

Purpose

If the machine being configured is a machine tool interface control (MTIC) device, then this window is needed to program certain parameters into the MTIC device itself. Some later model CNC Stations and Minifiles, having updated firmware, can also be programmed using this window. See the Applications Note that came with your hardware.

These parameters are programmed directly into the device itself. Therefore, if the MTIC device is replaced with another, or its memory has been compromised, this window must be used again to reprogram the device.

Access

1. From the main WinDCS Window, click the **Admin Screen** button.
2. On the Administration screen, click the **Machine Configuration** button.
3. *The GNSERVER System Configuration window appears.* In its Machine Configuration panel, click the **CONFIG** button.

4. *The Network Machine Configuration screen appears.* There, click the **MTIC Config** button to open the MTIC Configuration window.

Description

Main Panel

These are the controls not grouped inside separate panels	Machine field	Shows the name of the machine being configured.
	Program MTIC button	Once all the settings on this window are correct for the machine being configured, click here to program these settings into the MTIC device. CAUTION: GNSERVER automatically puts the MTIC machine back on line. Therefore, the machine must be fully functional, powered up, and connected to the network when you program it. <i>Note: The Save button will not program MTIC. Saving only saves the settings within this window.</i>

Serial/Parallel Parameters

Active Channel panel	<input type="radio"/> Serial (0) <input type="radio"/> Parallel (2) <input type="radio"/> Parallel Reader / Serial Punch	Choose the one appropriate port for the machine you are programming. Must match actual hardware installation and interconnection.
Serial Params panel (Parameters that apply only to Serial Ports.)	Protocol field	Click arrowhead to show list of available parameters. In the list, click the appropriate parameter. <i>Changing protocol automatically changes data bits, stop bits, parity, binary and EIA modes, and EOL characters to default values for that protocol. These are the most common settings.</i> If your machine requires other settings, change the protocol first. Then change other settings.

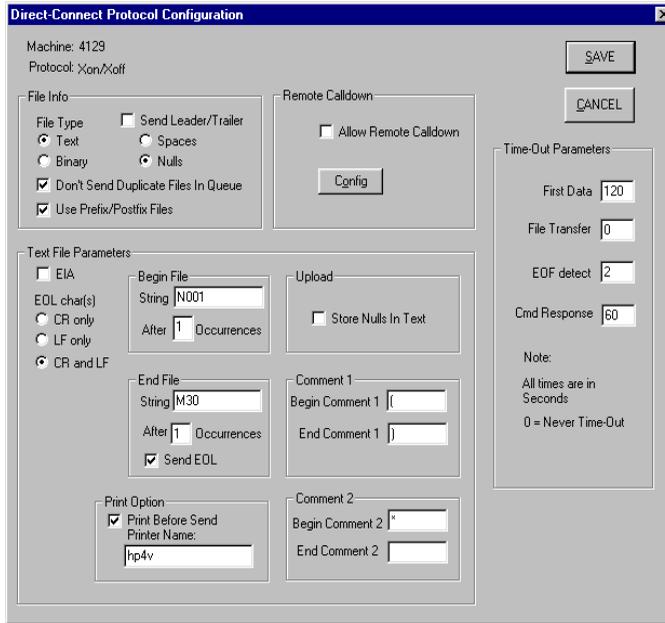
	Data bits, Stop Bits, and Parity	These are standard serial port parameters that have default values for the different protocols. If you have to change these to fit your machine, select the protocol first. Note also that if you must change parity to none , then data bits will automatically be increased by one.
	Baud field	This is the rate of data transfer between devices. Click arrowhead to show list of baud rates.
	H/W Handshake check box	When checked, the serial communications lines, RTS and CTS, are used for flow control in addition to selected protocol.
Parallel Parm panel (Parameters that apply only to Parallel Ports.)	Config Reg field	16 binary digits of the parallel configuration register. (See Application Note for your specific hardware.)
	Reader Switch field	16 binary digits of the parallel switch register. (See Application Note for your specific hardware.)
	Punch Switch field	16 binary digits of the parallel switch register. (See Application Note for your specific hardware.) <i>Note that some very early firmware used the reader switch for both reading and punching. If you have this firmware, make sure this field is absolutely empty. Even nonprinting characters may cause trouble. (Highlight the entire field, and press the Delete key.)</i>
	Reader Speed field	Speed of your reader in characters-per-second. Can be any number between 15 and 1000.
	Leader/Trailer buttons	Identify whether your system recognizes spaces or nulls for leader/trailer characters.

Options

Parameters that apply to both your serial and your parallel communications	Binary check box	When checked, MTIC-MTC communications can be in straight binary. When not checked, enables certain text mode translations where applicable. See hardware applications notes.
	EIA check box	When checked, files are sent to machine control in EIA format and received from control in ASCII. EIA/ASCII conversions are automatic.

	Looping check box	When checked, files from device's drive are sent to machine control repeatedly, until manually halted.
	Nulls In Text check box	Checked to allow null characters to be recorded in received text files.
	Close Time-Out field	Nonzero value in seconds. If timeout is reached after a transfer is paused the file is closed.
	Prefix field	Any text entered in this field will be sent immediately ahead of the NC program. (Normal mode only).
	Postfix field	Any text entered in this field will be sent immediately after the NC program. (Normal mode only).
	Endfile field	Enter the characters that, when read from drive will close the file.
Comment Stripping panel	Enabled check box	When checked, comments (as delineated by comment characters) will be stripped from program before it is sent. (Normal mode only).
	Comment characters	These two characters delineate a comment. First character marks beginning of comment. Second character marks end of comment. (Normal mode only).
End of Line char(s) panel	CR only button	Carriage return is the end-of-line character.
	LF only button	Line feed is the end-of-line character.
	CR and LF button	Carriage return, followed by line feed, are the end-of-line characters.

Direct-Connect Protocol Configuration Window



Purpose

This window is used to configure machine controls that are connected directly to the PC server via any of the serial communications protocols.

Access

1. From the main WinDCS Window, click the **Admin Screen** button.
2. On the Administration screen, click the **Configuration** tab.
3. On the Configuration screen, click the **Machine Configuration** button. *The GNSERVER System Configuration window appears.*
4. In the GNSERVER System Configuration window, go to the Machine Configuration panel, and click the **CONFIG** button.
5. *The Network Machine Configuration screen appears.* There, click the **Device Protocol CONFIG** button to open the Direct-Connect Protocol Configuration window.

Description

Machine field	Displays the assigned name of machine being configured.	
Protocol field	Displays the serial direct-connect protocol as defined for this machine in the Network Machine Configuration window.	
File Info panel	File Type: Text button	Indicates the file will contain text type data, as defined in the Text File Parameters panel, below.
	File Type: Binary button	Indicates that files will be treated as binary.
	Send Leader/Trailer check box	When checked, GNSERVER will send characters before and after each text file. Spaces: Select if leaders and trailers will be spaces. Nulls: Select if leaders and trailers will be nulls.
	Don't send duplicate files in queue check box	If checked, duplicate file will not be queued, eliminating problems caused by accidental double-clicks.
	Use Prefix/Postfix Files checkbox	When checked, a file in the send directory named Postfix.txt will be sent before each file and/or a file named Postfix.txt will be sent after each file. This is useful for those machines that require characters before and/or after programs that don't have them, without needing to edit the files. Prefix.txt and Postfix.txt must be resided in "Send Dir" directory. Note that the Allow Local Copy feature must be enabled.
Text File Parameters panel	EIA	When checked, files are sent to machine control in EIA format and received from control in ASCII. Data is stored in ASCII on server, and EIA/ASCII conversions are automatic.
	EOL Char(s)	CR only: Carriage return used as end-of-line. LF only: Line feed used as end-of-line. CR and LF: CR, followed by LF, used as end-of-line.

	Begin File fields	<p>String: Enter the character or characters (string) to be recognized as the beginning-of-file marker. Files will start sending from that point.</p> <p>After: Enter the number of times the string must be repeated to be recognized as Beginfile.</p> <p>Send EOL: Indicate whether or not to send EOL char(s) after the End File String.</p>
	End File fields	<p>String: Enter the character or characters (string) that will be recognized as the end-of-file marker. Files will close at that point.</p> <p>After: Enter the number of times the string must be repeated to be recognized as Endfile.</p>
	Upload: Store Nulls in Text check box	When checked, all null characters in any text file being received by the GrecoNet Server will be retained by the server in the stored copy.
	Begin/End Comment 1 fields	<p>Begin: Enter character to be recognized as the start of a comment.</p> <p>End: Enter character to be recognized as the end of a comment.</p>
	Begin/End Comment 2 fields	<p>Begin: Enter character to be recognized as the start of a second category of comment.</p> <p>End: Enter character to be recognized as the end of a second category of comment.</p>
	Print Option panel	If Print Before Send is checked, and a valid printer name is entered in the Printer Name field, WinDCS will automatically print a copy of any file sent. 1. Open the printer setting (Start Settings Printers) to get printer name.

<p>Time Out Parameters panel</p> <p>(The time in seconds to wait before timing out, under the four different conditions described here.)</p>	<p>First Data</p>	<p>Time to wait after a send or receive file request. (Must allow plenty of time for operator to start the control.)</p>
	<p>File Transfer</p>	<p>Time to wait, after data has stopped flowing, before aborting the transfer. (Allows time for system to legitimately hesitate during a transfer, but allows equipment to stop waiting after reasonable time, in case of intentional or unintentional abort.)</p>
	<p>EOF Detect</p>	<p>Time to wait, after data has stopped flowing, before assuming file transfer is over.</p>
	<p>Cmd Response</p>	<p>Time to wait for the control to respond to a command byte, before assuming a miscommunication.</p>
<p>Remote Calldown panel</p>	<p>Allow Remote Calldown check box</p>	<p>When checked, allows configuration of Remote Calldown feature. WinDCS then listens and waits for remote commands, <i>initiated by the machine operator, directly from the machine control</i>. When GNSERVER starts, machine status, at bottom of screen, reads “Listening for remote command...”</p>
	<p>Config button</p>	<p>Opens Remote Calldown Configuration window (described below).</p>

Remote Calldown Configuration Dialog

To open this dialog: From the Direct Connect Protocol Configuration window, click the Remote Calldown: **Config** button.

Note: *To implement this feature, the machine control must have the following capability:*

- a. *A serial I/O protocol supported by WinDCS, such as XON/XOFF*
- b. *The ability to store more than one file in ASCII format*
- c. *File editing capability*
- d. *A way to initiate file transfer from the machine control.*

The screenshot shows a dialog box titled "Remote Calldown Configuration" with a close button (X) in the top right corner. The dialog is divided into two main sections. The top section, labeled "Remote Commands*", contains several input fields: "SEND", "SEND (Copy Dir)", "RECEIVE", "DIR of send files", "DIR of send (Copy) Files", "Dir of receive files", and "Abort Transfer". To the right of these fields are "SAVE" and "CANCEL" buttons. The bottom section contains input fields for "Msg File Begin String", "Msg File End String", "Opening Comment Char", "Closing Comment Char", and "Time Delay" (with a value of "0"). A "NOTE:" box on the right side of this section states: "NOTE: All times are in WHOLE Seconds".

CAUTION: *It is important to understand (a) the format of the control's ASCII programs (b) the control's editing capabilities.*

Rules

Before attempting to configure the Remote Calldown Configuration window, become familiar with these rules.

Command Format

The format of the command is as follows; (command path\filename), where:

- () are optional start and end comment characters.
- Command is the command you entered in one of the fields in the Remote Commands box, e.g., SEND = R because you're on the receiving end of the program.
- Path is an optional subdirectory within the send directory.
- Filename is the name of the file—on the PC—which you are requesting or creating.

Operating Sequence

1. Operator “pulls up” remote command program at the Control.
2. Original file name is changed if desired.
3. Operator “punches” the command program to WinDCS.
4. WinDCS responds by sending the desired file.
5. Operator reads desired program.

Notes

- It is best, at first, to punch a file to WinDCS manually. Then check the received file. This exercise will check communications between WinDCS and the control.
- Space characters between the command and file name and end of line are ignored.
- If any characters other than space are after the file name and before the end of line, they must be used as end of comment.
- Spaces are not required between the command, path and filename. Because of this, you cannot have a command name that is part of another command.
For example: If SEND = “DL” and SEND (Copy Dir) = “DLC” and the operator inadvertently punched a program that contained DLC, WinDCS would assume the operator wanted to send a program named C from the send directory.
- Wait 1 or 2 seconds between commands when sending more than one. It takes about that long for WinDCS to return to its listening mode.
- When using directory commands, DOS wildcard characters (* and ?) are valid.

Remote Commands Panel

The Remote Commands are the ASCII characters (strings) that the machine uses to communicate commands. Entering these strings in the appropriate fields in this dialog box teaches WinDCS to interpret these codes correctly.

SEND	The command you want the system to interpret as a send request. For example, GET could be used. When sent from the machine control with this string, GNSERVER extracts the file name and sends this file to the machine control. Operator then sets the control into read mode, then either reads the file into memory or runs in drip feed mode.
SEND (Copy Dir)	Same function as Send , but the file is sent from the subdirectory that you defined using the Node Command tab of the Administration Window. (See <i>Administration Screen Functional Descriptions</i> .) This command cannot be the same command that you entered in the SEND box. GNSERVER will send the program located in the subdirectory that was defined in the Node Command screen. (Non-applicable in versions 3.03 and above).
RECEIVE	The command has the same rules as the SEND command, except that the GNSERVER opens a file on the server with the file name that is in the command program. GNSERVER then waits for the actual part program to be sent. The part program sent from the machine control is saved in the receive directory that was defined for the machine control.
DIR of send files	This string is interpreted as a directory listing request. GNSERVER, upon receipt of this command, will send the machine control a listing of the machine's send directory. In most cases each directory line is enclosed within the defined comment characters. See CAUTION below.
DIR of send (Copy) files	This string requests a list of the directory where copies of the SEND files are stored. (Non-applicable in versions 3.03 and above).
DIR of receive files	This string is interpreted as a directory listing request. GNSERVER, upon receipt of this command, will send the machine control a listing of the machine's receive directory. In most cases each directory line is enclosed within the defined comment characters. See CAUTION below.
Abort Transfer	Enter the character that will be recognized as the abort command to halt the file transfer.

CAUTION: (1) The listing sent might not be in a format your machine can read. The below delineators will be used to format the directory lists. (2) This is usually a large file. Your machine might not have enough memory.

Delineators Panel

Msg File Begin String	Delineates the directory lists from WinDCS. Any ASCII symbol desired, as long as it matches part program formats. For example, a % sign may be required for the machine control to recognize this as a program.
Msg File End String	
Opening Comment String	Define the machine's starting and ending comment characters. Used with any of the DIR, Send and Receive commands. When sending to the machine control, these characters are at the start and end of every line in the directory listing that is sent to the machine control. When a file is requested from the machine control, WinDCS recognizes the end of a file name by the closing comment character or end of line.
Closing Comment Chr	
Time Delay	Enter the time, in seconds, that the system will wait before executing a command to send data.

Greco Net Configuration Window

Machine: JAKE

Timing Parameters

Poll Delay: 5

CMB Delay: 3

Max Restart Delay: 600

File Info

Poll Show Greco File

Auto Set Date & Time

Unix to Dos

Use Prefix/Postfix Files

Begin File

String: _____

After: 1 Occurrences

End File

String: _____

After: 1 Occurrences

Send CR Send LF

Comment 1

Begin Comment 1: _____

End Comment 1: _____

Comment 2

Begin Comment 2: _____

End Comment 2: _____

Machine Monitoring

Mask: 0111111

Normal: 0000000

Debounce (0-255)

Bit 1: 1 Bit 4: 1

Bit 2: 1 Bit 5: 1

Bit 3: 1 Bit 6: 1

Bit 7: 1

Keep History

Print Option

Print Before Send

Printer Name: _____

Data Block Size

Block Size: 128

Compatibility

Only Select 'Older Greco Device' if you are using a Minifile and '+LS' does NOT appear on the startup screen.

Current Greco Device Older Greco Device

NOTE: All times are in Tenths of Seconds (10=1sec)

SAVE

CANCEL

HELP

Purpose

Use this window to configure any device that uses the GrecoNet protocol.

Access

1. From the GNSERVER System Configuration Window, in the Machine Configuration panel, click the CONFIG button. *The Network Machine Configuration window appears.*
2. In the Network Machine Configuration window, in the Device Protocol panel, select GrecoNet and click CONFIG. *The Greco Net Configuration window appears.*

Description

File Transfers

Poll Delay field	Time to wait before sending a poll after it is queued. Since other factors can delay the poll, this becomes a minimum wait. If set to zero, polls are sent as often as possible.
CMB Delay field	Time to wait before sending a check Minifile Busy packet. Usually kept relatively short.
Max Restart Delay field	Time to wait after device has timed out before trying to re-establish contact. After this delay, the server tries to establish contact until its own timeout for trying to connect is reached.
Poll check box	When checked, poll packets are periodically sent to the Greco device.
Auto Set Date & Time check box	When checked, server automatically sets the date and time on any Greco device that supports this feature.
UNIX to DOS check box	When checked, a carriage return character is added before each line feed character in the file, before it is sent to the Greco device.
Use Prefix/Postfix Files checkbox	When checked, a file in the send directory named Postfix.txt will be sent before each file and/or a file named Postfix.txt will be sent after each file. This is useful for those machines that require characters before and/or after programs that don't have them, without needing to edit the files. Prefix.txt and Postfix.txt must be resided in "Send Dir" directory.
Begin File: String field	Enter one or more characters to be recognized as the Begin File string delimiter.
Begin File: After field	Enter the number of times the Begin File string must be repeated to be recognized as the beginfile delimiter.
End File: String field	Enter one or more characters to be recognized as the End File string delimiter.
End File: After field	Enter the number of times the End File string must be repeated to be recognized as the endfile delimiter.
Send CR, Send LF	Select whether or not to send these characters after the End File String is sent.

Begin/End Comment 1 fields	Begin: Enter character to be recognized as the start of a comment. End: Enter character to be recognized as the end of a comment.
Begin/End Comment 2 fields	Begin: Enter character to be recognized as the start of a second category of comment. End: Enter character to be recognized as the end of a second category of comment.
Current/Older Greco Device buttons	Note instructions on screen: Only select “Older” if you are using a Minifile AND “+LS” does NOT appear on the startup screen.
Print Option panel	If Print Before Send is checked, and a valid printer name is entered in the Printer Name field, WinDCS will automatically print a copy of any file sent. Open the printer setting (Start Settings Printers) to get printer name.
Data Block Size panel	Select either 128 or 512 byte block sizes.

Machine Monitoring*

Machine Monitoring check box	Activates the Event Monitoring software component of MTMS, if the necessary software and hardware are installed on your system.
Mask field	Each of these 7 bits corresponds to one of the 7 monitored points. A “1” indicates that the point is being monitored. A “0” indicates that the channel for that point is not active.
Normal field	Each of these 7 bits corresponds to one of the 7 monitored points. A “1” indicates that point should be inverted (“normalized”). A ”0” indicates that point should not be normalized.
Debounce: Bit 1 through Bit 7	The amount of change that can be sensed at a monitored point before that point is acknowledged to have changed significantly.
Keep History check box	Stores a record of detected events in a log file for this machine.
Show Greco File check box	When checked, the Show File function (see <i>WinDCS Main Screen Controls</i>) is available while a file is being sent. When Show Greco File is enable, then then CMX package is used, otherwise CMB package is used. The CMX package contains number of bytes count sent from GrecoNet device. Note: Old version

	of software in GrecoNet device does not have Show File feature.
--	---

* **Not used in new systems.**

Communications Interface Dialogs

Each type of communications interface has its own version of the Configuration Interface dialog box, as the illustration below demonstrates. The currently available types are described in this section.

The screenshot shows the "FTP Control Configuration" dialog box. It has a title bar with a close button. The main area contains the following fields and controls:

- Machine: VMAZAK
- Network Address: C:\GRECO
- Login Name: cbartol
- Login Password: xxxxxxxx
- Default Filename: 100356bat.prp
- Buttons: SAVE, CANCEL, HELP

The screenshot shows the "COM Port Configuration" dialog box. It has a title bar with a close button. The main area contains the following fields and controls:

- Machine: MACHINE2
- Channel Select:
 - COM Port: COM6
 - Use NIU
 - NIU Number: [dropdown]
 - Port: [dropdown]
- Communications Parameters:
 - Baud Rate: 9600
 - Data: 8, 7
 - Stops: 2, 1
 - Parity: None, Even, Odd
- Lantronix Write to Port Delay:
 - Write To Port Delay Enable
 - Delay Count: 1500
- Buttons: SAVE, CANCEL, HELP
- NOTE: I/O Addresses and IRQs for the COM card(s) must be configured in Windows for the driver(s) being used.
- NOTE: "Lantronix Write To Port Delay" is applied only to LanTronix device. Delay count is in milliseconds.

Purpose

The settings on these windows concern certain aspects of the actual interface hardware. GNSERVER is configured to use various communications interface port.

Access

1. From the GNSERVER System Configuration window, in the Module Configuration panel, click on the arrowhead in the **Comm Interfaces** field.
2. From the communications interfaces list, click the interface to be configured.
3. Click the Comm Interfaces: **CONFIG** button.

Note: If a Lantronix device is used, the user must select the “Write to Port Delay Enable” and enter a delay count in order to send and receive data correctly.

Descriptions

COM Port and COM Port (gpe) Configuration Dialog

Note that you cannot set the IRQ or I/O Addresses from this dialog. To set the IRQ and I/O Addresses for these standard comm ports:

1. Open the Windows Control Panel (**Start | Settings | Control panel**).
2. From the Control Panel, open the item for Ports. From this item, select the port you want to configure and set the IRQ and I/O Addresses appropriately.

Notes: *All other parameters, such as baud rate, character size, and parity are ignored by GNSERVER. These parameters are set to match the configuration specified in the PC Comm Port Configuration window for any device using a comm port whenever the port is in use by GNSERVER.*

If you are using a multiport serial card, configuration might be different. Refer to the documentation that came with your multiport card for details.

If you change any values, a message will appear when you save, to remind you that you must exit and restart windows for these changes to take effect.

Machine field	Displays the name of the machine control or Greco device being configured.
Channel Select panel	Select the communications port being used.

Communications Parameters panel	Must be specified. These parameters will override anything set by Windows in the ports configuration.
--	---

FTP Control Configuration Dialog

Machine field	Displays the name of the FTP Server being connected.
Network Address field	Enter the network address of the FTP Server being connected.
Login Name field	Username of the user authorized to log onto the FTP Server.
Login Password field	Password associated with username above.
Default Filename field	The default name of the file to be put to the server, despite its original name.

Sample Procedures

For complete descriptions of any of the WinDCS screens mentioned in these procedures, see section titles *WinDCS Main Screen Functional Descriptions*, *Administration Screen Functional Descriptions*, and *Configuration Screen Functional Descriptions*.

For detailed descriptions of the machine tool's manufacturer-supplied controls, see the manufacturer's documentation.

Starting WinDCS

In a typical MTMS installation, WinDCS is configured to start automatically, along with GNSERVER, when your computer boots. This is done by placing Shortcuts of GNSERVER then WinDCS in the Startup folder.

To start WinDCS manually: From the Task Bar, click **Start | Programs | Greco Systems | WinDCS**. From there, click the **WinDCS** icon. See illustration in *WinDCS Main Screen Functional Descriptions* section.

Note: *If red X's separate the items in the system diagram field, it is probably because the GrecoNet GNSERVER software did not get started, or the Server is disconnected or not ON. If there are no hardware problems, devices can be reconnected to the system from the WinDCS main window by highlighting the device icon in the system diagram and clicking the Device On/Off button in the upper left corner of the window.*

Sending a File to a Greco Device

If the selected target device is a "Greco device," such as a Minifile, CNC Station, or MTIC, then the file is sent to the device's diskette, SRAM or RAM, depending on the type of Greco device. If your Greco device has a diskette, then:

- (a) The **Diskless** checkbox on the WinDCS Network Machine Configuration screen must not be checked.
- (b) In the Network Function Default Options window, **Send** and **Receive** should be set to **normal**.

Procedure:

1. Start WinDCS, if it is not already started.
2. In the main WinDCS window, on the system diagram (upper left field), click to highlight the machine to which you want to send the file.

3. In the Files field, click the **Send** button, and then highlight the file you want to send. You may have to scroll the list, or open a subfolder within the list, to find the file you want.
4. In the DNC Functions section, click the **Send** button.
5. A Send Queued or Completed Successfully message box appears if every thing is all right. If there is a problem, other diagnostic messages may appear, such as “Unable to setup/open port.”

Receiving a File from a Greco Device

If the selected target device is a “Greco device,” such as a Minifile, CNC Station, or MTIC, then the file is received from the device’s diskette, SRAM or RAM, depending on the type of Greco device. If your Greco device has a diskette, then:

- (a) The **Diskless** checkbox on the WinDCS Network Machine Configuration screen must not be checked.
- (c) In the Network Function Default Options window, **Send** and **Receive** should be set to **normal**.

Procedure:

1. Start GNSERVER and WinDCS, if they are not already started.
2. In the main WinDCS window, on the system diagram (upper left field), click to highlight the machine from which you want to receive a file.
3. In the DNC Functions section, click the **Receive** button. A **Receive File** dialog box appears.
4. If you want to receive the file under a different name, enter the name in the **Enter File Name** field. If not, skip this step, and go on to the next.
5. In the File Name and Block Size field, highlight the name of the file you want to receive.
6. When you receive a message that the receive is completed successfully, you can click the files field **Receive** button to check that the file is listed there.

Sending a File “Passthru” Through a Device to a Machine

If you are connected to your machine through a Greco Device containing a disk, and you want to send a file directly to the machine, then:

- (a) The **Diskless** checkbox on the WinDCS Network Machine Configuration screen must be checked.
- (b) In the Network Function Default Options window, **Send** and **Receive** should be set to **Passthru**.

CAUTION: *If you change the above settings to do the passthru, don't forget to set them back to the original configuration, if you are going back to normal operation afterwards.*

Procedure:

1. Start WinDCS, if it is not already started.
2. In the main WinDCS window, on the system diagram (upper left field), click to highlight the machine to which you want to send the file.
3. In the Files field, click the **Send** button, and then highlight the file you want to send. You may have to scroll the list, or open a subfolder within the list, to find the file you want.
4. In the DNC Functions section, click the **Send** button.
5. A Send Queued or Completed Successfully message box appears if every thing is all right. If there is a problem, other diagnostic messages may appear, such as "Unable to setup/open port."

Receiving File "Passthru" Through a Device From a Machine

If you are connected to your machine through a Greco Device containing a disk, and you want to send a file directly to the machine, then:

- (a) The **Diskless** checkbox on the WinDCS Network Machine Configuration screen must be checked.
- (c) In the Network Function Default Options window, **Send** and **Receive** should be set to **Passthru**.

CAUTION: *If you changed the above settings to do the passthru, don't forget to set them back to the original configuration, if you are going back to normal operation afterwards.*

Procedure:

1. Start GNSERVER and WinDCS, if they are not already started.
2. In the main WinDCS window, on the system diagram (upper left field), click to highlight the machine from which you want to receive a file.

3. In the DNC Functions section, click the **Receive** button. A **Receive File** dialog box appears. It is OK if no files are listed in the File Names field. It just means that the machines file name format is not readable.
4. Enter a name in the **Enter File Name** field to receive the file under.
5. Click the **Start Receive** button.
6. Click the **OK** button.
7. From the machine: Send the file according to the machine manufacturer's instructions.
8. When transfer is complete, click the DNC Functions **ABORT** button.
9. Check the WinDCS Recent Activity field to see whether transfer is complete. Then you can click the files field **Receive** button to check that the received file is listed there.

Sending a File from a Greco Device to a Machine

1. Start GNSERVER and WinDCS, if they are not already started.
2. In the main WinDCS window, on the system diagram (upper left field), click to highlight the machine to which you want to send a file.
3. In the DNC Functions section, click the **Device** button to open the Device window.
4. In the Device window **File Names...** field, highlight the name of the file you want to send.
5. Click the **Select File** button. When the send is complete, a message will appear on the Win DCS screen.

Sending a File from a Machine to a Greco Device

1. Start GNSERVER and WinDCS, if they are not already started.
2. In the main WinDCS window, on the system diagram (upper left field), click to highlight the machine to which you want to send a file.
3. In the DNC Functions section, click the **Device** button to open the Device window.
4. In the **Enter File Name** field, enter a name for the file you are sending.
5. Click the **Define File** button. This “opens” the file.
6. When the “Completed Successfully” dialog appears, click the **OK** button in the Dialog box.
7. From the machine: Using the manufacturer's instructions for your machine, pull up the file from the machine and send it.

8. Observe the machine's indicators to determine when the send is complete.
9. In the WinDCS Device window, click the **Close File** button.
10. When the "Please wait" message closes, click the Device window **OK** button.

Sending a File to a Direct Connect Machine

If the selected target device is a direct-connect machine control, then the file is sent directly to the machine control.

Note: *Greco Systems provides an applications note for your specific control to supplement the information in this manual.*

1. Start WinDCS, if it is not already started.
2. In the main WinDCS window, on the system diagram (upper left field), click to highlight the machine to which you want to send the file.
3. In the Files field, click the **Send** button, and then highlight the file you want to send. You may have to scroll the list, or open a subfolder within the list, to find the file you want.
4. In the DNC Functions section, click the **Send** button.

A Send Queued or Completed Successfully message box appears if every thing is all right. If there is a problem, other messages may appear, such as "Unable to setup/open port."

Receiving a File from a Direct Connect Machine

If the selected source device is a direct-connect machine control, then the file is copied directly from the machine control.

Note: *Greco Systems provides an applications note for your specific control to supplement the information in this manual.*

1. Start GNSERVER and WinDCS, if they are not already started.
2. In the main WinDCS window, on the system diagram (upper left field), click to highlight the machine from which you want to receive a file.
3. In the DNC Functions section, click the **Receive** button. A **Receive File** dialog box appears.
4. In the Receive File dialog box, in the files list (larger, upper field), there will be no list of files, because there is no computer readable storage on the device.
5. Type the file name of the file you want into the file name field (smaller, lower field), and then click the **Start Receive** button.

The word “Receive” appears beside the device icon on the system diagram during transmission, and it disappears when the transmission is complete.

Remote Calldown Procedure

In Remote Calldown mode, WinDCS listens and waits for remote commands, *initiated by the machine operator, directly from the machine control.* **Machine status**, at bottom of screen, reads “Listening for remote command...” The precise procedure for this operation is highly dependent on the specific machine tool being used. See *Remote Calldown Configuration Dialog* under *Direct Connect Protocol Configuration* for important information.

1. “Pull up” remote command program at the Control.
2. Change original file name if desired.
3. “Punch” the command program to the WinDCS station.
WinDCS responds by sending the desired file.
Operator receives desired program at the machine control.
4. Execute program according to procedures for the specific machine tool.

Creating a System Administrator Account

CAUTION: *Configure the machines to be used on your network BEFORE you configure the security system. Security system setup requires defined machine configurations.*

The very first time that you setup an account, you must use the default password, DELETEME, to gain access to the Edit User Access screens.

1. From the WinDCS main screen, click the **Admin Screen** button.
2. From the Administration window, choose the **Configuration** tab.
3. On the Configuration screen, click the User Login/Out button to open the User Login dialog.
4. In the User Login dialog, enter the **Username**, DELETEME, and the **Password**, DELETEME. Then click OK.
5. On the Configuration screen again, click OK. *You must leave Administration and come back in for Login to become effective.*
6. From the WinDCS main screen, click the **Admin Screen** button.
7. From the Administration window, choose the **Configuration** tab.
8. On the Configuration screen, click the Edit User Access button.

The Edit User Access window appears:

The new username for the Administrator account, DELETEME, is now showing in the User Names field.

*All of the configured machines on your system should now be listed in the **all Machine Names** field.*

1. In the Edit User Access window, in the **User** field, enter your new System Administrator account username.
2. In the **Password** field, enter your new System Administrator account password.
3. Click on the **Add Admin** button. *The new username appears in the User Names field.*

Note: *You are now ready to assign user access rights to your new account. As System Administrator, you will want full access to all machines.*

1. Click on the System Administrator's username in the **User Names** field.
2. Click on machine names in the **All Machine Names** field.
3. Click on the **Add Machine** button. *The machine names appear in the Selected Machines field.*
4. Click on the **Machine Access** button. *The WinDCS Edit User Access window opens. As System Administrator you will require full access, therefore you will probably check all, or almost all, of the check boxes. As System Administrator, you MUST have the Edit User Access right.*

Note: *Don't forget: In the bottom left corner, in the **directories panel**, there are six tabs. You must select the **DOS Dir**, **Send Dir** and/or **Recv Dir** for each of the tabs separately.*

5. When you are done assigning System Administrator access rights for this machine, click the OK button. *This returns you to the Edit User Access window.*
6. Click the Apply To All Accesses button to apply settings to all machines.
7. When you have finished configuring your System Administrator account, then, in the Edit User Access window, click the **Save User Access** button. *WinDCS will save your configuration and exit to the Administration window.*

You will now want to delete the DELETEME account, so that only the System Administrator account has full access.

1. On the Configuration tab screen, click the **Edit User Access** button.
2. In the Edit User Access window, in the **User Names** field, click the name DELETEME.

3. Click the **Remove** button, then click the **Save User Access** button.

To complete the security setup:

1. In the Configuration tab window, click the **Enforce Security** check box to place a check mark in it. *This ensures that all subsequent users only have the access that is assigned to them.*
2. Click the **Save** button. To save the Enforce security check mark.
3. Click the **OK** button to return to the main WinDCS window.

Assigning Operator Access Rights

The System Administrator will be responsible for assigning access rights to other personnel. Each operator in the facility can be assigned individual access rights tied to a unique username and password. Access rights are usually based on such things as the individual's training, experience, job description and/or job requirements.

You will probably NOT want to give anyone else rights to the **Edit User Access** function, or rights to access the **System Folder**. Access to other sensitive folders, and rights to delete files are examples of functions that should be assigned prudently.

The procedure for assigning operator access rights is almost the same as for creating the System Administrator account. The exceptions are that the DELETEME account no longer exists (the System Administrator's own account is used), and the access rights assigned are more restrictive.

Recovery

If you forget the System Administrator account password, you have to delete the dcsusers.dat file where all of the accounts information is installed. This is an encrypted file, and there is no way to edit it directly.

Once dcsusers.dat is deleted, the default DELETEME account is automatically recreated. Now you have to recreate the entire user database, including the System Administrator account, and reassign all user passwords and access rights.

Appendix I: Part Database

The Part Database option allows greater flexibility in the organization of files used for production. In standard DNC, part programs sent to a machine must be in a particular directory. The part database allows programs to be sent from any legitimate Windows directory.

For each machine, all files relevant to the production of a certain part are entered into the database by the part number. Then, using the Part Library rather than the standard Files Panel, operators can access part programs, instructions, drawings, etc. by selecting the machine, the part, and the file.

Setup and Configuration

1. First determine a location for the database and database application. This can be anywhere as long as each WinDCS workstation can map to it.
2. Place the MTMS CD in your drive.
3. Exit the installation window after it pops up.
4. Open Explorer.
5. Click on your CD ROM drive.
6. Double click on the Misc folder.
7. Double click on the WinDCS folder.
8. Hold the shift key and click both dbutility.exe and gspartlib.mdb.
9. Drag them both onto the folder determined in step 1. (Ensure that gspartlib.mdb is not marked as read only).

To configure the Control Panel applet:

10. Close all applications.
11. Click Start|Settings|Control Panel then double click the icon for ODBC (if Windows 2000, double click the Administrative Tools icon first). See below if there is no applet for ODBC.
12. Click the Drivers tab.
13. If the name Microsoft Access Driver (*.mdb) is not listed, see below.
14. If it is, skip the next part.

If there is no applet for ODBC or it does not contain the above driver, perform the following:

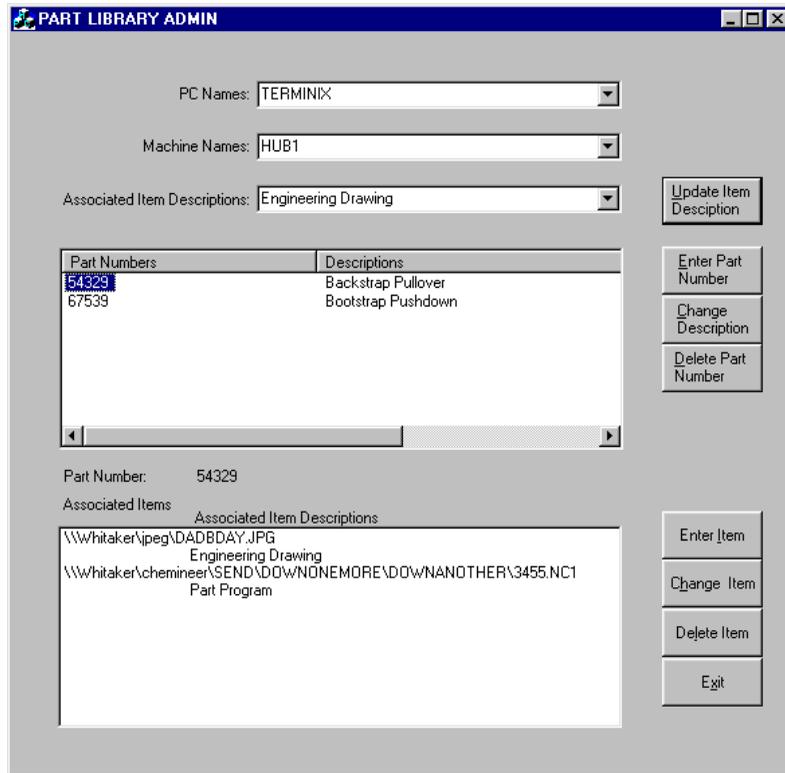
15. Close the Control Panel and/or any applications.
16. Place the MTMS CD in your drive.
17. Once the installation window pops up, highlight an application to activate the Browse button.
18. Click the Browse button.
19. Double click on the Misc folder.
20. Double click on the WinDCS folder.
21. Double click on Mdac_typ.exe.
22. Click the Yes button.
23. Click the Continue button.
24. Click the Complete button.
25. Click the OK button when finished.
26. Exit the MTMS installation window.
27. Click Start|Settings|Control Panel then double click the ODBC icon.
28. Resume according to the following.

To configure the Control Panel applet (cont.):

29. Click the System DSN tab.
30. Click the Add button.
31. Select the Microsoft Access Driver (*.mdb) and click Finish.
32. Type GS PART LIB into the Data Source Name field.
33. Click the Select button.
34. Using the file dialog box, find and select "gspartlib" in the folder in which you placed it.
35. Click OK.
36. Click OK.
37. Click OK.
38. Close the Control Panel.

To configure WinDCS:

1. From the WinDCS main window, click the Admin Screen button.
2. Click the Part Library tab.
3. Click the Enable Part Library check box.
4. Click the Save Part Library button.
5. Click OK.



To create and maintain the database:

Run dbutility.exe from the directory in which you placed it.

To enter a new part number:

1. Use the drop down arrow next to Machine Names and choose the appropriate machine.
2. Click the Enter Part Number button.
3. Enter the part number.
4. Enter the description.
5. Click the SAVE button.
6. To populate a part's associated items, highlight the part number, open Explorer and simply drag and drop all drawing, instruction and program files into the Associated Items box. Use Network Neighborhood to drag files with the proper network (UNC) path. Alternatively, click the Enter Item button, enter the path and file name for an item; or click the Browse button, change extension on file mask if desired, browse for the folder, click OK, browse for the desired file, double click on it then click the OK button.
7. To remove an item from a part, highlight the part number, the item, the Delete Item button, then click OK.
8. To change an item's name, highlight the part number, highlight the item, click the Change Item button, edit the file name, then click the OK button.
9. To change a part's description, highlight the part number, click the Change Description button, edit the description, then click OK.
10. To remove a part number, highlight the part, click the Delete Part Number button, then click OK.
11. Click the EXIT button when done.

To use the Part Library in WinDCS:

1. Highlight the machine.
2. Click the Part Library button (this will toggle between Part Library and File Manager).
3. Double click the desired part number.

Note: Double clicking on an item will open it within the defined application (see Add File Extensions). Highlighting an item (part program) and clicking the Send button will send it to the machine.

Appendix II: Active Log

Setup and Configuration

First determine a location for the database and database application. This can be anywhere as long as each WinDCS workstation can map to it.

1. Place the MTMS CD in your drive.
2. Exit the installation window after it pops up.
3. Open Explorer.
4. Click on your CD ROM drive.
5. Double click on the Misc folder.
6. Double click on the WinDCS folder.
7. Hold the shift key and click both DBQuery.exe and gsactivelog.mdb.
8. Drag them both onto the folder determined in step 1. (Ensure that gsactivelog.mdb is not marked as read only).

To configure the Control Panel applet:

1. Close all applications.
2. Click Start|Settings|Control Panel then double click the icon for ODBC (if Windows 2000, double click the Administrative Tools icon first). See below if there is no applet for ODBC.
3. Click the Drivers tab.
4. If the name Microsoft Access Driver (*.mdb) is not listed, see below.
5. If it is, skip to step 20.

If there is no applet for ODBC or it does not contain the above driver, perform the following:

6. Close the Control Panel and/or any applications.
7. Place the MTMS CD in your drive.

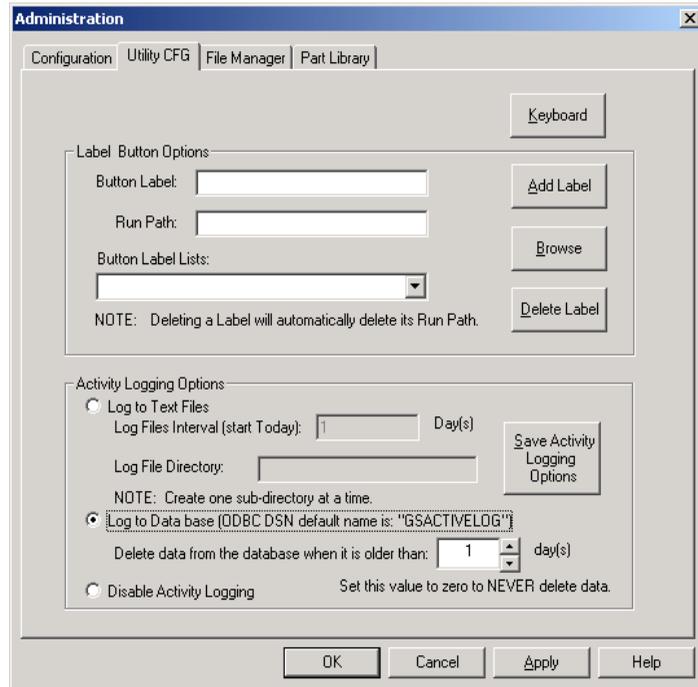
8. Once the installation window pops up, highlight an application to activate the Browse button.
9. Click the Browse button.
10. Double click on the Misc folder.
11. Double click on the WinDCS folder.
12. Double click on Mdac_typ.exe.
13. Click the Yes button.
14. Click the Continue button.
15. Click the Complete button.
16. Click the OK button when finished.
17. Exit the MTMS installation window.
18. Click Start|Settings|Control Panel then double click the ODBC icon.
19. Resume according to the following.

To configure the Control Panel applet (cont.):

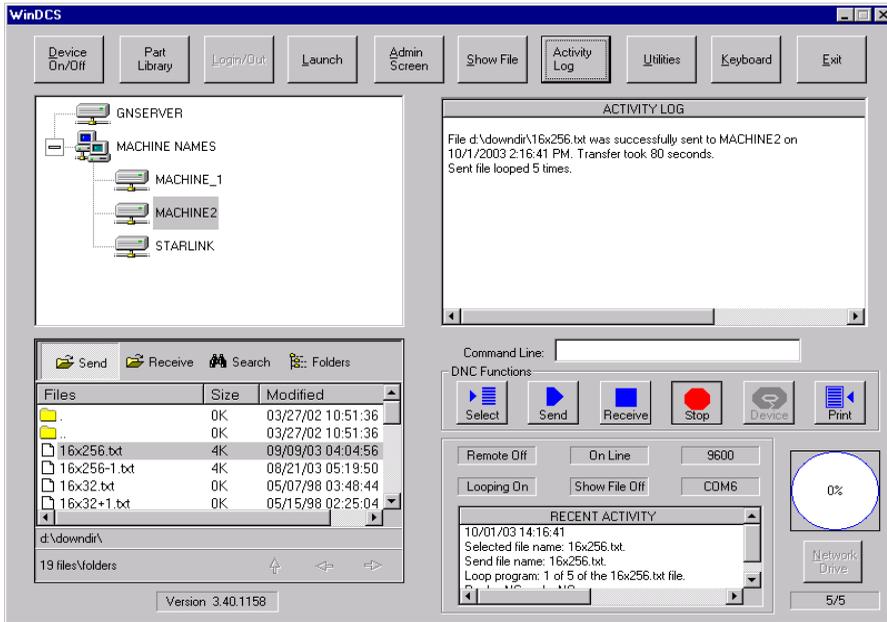
20. Click the System DSN tab.
21. Click the Add button.
22. Select the Microsoft Access Driver (*.mdb) and click Finish.
23. Type "GSACTIVELOG" into the Data Source Name field.
24. Click the Select button.
25. Using the file dialog box, find and select "gsactivelog" in the folder in which you placed it.
26. Click OK.
27. Click OK.
28. Click OK.
29. Close the Control Panel.

To configure WinDCS:

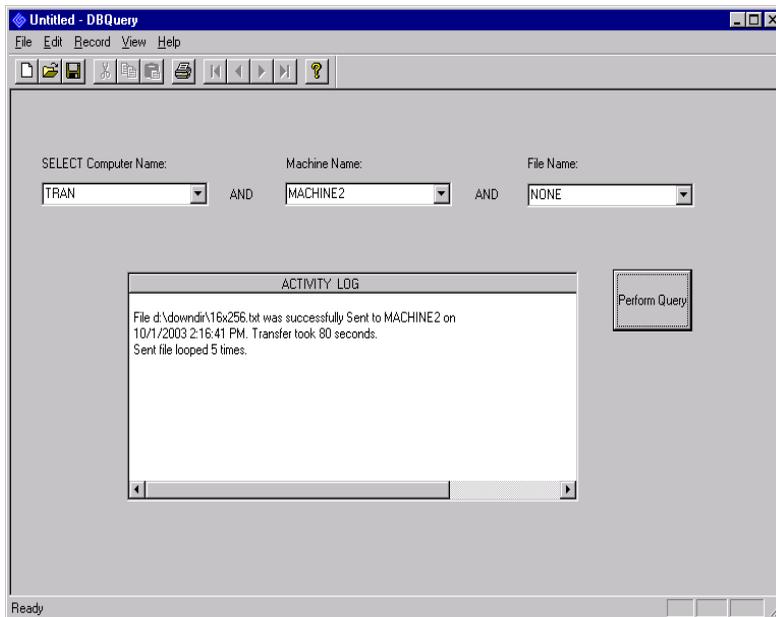
1. From the WinDCS main window, click the Admin Screen button.
2. Click the “Utility CFG” tab.
3. Select “Log to Database (ODBC DSN default name is: “GSACTIVELOG”)” under the “Activity Logging Options.



4. Select the number of days that the data is to be saved. Zero days will never delete the data.
5. Click the “Save Activity Logging Options” button.
6. Click OK.
7. From WinDCS Select MACHINE2 and send a file.



- Run "Active Log Query" program (Start|Programs|Greco Systems| Active Log Query) to query database for each machine, and print the result.



Appendix III: Remote Call

REQUIREMENTS

- CNC with editing and serial I/O capabilities
- CNC memory capable of storing multiple ASCII format files
- Communications protocol supported by ActiveDNC
- Ability to initiate transfers at the control panel

THEORY OF OPERATION

With “Allow Remote Calldown” checked, GNServer listens to the port for a remote command. When characters start coming into the port, GNServer compares them against a user-defined “SEND” string (or character). When a match is found, it gathers the next set of consecutive characters up to the end of the line, a space or end-of-comment character, whichever comes first. It will then open and send a file stored in the user-defined send directory whose name *exactly* matches that set of characters. Space characters between the command and file name are ignored.

The operating sequence is as follows:

1. The operator pulls up the remote command “program” at the CNC.
2. The prior file name is changed to the one currently desired.
3. The operator “punches” the command program to ActiveDNC.
4. ActiveDNC responds and sends the desired file.
5. The operator reads the desired program.

Note that with some protocols (e.g. XON/XOFF) the operator must initiate the read prior to GNServer sending.

CONSIDERATIONS

Proper bi-directional communications is a must. It is best to first punch a file from the CNC to WinDCS using manual methods. The received file can then be checked for proper recording. This will also serve to help understand the control’s format requirements.

The format of the control's ASCII programs are important to understand. The send command character(s) cannot be one that is unavailable at the control if created at the control, or one that cannot be read into the control if created offline.

The control's editing capabilities are also important to understand. The way the control forces one to edit will play heavily on the way the command file is created and may affect the programs' file names.

EXAMPLES

<u>A</u>	<u>B</u>
%	%
O7777	O7777
(SEND B1299.TAP)	S1299.T1
%	%

Both user A and user B have Japanese-made CNCs and CAM systems that produce "tape" files with the extension ".TAP". User A's control has a full keyboard and can freely edit anything within parentheses. User B's control does not allow editing of comments. User B can only move the edit cursor to a valid word address and change its value. He is forced to rename file B1299.TAP to 1299.T1. To his control, the operator changes the spindle speed each time a new file is required, and his one line program uses tool number one.

The examples below are generic command programs that work with many controls. Users set the Send command to GET, the Receive command to PUT and the end of comment character to")."

%	%
O7777	O8888
(GET FILENAME.NC)	(PUT O3924)
%	%

SYMPTOMS AND SOLUTIONS

1. ActiveDNC sends an error message whenever the command file is punched.
 - a. Do a manual receive of the command file.
 - b. Verify proper recording.
 - c. Verify that the requested file exists in the send directory.

Example: (T) SEND 4239459*

Solution: Use) for open comment character and * for closing comment character.

d. Ensure that the send character(s) do not occur anywhere else in the command file.

Example: S TEST.TXT

Solution: The command string “S” can’t be used as there’s an s in the filename.

2. ActiveDNC responds to the command, but the file isn’t sent or the first part is missing.
 - a. Have the operator wait a little longer before initiating the read.
 - b. Change to XON/XOFF protocol with a slight time delay.

Appendix IV: Protocols

The following protocols are included with WinDCS:

AppleStrip	Strips characters surrounding program name and inserts nulls prior to sending. Records all characters received. Pauses with DC3 when sending, and resumes with a DC1.
AutoShape	Proprietary protocol for communicating with a Cincinnati, Inc. Autoshape.
Camstore 2	Protocol for communicating with a Rybett Camstore (not supported in this release).
EZ Link	Proprietary protocol for communicating with Bridgeport controls.
Fanuc	Records after receiving a DC2, ends recording after receiving a DC4. Sends after receiving a DC1, pauses with a DC3, resumes with a DC1.
Fanuc Cassette	Protocol for replacing PS-100 Floppy Cassettes on Fanuc controls.
Fapt	Protocol for sending/receiving Fapt family graphics programs with Fanuc controls.
GE Level 2	Proprietary protocol for communicating with GE 2000 controls using IPP protocol. Supports Terminal mode operation at the control and forced background loads of programs into the control from the PC.
Greco Net	Proprietary protocol for communicating with Greco Systems hardware devices.
Hecc 80	Records all data received. Sends ten nulls then waits for a DC1. Upon receiving a DC1, sends the file name, ten nulls, then waits for a DC1. Upon receiving a DC1, sends a CR, an LF, then the file. It pauses with a DC3, resumes with a DC1 and sends ten nulls when done.

Heidenhain	Records when data are received, ends recording after receiving an ETX. Sends after receiving a DC1, pauses with a DC3, resumes with a DC1 and sends an ETX when done.
Heidenhain FE	Proprietary protocol for communicating with Heidenhain controls in FE mode. Supports directory, uploads, downloads and drip-feeding of machine programs, all from the operator's console.
Kermit	Subset of standard Kermit protocol. Designed for use with Cincinnati, Inc. Autoforms but also works with other devices that utilize Kermit protocol.
LVD-Kermit	Subset of standard Kermit protocol with minor changes to make it compatible with LVD Press Brake machines.
Master Starlink	Protocol for copying program files from Str_Link III cassette recorders.
Mazak Conversational	Proprietary protocol for sending/receiving conversational programs with Mazak controls. This protocol contains 3 or 4 bytes for each request message from Mazak control.
Mazak Two Conversational	Proprietary protocol for sending/receiving conversational programs with Mazak controls. This protocol contains 2 or 3 bytes for each requested message from Mazak control.
No Protocol	No handshaking.
Punch/Reader	Records after receiving a DC2, pauses recording after receiving a DC4 and resumes recording with a DC2. Sends after receiving a DC1, pauses with a DC3 and resumes with a DC1.
Punch/Reader II	Records when data are received. Sends after receiving a DC1, pauses with a DC3 and resumes with a DC1.
Punch/Reader Master	Sends a DC1 then records data received. Sends DC3 when done receiving. Sends a DC2 then file data when sending, pauses with DC3, resumes with DC1, sends DC4 when done sending.

Rollway	Proprietary protocol (specifications unavailable).
RS491 Level 1	Hardware handshaking (RTS/CTS).
RS491 Level 2 Master	Sends a DC1 then records data received. Sends DC2 then waits for a DC1 before sending. Pauses with a DC3, resumes with a DC1. Sends an EOT and a DC4 when done sending.
RS491 Level 2 Slave	Sends a DC1 after receipt of a DC2 then records data received. Ends recording after receiving an EOT and a DC4, then sends a DC3. Sends after receiving a DC1, pauses with a DC3 and resumes with a DC1. Sends an EOT when done.
StarLink	Protocol for emulating a Str_Link III cassette recorder.
Starlink-Echo	Echos all characters received. Uses RTS/CTS for sending.
Tiger	Pauses after sending each line (not supported in this release).
Wiedemann3	Proprietary protocol for communicating with Wiedemann CNC W3 controls with the Data Link option.
Xon/Xoff	Records all data received. Sends data immediately yet pauses with a DC3 and resumes with a DC1.
Xon/Xoff II	Records all data received. Immediately sends a DC1 then file data. Will pause with a DC3 and resume with a DC1.
Yasnac	Proprietary protocol for replacing FC1 units on Yasnac ERC robot controllers.
Yasnac RX	Pauses after sending each character (not supported in this release).
Custom 1 and 2	Used for customizing protocols by trained personnel.

Glossary

CNC	Computer Numerical Control
DCS	Distributive Control Software
DNC	Direct Numerical Control
FTP	File Transfer Protocol
GNSERVER	Greco Systems Network Server software module that runs in background (minimized), and provides networking functions for WinDCS.
MINIFILE	Disk based, part program, storage system. Replaces paper tape and reader.
MTC	Machine Tool Control
MTIC	Machine Tool Interface Control
MTMS	Machine Tool Management System
NC	Numerical Control
RAM	Random Access Memory

Index

- Add New Machine, 17
- Cancel. *See* Windows® standard buttons
- Defaults
 - editor and viewer, 45
 - file type mask, 78
 - filename (FTP), 100
 - GrecoNet Timeouts, 74
 - new machine parameters, 73
 - password, 106
 - serial comm bits, 83
- Drawings
 - viewing, 32
- Edit
 - Greco Systems license, 15
 - program file, 30
 - user access, 63, 65
- File Manager, 55, 58
- FTP, 100
- GrecoNet Module Configuration, 74
- Hardware Key
 - defined, 13
 - installing, 13
 - serial number, 15
- HASP Key. *See* Hardware Key
- Help. *See* Windows® standard buttons
- Keyboard button, keyboard screen, 24, 42
- License Manager
 - installing password using, 13
- Machine Monitoring, 96
- New Machine, add, 17
- OK. *See* Windows® standard buttons
- Parallel ports, 84
- Password, security. *See* Security
- Password, system
 - demo/temporary/permanent, 12
 - using License Manager, 13
- Queue, 87
- Remote Calldown, 89, 90
- RS-232, RS-422, serial comm, 84, 86, 90
- Save. *See also* Windows® standard buttons
- Security
 - default password:, 106
 - enforce, 45, 108
 - log in, log out, 24
 - log-in dialog, 29
 - options, 45
- Serial comm, 84, 86, 90
- Start
 - character, command, 93
 - copy file, 57
 - editor application, 24
 - on-line machines automatically, 71, 79
 - program, on which line, 35, 36
 - receive file, 38
 - search for file, 25
 - string, message file, 91
 - WinDCS, 22
- Touch Station, touch screen, 24, 42
- User Access
 - procedure, 106
 - window2, 65
- View
 - drawings, 32
 - dump file, 72
 - log file, 72
 - user names, 64
- Windows® standard buttons, 27