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Logicmaster 90 TCP/IP Windows 95/98 Windows NT
User's Manual Supplement

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GE Fanuc Automation

Programmable Control Products

Logicmaster™ 90 TCP/IP
Windows® 95/98 Windows NT®

User's Manual Supplement

Warnings, Cautions, and Notes
as Used in this Publication

This manual is a supplement to the user's and reference manuals for Logicmaster 90-30 and Logicmaster 90-70 software . It documents the aspects of Logicmaster software that are unique to the TCP/IP versions. To use the software to program logic in the PLC, consult the appropriate user's and reference manuals listed in the "Related Publications."

Revisions to This Manual

The following revisions have been made to this manual (revision B) as compared to the previous version (A).

* A note recommending automatic upgrading of serial communications drivers added to "Installing Logicmaster 90 Windows Software" on page 3-5.

* A new section "Using Modems with Logicmaster 90 32-Bit Serial Communication" has been added (see page 3-7).

* Other corrections and clarifications have been added as needed.

Content of This Manual

Chapter 1. Introduction: Describes the product in general and uses of the product.

Chapter 2. Logicmaster 90 Windows Operational Characteristics: Describes characteristics of the Logicmaster Windows software.

Chapter 3. Installing and Setting Up Logicmaster 90 Windows Software: Describes how to install and start up the software on a personal computer.

Chapter 4. Using Logicmaster 90 Windows software: Explains how to establish communications with a Series 90-30 or Series 90-70 PLC Station to perform Logicmaster functions. Discusses special considerations for Logicmaster 90 network communications.

Appendix A. TCP/IP-Ethernet Error Messages and Meanings: Provides a list of error messages and describes how to correct the errors.

Appendix B. TCP/IP-Ethernet Network Utilities: Describes the functions of the network utilities. The screens described in this appendix are used primarily by personnel responsible for operation of the network. Describes how to build PLC address lists.

Appendix C. Connecting to a PPP or SLIP Server: Provides details on opening a connection to a PPP or SLIP server. This connection must be established before starting the Logicmaster 90 Programming or Configuration software.

Related Publications

GFK-0466	*Logicmaster™ 90-30/20/Micro Programming Software User's Manual*
GFK-0467	*Logicmaster™ 90-30/20/Micro PLC CPU Instruction Set Reference Manual*
GFK-0263	*Logicmaster™ 90-70 Programming Software User's Manual*
GFK-0265	*Logicmaster™ 90-70 Programming Software Reference Manual*
GFK-1004	*TCP/IP Ethernet Communications for the Series 90™ PLC User's Manual*
GFK-1084	*TCP/IP Ethernet Communications for the Series 90™ PLC User's Manual*
GFK-1186	*TCP/IP Ethernet Communications for the Series 90™-30 PLC Station Manager's Manual*

At GE Fanuc Automation, we strive to produce quality technical documentation. After you have used this manual, please take a few moments to complete and return the Reader's Comment Card located on the next page.

Libby Allen
Sr. Technical Writer

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Chapter *1*	*Introduction*

This manual describes the Logicmaster 90-30 and Logicmaster 90-70 products that operate within an MS-DOS box in Windows 95/98 or Windows NT. These Windows versions of Logicmaster include all the features of the standard MS-DOS-based Logicmaster software packages. These products support both serial communication with Series 90™ PLCs (90-70, 90-30, 90-20, Micro) and TCP/IP Ethernet communication with Series 90-70 and Series 90-30 PLCs.

Software Package	Catalog Number
Logicmaster 90-30 TCP/IP Windows 95/98 Windows NT (3.5" Disks, documentation on CD ROM)	IC641SWC316
Logicmaster 90-70 TCP/IP Windows 95/98 Windows NT (3.5" Disks, documentation on CD ROM*)	IC641SWC716

The Logicmaster 90-70 TCP/IP-Ethernet package includes Genet System Manager (GSM) software (IC651ENS042), which is required when Series 90-70 IC697CMM741 Ethernet Interfaces are used. The GSM downloads configuration files and communications software to the Ethernet Interfaces located in each Series 90-70 PLC on the network. The GSM can communicate directly with the serial port on the Ethernet Interface, or it can communicate with the Interface via the Ethernet network. When used serially, the GSM software can execute in an MS-DOS box under Windows. When used over Ethernet, the GSM software can execute under MS-DOS only (not in an MS-DOS Box under Windows). It can be installed on the same PC as that used for Logicmaster Windows software, provided the PC can boot to MS-DOS. Alternately, the GSM can be installed on a separate PC. The GSM is not needed for Series 90-70 IC697CMM742 Ethernet Interfaces or Series 90-30 IC693CMM321 Ethernet Interfaces, or with the embedded Ethernet interface within the Series 90-30 IC693CPU364.

The Logicmaster 90-30/90-70 TCP/IP Network

Logicmaster 90 TCP/IP provides a central location from which to program PLCs attached to an Ethernet network via TCP/IP Ethernet Interfaces installed in the PLC. Figure 1-1 shows the major components of an Ethernet network designed to program and configure Series 90-30 or 90-70 PLCs using Logicmaster 90-30 TCP/IP-Ethernet or Logicmaster 90-70 TCP/IP-Ethernet software. The configuration shown in Figure 1-1 uses a *Direct* Ethernet connection, in which the PC running Logicmaster 90 software incorporates an Ethernet card and is connected directly to the same network as the PLCs.

Logicmaster 90 TCP/IP packages also support *Dial-Up Networking*, as an alternative to a direct Ethernet connection. Using Dial-Up Networking, a remote PC running Logicmaster 90 software connects to a telephone line through an internal or external modem. The line connects with a network server that is on the same Ethernet network as the PLCs.

A personal computer capable of running the Logicmaster TCP/IP-Ethernet software, as well as a network of Series 90 PLCs, are necessary for proper operation. General network requirements are summarized below, with requirements for software and firmware listed in Table 1-1.

- **PLC Stations.** Each station consists of a Series 90-30 or Series 90-70 PLC with an installed Ethernet Interface, or a Series 90-30 CPU364 with embedded Ethernet interface.

- **Logicmaster 90-30 or Logicmaster 90-70 TCP/IP Ethernet Station.** This consists of Logicmaster 90-30 or 90-70 TCP/IP-Ethernet software installed in a PC-compatible computer that has an Ethernet card (for Direct Ethernet connections) or a COM port and modem (for dial-up networking connection). The PC must use Microsoft Windows 95/98, or Windows NT (version 4.0 or higher is recommended).

- **Cable plant.** The cable plant should be designed by an experienced Ethernet installer. This consists of the cabling and physical equipment necessary to connect the devices listed above to a common network. Dial-up networking connection further assumes the availability of a dial-up networking server on the network to which the PLCs are connected.

- **GEnet System Manager (GSM).** *IC697CMM741 only.* This consists of a personal computer attached to the network with the GSM software installed. The GSM is required to configure the TCP/IP Interfaces installed in the Series 90-70 PLCs before the Logicmaster package can communicate with them. Refer to GFK-1004, *TCP/IP Communications for the Series 90-70 User's Manual*, for information about GSM operation.

Table 1-1. Logicmaster Prerequisites for PLCs

Installation	PLC CPU Firmware	Ethernet Interface Software
Logicmaster 90-30	Series 90-30 PLC Rev. 6.5 or later	Ethernet Interface: IC693CMM321: TCP/IP software Revision 1.10 or later IC693CPU364: Revision 9 or later (revision 1 or later of the Ethernet firmware)
Logicmaster 90-70	Series 90-70 PLC Rev. 4.12 or later	Ethernet Interface IC697CMM741: Revision 1.15 or later and TCP/IP software Revision 1.28 or later Ethernet Interface IC697CMM742: Revision 1.00 or later

Ethernet Network

TCP/IP Ethernet Interface

PLC Station
(Series 90-70)

PLC Station
(Series 90-30)

Transceiver   Transceiver   Transceiver

Ethernet Card

Logicmaster 90-30 and/or Logicmaster 90-70
TCP/IP Ethernet software is installed on a PC compatible to create the
Logicmaster TCP/IP-Ethernet station.

GSM software (90-70 version only) is used to download
configuration files and communications software to
Ethernet Interfaces (IC697CMM741) located in
each Series 90-70 PLC on the network

Logicmaster 90-30 or
Logicmaster 90-70
TCP/IP-Ethernet Station

Figure 1-1. The Logicmaster 90 TCP/IP Network Using Direct Ethernet Connection

Contents of the Software Packages

Table 1-2. Software Package Contents

Package	Contents
Logicmaster 90-30 TCP/IP Windows 95/98 Windows NT (IC641SWC316)	Logicmaster floppy disks (3.5 inch) 1 – *Logicmaster 90-30/90-70 Windows 95/98 Windows NT User's Manual Supplement* GFK-1401 (this manual) 1 – Documentation library, CD-ROM
Logicmaster 90-70 TCP/IP Windows 95/98 Windows NT (IC641SWC716)	Logicmaster floppy disks (3.5 inch) 1 – *Logicmaster 90-30/90-70 Windows 95/98 Windows NT User's Manual Supplement* GFK-1401 (this manual) 1 – Documentation library, CD-ROM 1 – GSM floppy disk labeled Series 90-70 TCP/IP Ethernet SW, IC651ENS042 (3.5 inch)

Also required: Station Manager Cable, IC693CBL316.

Users of the Software Package

This manual provides information for two groups of users of the Logicmaster 90-30 or 90-70 TCP/IP-Ethernet Software package:

- PLC Logic Programming Personnel

- Network Personnel

PLC Logic Programming Personnel use the Logicmaster 90 TCP/IP-Ethernet software package to program and perform CPU and I/O configuration for Series 90-30 or Series 90-70 PLCs. These tasks involve establishing connections from Logicmaster to various PLCs on the network. This group is usually not involved in setting up and maintaining the network.

Network Personnel will use the Network Utilities to build the list of PLCs.

Chapter	*Logicmaster 90 Windows Operational*
2	*Characteristics*

This chapter describes characteristics of the Logicmaster Windows software, particularly as it differs from Logicmaster MS-DOS. It is assumed that you are generally familiar with the operation of Logicmaster and of Windows.

General Operational Characteristics

Logicmaster 90 Windows may be run in windowed or full screen mode. For some combinations of Windows version, display adapter, and display driver, you may find that Logicmaster cannot be displayed in color in windowed mode. Logicmaster will be displayed in color in full screen mode when colors have been selected using the **Specify Palette Colors** option of the **Logicmaster 90 Setup Package** of the Logicmaster 90 Main Menu. To switch between windowed and full screen mode, press ALT-ENT.

You should not attempt to run more than one Logicmaster 90 Window at a time on a single PC. Doing so will result in file sharing conflicts and may also result in corrupted program folders. Under Windows 95/98, you cannot select a program folder when it is already open in another Logicmaster 90 window.

When using Serial COM port or Dial-Up Networking communication, Logicmaster 90 requires exclusive use of a serial port. With Ethernet communication, Logicmaster 90 shares the network connection with other network applications.

TCP/IP-Ethernet Operational Characteristics

Keep in mind that a new Series 90 Ethernet Interface must have an IP address assigned to it before it can communicate on the network. Under normal circumstances, a replacement Interface will obtain its IP address from the PLC upon powerup. Logicmaster TCP/IP-Ethernet cannot communicate to a new Interface (as distinguished from a replacement Interface), and therefore cannot be used to assign its IP address. The common method to assign an IP address is to configure the Ethernet Interface's IP address using the Logicmaster Configuration software and store the configuration to the PLC using *serial* communication. Alternately, a BOOTP Server can be used to supply an interface's IP address via the network (to IC697CMM742 and IC693CMM321 modules and IC693CPU364); BOOTP is not supported by IC697CMM741. BOOTP is commonly provided on UNIX™-type systems.

Performing program and/or configuration loads and stores via Logicmaster 90 TCP/IP Ethernet consumes a substantial fraction of the available Ethernet bandwidth.

During program and/or configuration loads and stores via Logicmaster 90 TCP/IP Ethernet, the Ethernet Interface and the PLC CPU receive and send many messages. Load and store operations are given priority over other messages that the Ethernet Interface and CPU may be servicing, such as data collection for a Human Machine Interface (HMI) or a Channel transfer to another PLC. Consequently, these other messages may not be processed in a timely fashion, resulting in a time-out. HMI and Channel applications are normally written to retry and recover from time-out conditions.

During loads and stores of large programs via Logicmaster 90 TCP/IP Ethernet, many large messages are passed between the Series 90 Ethernet Interface and the Series 90 PLC CPU. The PLC CPU processes these messages during the System Communications Window of the sweep. Due to the potentially long processing times, the System Communications Window may be very lengthy, resulting in long sweep times.

Installing and Setting Up Logicmaster 90 Windows Software

This chapter describes how to install the Logicmaster 90-30 and Logicmaster 90-70 Windows software on a personal computer.

The topics covered in this chapter are:

- Computer Requirements for Running this Software

- Connecting Your Computer to the Network

- Installing the Logicmaster 90 Windows Software

- Using Modems with Logicmaster 90 32-Bit Serial Communication

- Configuring PLC Ethernet Interface Modules

Computer Requirements for Running This Software

To install and run the Logicmaster Windows 95/98 Windows NT product, the computer must meet the following requirements.

■ Windows 95/98, or Windows NT version 4.0 or later is recommended.

■ The Windows Networking and Microsoft TCP/IP protocol software distributed with Windows must be installed. To use direct Ethernet communication, the computer must have an Ethernet adapter card installed. To use Dial-Up Networking, the computer must have an internal or external modem. If you use an external modem, it will require an available serial port through which to operate.

■ Any 80486 or higher microprocessor that is capable of running one of the required Windows versions will also run Logicmaster 90 TCP/IP.

■ Eight Megabytes of available space on hard disk are required to install IC641SWP316 or IC641SWP716.

■ At least 16 Megabytes of RAM are recommended, particularly if Logicmaster 90 TCP/IP and one or more additional applications run at the same time.

■ Logicmaster 90 requires about 600 KB of Free Conventional memory. If you see a memory size warning message when you attempt to start LM90, use the MS-DOS MEM /C command to discover the device drivers and TSR programs loaded in conventional memory. You will need to remove some of them from the CONFIG.SYS and/or AUTOEXEC.BAT files in your computer in order to provide the required minimum conventional memory.

■ Operation of Logicmaster 90 via serial communication, including dial-up networking, requires a serial controller device that has a first-in-first-out (FIFO) character buffer. If the serial controller device has no FIFO, intermittent program lockups which require rebooting the computer may occur. To determine whether your serial port has a FIFO buffer, follow these steps. In Windows NT, open the **Control Panel** /**Ports**/**Settings**…/**Advanced**… dialog. In Windows 95/98, open the **Control Panel/System** dialog and select the **Device Manager** tab. Open the **Ports** (**COM** and **LPT**) item, select one of the **Communications Ports** and click the **Properties** button. Select the **Port Settings/Advanced**…dialog. In all Windows versions the FIFO box will be checked if Windows detected a serial controller with a FIFO. If the FIFO box is not checked, you should upgrade your PC's Communications port hardware.

Connecting Your Computer to the Network

Two types of Ethernet connection are available. Each of these requires a distinct setup of your computer and Windows.

■ Direct Ethernet connection: The computer running Logicmaster 90 software has an Ethernet card that is connected directly to the same network as the target PLCs.

■ Dial-Up Networking connection: The computer running Logicmaster 90 software communicates with PLCs on a remote Ethernet network through a serial port, modem, telephone connection, and PPP (Point-to-Point Protocol) or SLIP (Serial Line Internet Protocol) server.
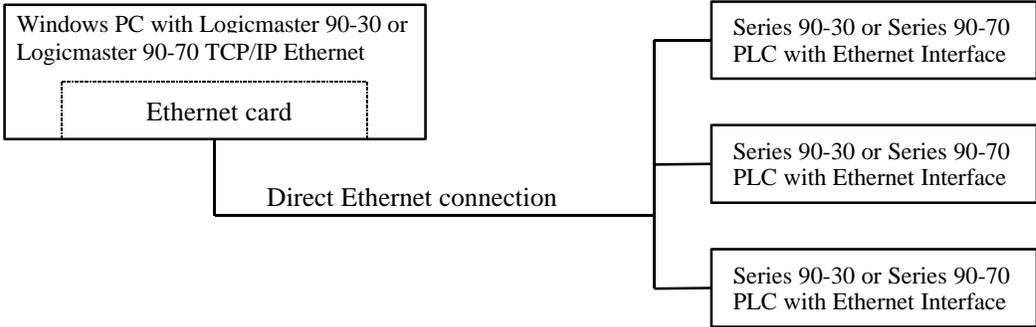
Figure 3-1. Logicmaster 90 TCP/IP Using Direct Ethernet Connection
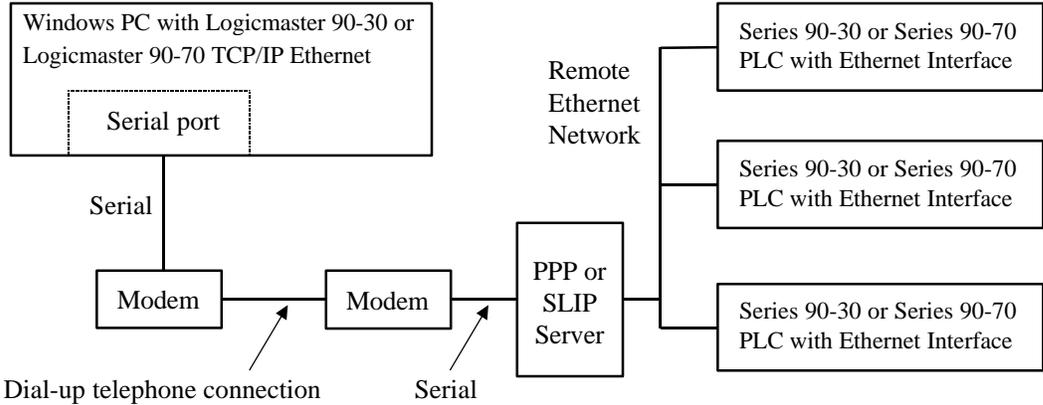
Figure 3-2. Logicmaster 90 TCP/IP Using Dial-Up Networking Connection

To use Ethernet communication, your computer must have an Ethernet adapter card and the TCP/IP protocol installed. To use Dial-up networking, your computer must have a modem as well as the TCP/IP protocol. If all the required components are not present in your computer, you will need to add them before you can use Logicmaster 90 TCP/IP Windows.

With any version of Windows NT, you must have administrator rights to install network hardware or software components. If you do not know how, see your system administrator.

For Windows NT 4.0 procedures, see *Microsoft Windows NT Workstation Resource Kit* for version 4.0.

For detailed information on Windows 95 installation procedures, see "Installing Networking Components" in the *Network Configuration Overview* section of chapter 7 in the *Windows 95 Resource Kit* from Microsoft Press. For Windows 98 information, see "Installing and Configuring Network Adapters in the Overview of Network Adapters" section of chapter 15 in the *Windows 98 Resource Kit* from Microsoft Press.

Installing and Configuring a New Ethernet Adapter Card

Follow the installation instructions furnished with your adapter.

In Windows 95/98 and Windows NT version 4.0, install the driver for the new network adapter by running the Add New Hardware option in Control Panel. Answer Yes when asked whether Windows 95/98 should search for new hardware.

Installing and Configuring Microsoft TCP/IP Software

In Windows 95/98 and Windows NT version 4.0, install Microsoft TCP/IP from the Network option of Control Panel. Click the Configuration tab, and then click Add. In the Select Network Component Type dialog box, double-click the Protocol selection. In the Select Network Protocol dialog box, click Microsoft in the Manufacturers pane and TCP/IP in the Network Protocols pane. Then click OK. Follow the instructions on your screen. After the required files are installed, you will be returned to the Network dialog box. Now select the new TCP/IP item in the list of installed network components and then click Properties. Configure the properties in accordance with your network installation and policies.

Installing Dial-Up Networking

In Windows 95/98, install Dial-Up Networking from the Add/Remove Programs option of Control Panel. Select the Windows Setup tab and then select Communications in the Components list box. In the Communications dialog box, select the Dial-Up Networking component and click OK. Follow the prompts on your screen.

In Windows NT version 4.0, Dial-Up Networking is installed from the Dial-Up Networking option of My Computer. You will be prompted to install it when you attempt to configure a connection.

Installing Logicmaster 90 Windows Software

The Logicmaster 90-30 Windows and Logicmaster 90-70 Windows software packages are each shipped on several 3.5-inch, high density distribution diskettes. The instructions below explain how to install the software packages onto your hard disk. The instructions assume the use of floppy drive A, but you can load the software from another drive.

■ Close all Windows programs.

■ Insert Diskette 1 into your diskette drive.

■ Run the SETUP.EXE program on Disk1 to install the software. In Windows 95/98 and Windows NT version 4.0 (recommended), use the Add/Remove Programs option in Control Panel. Click the Start button, slide the mouse cursor to Settings, and select Control Panel. Double-click Add/Remove Programs, click the Install/Uninstall tab, and click Install. Then follow the prompts on your screen. Be sure to provide the information to register your copy of the software.

■ Reboot your computer so the new system settings will take effect.

During the installation process, the environment variable $PLCROOT will be automatically updated in the C:\autoexec.bat file. If the variable does not exist, it is created. If the variable already exists, it is assigned the value `C:\LM90` when Logicmaster 90 is installed on drive C. The variable is placed following the PATH statement.

During the installation process for Windows NT, changes are made in the registry, the PLCprog.reg file in the C:\lm90 directory. *Performing this update requires administrator privileges. The following entries are made:*

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\WOW]

"COM_SyncWrite"="1"

"COM_TxBuffer_Size"="1"
```

Note

For Logicmaster 90-30 Windows version 9.04 and later, the install utility checks for the presence of Logicmaster 90-70 Windows on the computer. If Logicmaster 90-70 is present, the install utility presents the option to upgrade the serial communications drivers of Logicmaster 90-70. We recommend that you upgrade the drivers if they are present. If you do not upgrade, you will not be able to switch between Logicmaster 90-30 and Logicmaster 90-70 without closing the DOS window and possibly rebooting the computer. A similar check is made when you are installing Logicmaster 90-70 Windows version 7.04 and later.

On some computers you may need to shut down the computer to reset port settings.

Modifying Windows NT Tasking Options

Windows NT provides optional settings for task priorities. These settings should be modified to provide the best possible performance for Logicmaster 90 serial communications.

Windows NT Version 4.0

From the Start button, select Settings and then Control Panel. Click the System icon in Control Panel and then select the Performance tab. Set the Application Performance slider to the center position. Click the OK button in the System Properties window. Close Control Panel.

Modifying DIALUP.INI for Dial-Up Networking

For dial-up networking, the Logicmaster TCP/IP communication driver needs to know the approximate speed of your modem. A file in the \LM90 directory, dialup.ini, contains a default modem speed setting. The default value is 14400, corresponding to a 14,400 bps modem. This setting will work for any 9,600 bps or faster modem. However, program and reference table stores through a 28,800 bps or faster modem will be significantly faster if you change this setting. If your modem is slower than 9,600 bps, program and reference table stores may fail unless you change this setting.

You can change DIALUP.INI with Windows Notepad or any text editor. The file contains just two lines:

```
[datarate]
datarate = 14400
```

Edit the number value of the second line to match the advertised speed of your modem. For a 28,800 bps modem, for example, change 14400 to 28800. Do not make any other changes. Save the file and exit from the editor. The change will take effect the next time Logicmaster 90 establishes a new PLC connection.

Your modem may connect to a remote server at less than its advertised speed because of poor line conditions. When a connection at less than half of the setting in dialup.ini occurs, you should edit the file to change the setting before starting Logicmaster 90.

Using Modems with Logicmaster 90 32-Bit Serial Communication

The MS-DOS `dialer.exe` program that was used to set up modem connections with Logicmaster 90 versions prior to 9.04 (90-30) and 7.04 (90-70) is incompatible with 32-bit communication drivers in Microsoft Windows 95, Windows 98, and Windows NT. Instead, follow these steps to set up and use modem connections.

Installing the PLC Modem

Use the instructions at http://www.gefanuc.com/support/plc/modems.htm that apply to your modem to configure your modem and PLC. Then connect them with the appropriate cable and RS-232/RS-485 converter.

Installing the PC Modem

1. **Install a separate instance of your modem for Logicmaster 90.**

   Logicmaster 90 requires different modem settings from most other modem applications. To avoid conflicts, install your modem specifically for Logicmaster 90. If you use other modem applications, install your modem twice – once for Logicmaster 90 and once for other applications.

   Click the Windows **Start** button and select **Settings**. Open **Control Panel** and double-click the **Modems** icon. In the **Modems Properties** dialog box, click **Add**…. The **Install New Modem** dialog box will appear. Check the box next to "Don't detect my modem; I will select it from a list." If you have an external modem, be sure it is powered on and connected by the correct cable to a COM port on your PC. Be sure the modem is not in use by another program. Click the **Next** button.
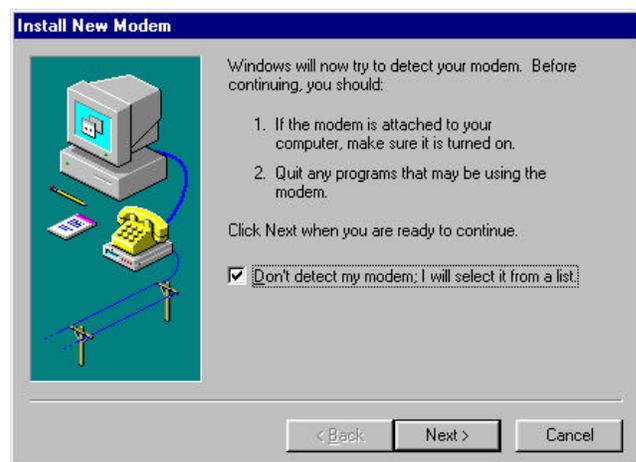
Next, select **(Standard Modem Types)** in the left pane. In the right pane, select the standard modem type that corresponds to the data rate in bits per second (bps) you will use for communication between Logicmaster 90 and the modem and PLC. The selection for 9,600 bps is shown here. You may be able to use 19,200 bps if the quality of your phone connection is high. Click the **Next** button.
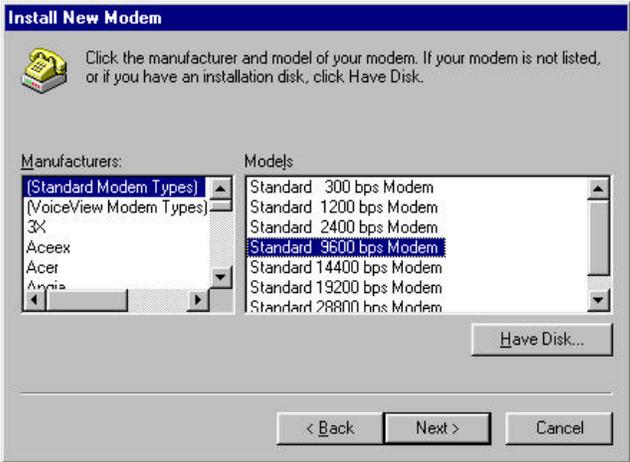
In the next dialog box, select the serial communications (COM) port where your modem is connected. Although Windows may display port names higher than COM4, Logicmaster 90 does not support them. You must select a port no higher than COM4. Click the **Next** button.
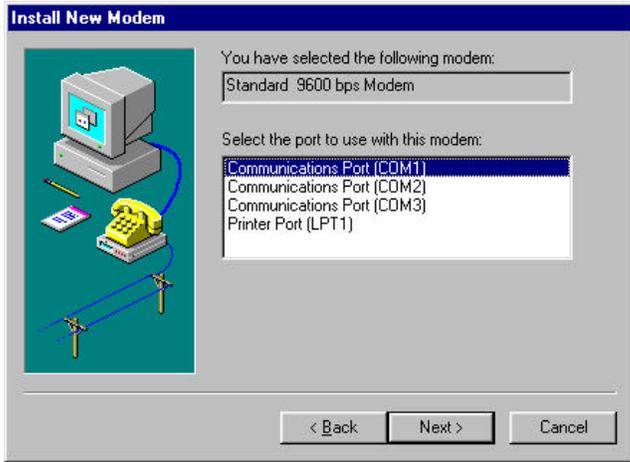
After Windows installs your modem, click **Finish** to complete the modem setup.

2. **Configure your modem for Logicmaster 90.**

From the Start button, select **Settings** and **Control Panel**. In the Control Panel dialog box, select **Modems.** On the **Modems Properties** sheet, select the modem you installed in step one and click the **Properties** button. On the Properties sheet for your modem, select the **Connection** tab. Verify that the Connection preferences are **Data** bits 8, **Parity** None, and **Stop bits** 1. Click the **Advanced**… button.
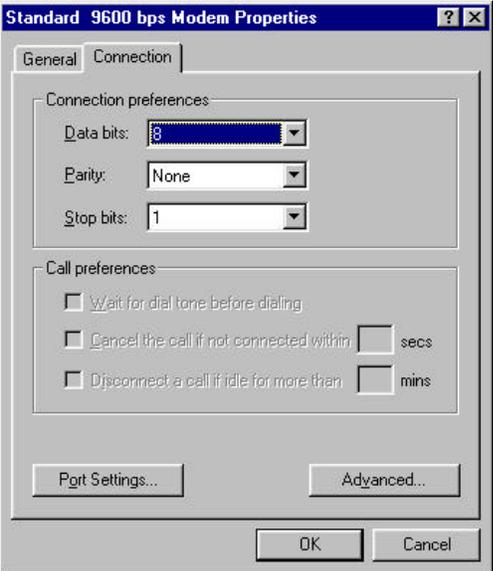
Find the configuration settings for your modem at the
http://www.gefanuc.com/support/plc/modems.htm web site.

In the Advanced Connection Settings
dialog box, be sure the **Use flow control**
box is not checked.

If you are certain that Logicmaster 90 will
be the only application for your modem,
you can store the configuration settings to
the modem's non-volatile memory. This
method assures the modem will always be
configured for Logicmaster 90. Leave the
Extra settings box of this dialog box
blank. Use the Windows HyperTerminal
accessory to connect to your modem and
store the configuration settings.
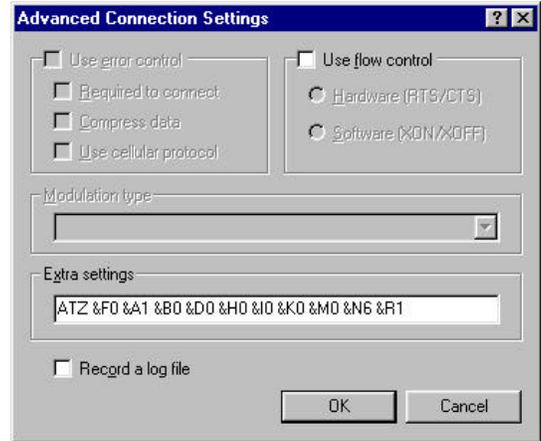
If your modem can be used for other applications, type the configuration settings for your
modem in the Extra settings box. This assures that the correct settings will be used with
Logicmaster 90, and that Windows can use other settings when appropriate.

Enter all the settings in a single AT command. The configuration for communication at 9600
bps with recent 3 Com U.S. Robotics modems is "ATZ &F0 &A1 &B0 &D0 &H0 &I0 &K0
&M0 &N6 &R1". Your modem may require different settings. Do not include the quote
marks from this example. The optional spaces are ignored by most modems but make the
settings easier to read. *Do not include the command that saves the current configuration to
the modem's non-volatile memory* (usually &W) in the Extra settings.

Click the **OK** button here and on the Properties sheet for your modem. Click **Close** on the
main **Modem Properties** dialog box.

Assigning the Modem and a Phone Number to Your PLC

Note

While using the GE Fanuc
Communications Configuration Utility
(CCU) to set up Logicmaster 90 for
modem communication or for any other
purpose, **do not** edit the
LM90_DEFAULT-PORT item on the
Ports tab of the **Communications
Configuration Utility** dialog box.
Logicmaster 90 creates this port for its
own use with custom settings that should
never be modified. One of these settings
is invalid when entered in CCU. If you
click the **Edit** button while this port is
selected and then click **OK** on the **Edit
Port** dialog, CCU will display a message
box with this warning:

> Please enter an integer between
> 50 and 63000.

Do not modify any settings. Click **OK** on the message box and **Cancel** on the **Edit
Port** dialog.
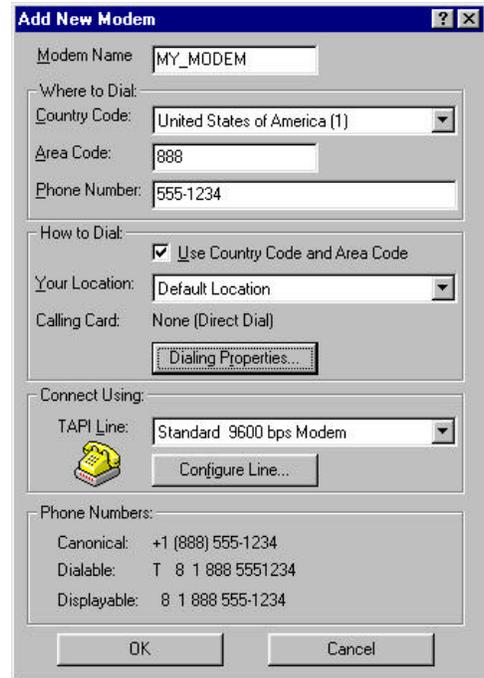
1. **Run the Communication Setup Utility.**

   Click the Windows **Start** button and select **Programs**. Select the **PLC Programmer** folder
   and then the **Comm Config Utility** icon. Enter the Comm Config Utility password (**netutil**
   by default).

2. **Add your modem.**

   Click the **Modems** tab in the **Communications Configuration Utility** window. Click the
   New… button. In the **Add New Modem** dialog box, enter a name in the **Modem Name** box
   and the phone number of the target PLC in the **Phone Number** box. If an area code is
   required to dial the PLC, enter it in the **Area Cod**e box and check the **Use Country Code
   and Area Code** box. Select the modem you installed with Control Panel in the **TAPI Line**
   box.

Click the **Dialing Properties…** button. Enter your area code in the **Where I am** area. Fill in the boxes in the **How I dial from this location** area, including calling card and call waiting information when appropriate. Click **OK**.
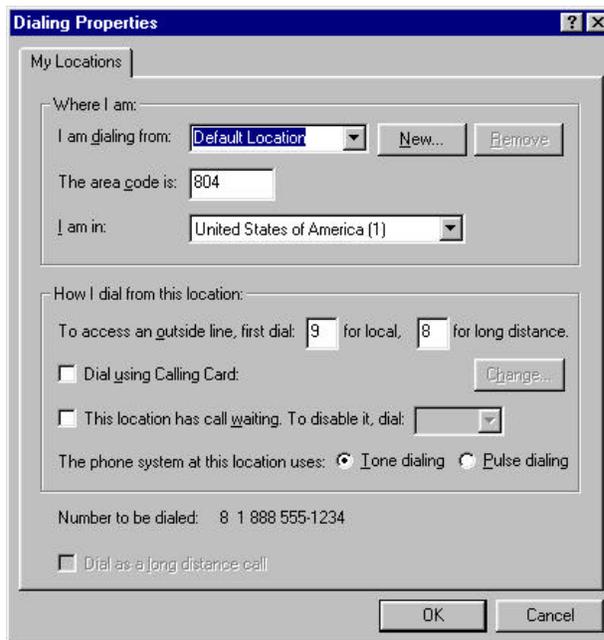
On the **Modems** tab of the **Communication Configuration Utility** window, the **Send Break** box *must* be checked unless the target PLC supports the Break-Free SNP feature.
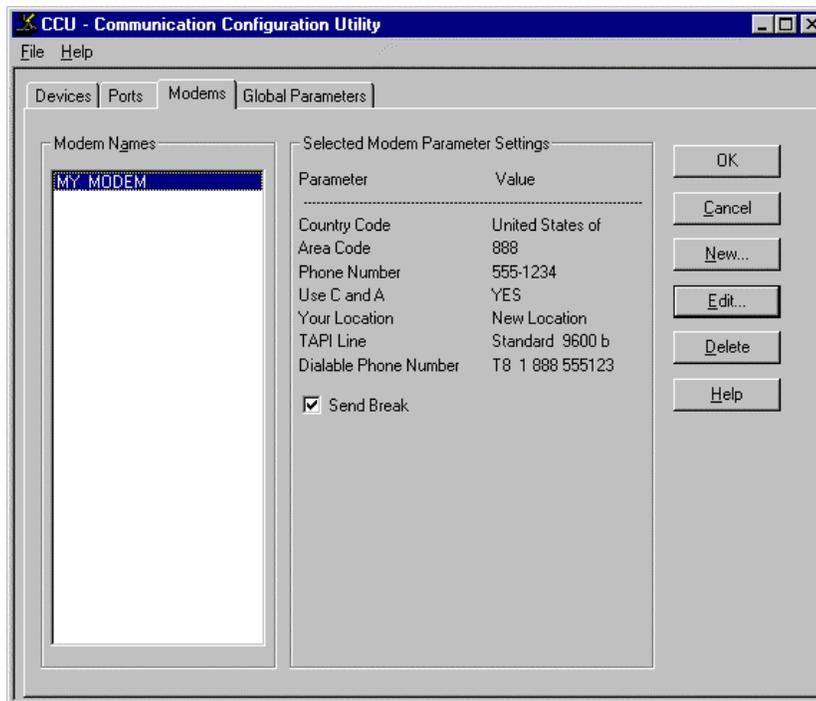
3. Select or define the default PLC Device.

In the Communication Configuration Utility window, select the **Devices** tab. The **Device Names** window lists all PLC devices that have been defined for your PC. If **LM90_DEFAULT** appears in the list, select it, click the **Edit** button and proceed to the next step. If **LM90_DEFAULT** is not in the list, click the **New**… button and type **LM90_DEFAULT** in the **Device Name** box.

In the **Associated Modem** box of either the **Edit Device** or **Add New Device** dialog box, select your modem using the name you gave it in step 2. Other boxes in the **Selected Device Parameter Settings** and **Device Address** areas should be blank or <NULL>. Click the **OK** button.

4. Exit from Communication Configuration Utility.

In the **Communication Configuration Utility** window, click **OK** to save your modem setup and exit.

Connecting To Your PLC

After you have set up your modem, Logicmaster 90 will automatically connect to the modem and dial the phone number of your PLC whenever the modem's COM port is the default port, or you select it on the Logicmaster 90 **PLC Communications Serial Port Setup** screen. Be sure to set **BAUD RATE** to the same value used by the modem and PLC, **PARITY** to **NONE** and **MODEM TURNAROUND TIME** to **1**. The Serial Port Setup screen is reached by pressing F7 and then F4 from the Programming Software or Configuration Software main menu.

Connecting To Two or More PLCs at Different Phone Numbers

You can connect to a different PLC by changing the phone number property of your modem. Do this by starting the Communication Configuration Utility and clicking the **Edit** button on the **Modems** tab of its main window. The **Edit Modem** dialog box is similar to the **Add New Modem** dialog box shown on page 3-11. Click on the **Area Code** and **Phone Number** boxes to change the number.

You can also define two or more PLC devices on the Communication Configuration Utility **Devices** tab and assign a unique phone number to each one. You can then select one of the defined PLC devices within Logicmaster 90 and cause it to dial the phone number you assigned to that PLC device. To use this capability, you must do the following:

1. Assign a unique SNP ID to each PLC or PLC port to be connected.

In the Logicmaster 90 Configuration Software, go to the **Assign PLC ID** screen (press **F2**, then **F3**) and assign a unique PLC ID string to each PLC. This screen assigns the SNP ID to the "primary" CPU port (the power supply port on 90-30 CPU's). (For serial port 1 and port 2 of the CPU 351, CPU 352 or CPU 363 models, a separate and possibly different SNP ID may be assigned to those ports by zooming into the CPU slot from the I/O Configuration (F1) screen.)

```
|PLCTIM |       |SNPID |MEMLIM |       |       |       |       |
1█████ 2█████ 3█████ 4█████ 5█████ 6█████ 7█████ 8█████ 9█████ 10█████
>



                    A S S I G N    P L C    I D



            CURRENT PLC ID      ××××××

            NEW   PLC   ID      ██████



       << Enter New  PLC ID  value  into  NEW PLC ID field. >>
       << Press ENTER to send NEW PLC ID to the attached PLC >>


                                        OFFLINE
C:\LM90\DELETE                      PRG: DELETE            CONFIG VALID
REPLACE       NUM
```
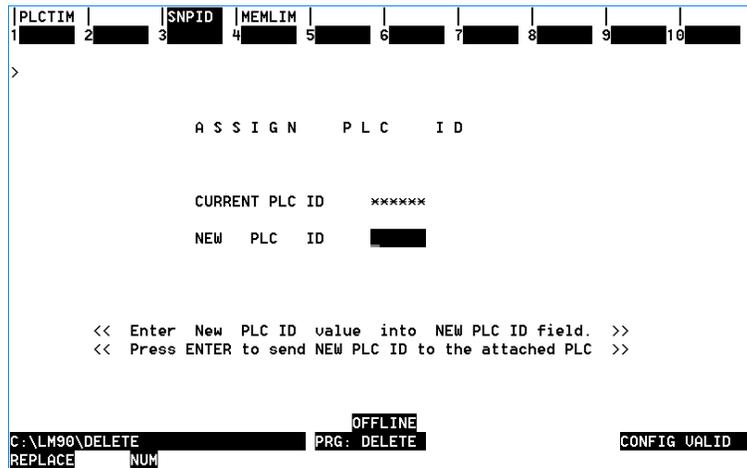
2. Create a unique PLC device for each PLC.

In the Communication Configuration Utility, the PLC phone number is a modem property. To assign a unique phone number to each PLC, you must perform these steps.

- On the **Modems** tab of the Communication Configuration Utility main window, click the **New**… button to create a modem entry for a PLC. Assign a name that is unique to that PLC in the **Modem Name** box. For example, if the SNP ID of the PLC is **A00001**, enter **LM90_MODEM_A00001**. Enter the PLC phone number in the **Phone Number** box. If an area code is required to dial the PLC, enter it in the **Area Code** box and check the **Use Country Code and Area Code** box. Select the modem you installed for Logicmaster 90 in the **TAPI Line** box. You can create as many entries in the Modem Name box as you need, each with a unique PLC phone number, and all using the same physical modem.

- On the **Devices** tab of the Communication Configuration Utility main window, click the **New…** button to create a new PLC device. Enter a name in the **Device Name** box consisting of "LM90_" followed by the SNP ID of that PLC. For example, if the SNP ID is "A00001", enter "LM90_A00001" as the device name. In the **Associated Modem** box, select the modem name that contains the SNP ID. Finally, enter the SNP ID through which you wish to connect the PLC in the **SNP ID** box.

Repeat for each PLC. Click **OK** on the Communication Configuration Utility main window to save the PLC devices.

3. Select a target PLC in Logicmaster 90.

In the Logicmaster 90 Configuration software main window, press **F7** (Programmer Mode and Setup) and **F3** (Select PLC Connections).

In the **Select SNP Connections** screen, arrow down to the **Selected SNP ID** field and enter the PLC ID for one of your PLCs. Next, go to the **Port Connection** field and use the Tab key to select **MULTIDROP**. To save the new settings, press **F7**.

```
|        |MODE   |PLCSEL |COMSET |        |        |        |        |        |        |
1show p 2show f 3defalt 4       5       6setup 7save   8       9       10

>

                    S E L E C T   S N P   C O N N E C T I O N S

    FILE NAME     C:\LM90\%PLC030.PSU

    SELECTED SNP ID    30
    PORT CONNECTION    MULTIDROP        (DIRECT, MULTIDROP)

                    S N P   I D S   ( Informational Use Only )
    _____

        1:           2:           3:           4:           5:
        6:           7:           8:           9:          10:
       11:          12:          13:          14:          15:
       16:          17:          18:          19:          20:
       21:          22:          23:          24:          25:
       26:          27:          28:          29:          30:
       31:          32:

                                          OFFLINE
    C:\LM90\DELETE                        PRG: DELETE
    REPLACE
```
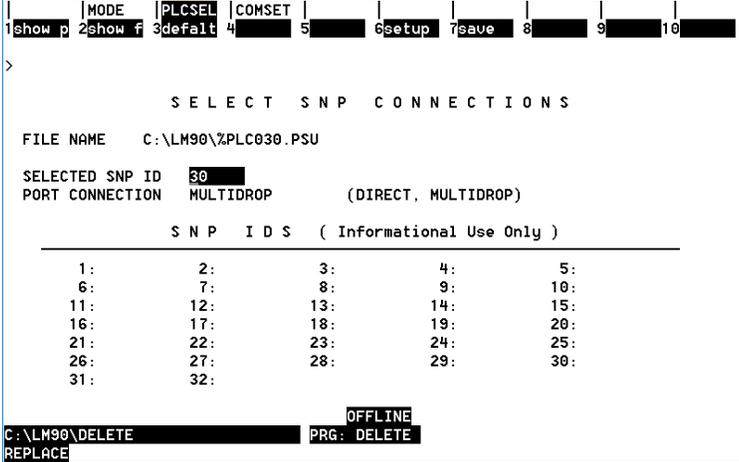
Note

Logicmaster ignores SNP ID unless MULTIDROP is also selected. This use of MULTIDROP is artificial and does not imply multidrop operation. In an actual multidrop installation accessed through a modem, all the PLCs use the same phone number.

Configuring PLC Ethernet Interface Modules

For IC697CMM742 Interfaces, IC697CMM321 Interfaces, and IC693CPU364 CPUs, refer to GFK-1541, *TCP/IP Ethernet Communications User's Manual* for configuration information.

For IC697CMM741 Interfaces and the corresponding software, refer to GFK-1004, *TCP/IP Ethernet Communications User's Manual* for information about using the Logicmaster 90 and GEnet System Manager (GSM), supplied with IC641SWC716, to configure the Interfaces.

Adjusting the Ethernet Interface Time-out Parameter for Dial-Up Networking

In some cases it may be necessary to adjust certain parameters in the Series 90 Ethernet Interface modules to work reliably with dial-up connections.

The TCP-Layer implementation on the Series 90 TCP/IP Ethernet Interface uses a retry mechanism that will cause a transmitted packet to be retransmitted if a proper acknowledgment is not received from the remote host (such as Logicmaster 90) within a specified time period. This time period is set by default to 1 second. While using Dial-Up Networking, this value may be too small and can cause excessive traffic through the network server device and, on Logicmaster 90, "(S34) Communication Failed" PLC faults.

If you are using Logicmaster 90 via Dial-Up Networking, GE Fanuc recommends setting this value to at least 3 seconds. Users of Series 90-70 IC697CMM742 Interfaces, Series 90-30 Ethernet Interfaces, and IC693CPU364 CPUs can change the value using the Station Manager function of the Interface. To do so, you must connect a terminal or terminal emulator to the Ethernet Module's Station Manager RS232 port using IC693CBL316 cable, put the module in Maintenance state, then do the following Station Manager command: CHPARM WMIN_TO 300. This changes the parameter wmin_to from 100 (default - 1second) to 300 (3 seconds). This change can be confirmed by typing PARM W. When satisfied, restart the Ethernet module to return it to the Operational state. For detailed instructions about using station manager commands refer to GFK-1186 *TCP/IP Ethernet Communications for the Series 90 PLC, Station Manager Manual*.

Users of IC697CMM741 should call GE Fanuc for a field-runnable utility to modify the Interface's WMIN_TO value.

Chapter	*Using Logicmaster 90 Windows Software*
4	

This chapter explains the task of establishing communications with a Series 90-30 or Series 90-70 PLC Station to perform Logicmaster 90 functions. The topics discussed in this chapter are:

■   Selecting PLC Type and Communications Options

■   Identifying PLCs Accessible on the Ethernet Network

■   Connecting Logicmaster 90 TCP/IP Ethernet Software to the PLC

■   Storing Programs in RUN Mode (RUN-Mode Store)

Selecting PLC Type and Communications Options

1. Start Logicmaster 90 from a Windows icon or shortcut. In Windows 95/98 or Windows NT version 4.0, select **Programs, PLC Programmer**, and **Logicmaster 90 TCP** from the Start menu. The Logicmaster 90 main menu is displayed.
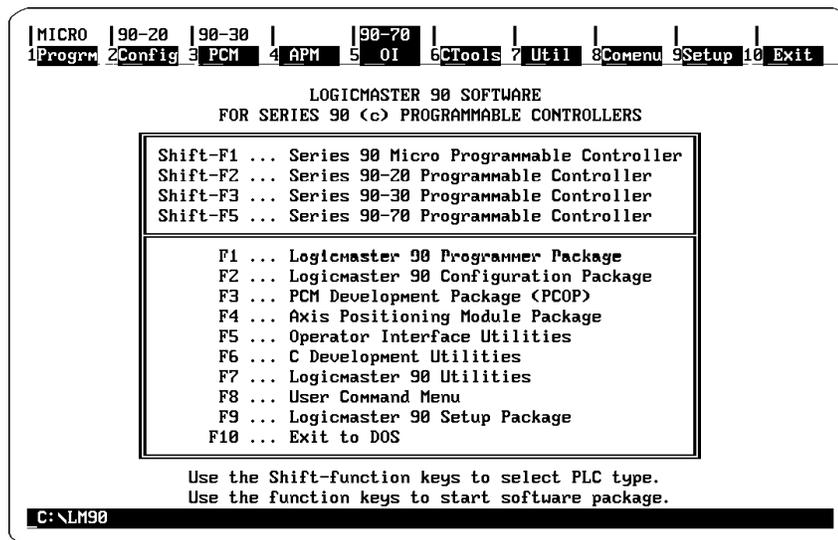
Figure 4-1. Logicmaster 90 Software Main Menu

2. Select the Series 90-30 Programmable Controller (**Shift** + **F3**) or the Series 90-70 Programmable Controller (**Shift** + **F5**).

3. To select a communications option of the Logicmaster software, perform steps A-D:

   A. From the Main Menu, select **F9 ... Logicmaster 90 Setup Package**. The Logicmaster 90 Setup File Editor menu will be displayed.
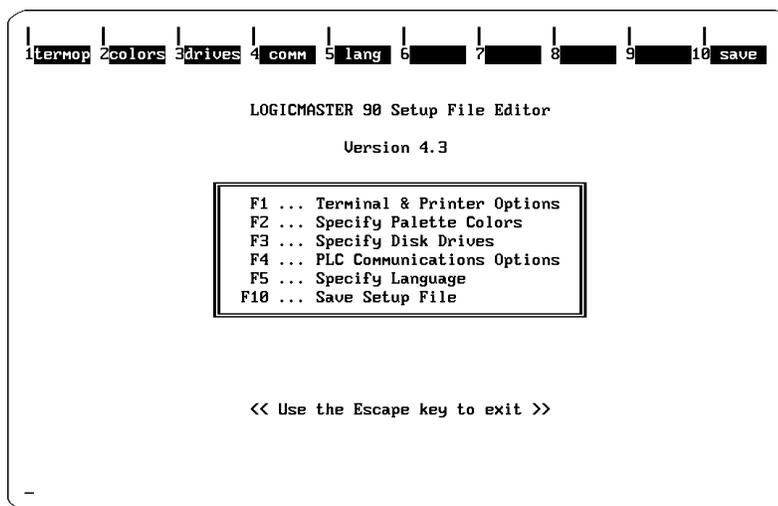
Figure 4-2. Logicmaster 90 Setup File Editor Menu

B. From the Logicmaster 90 Setup File Editor menu, select **F4 ... PLC Communications Options**. The following menu will be displayed.

```
                        PLC Communications Options


                    Series 90 PLC type:  90-70

  ┌──────────────────────────────────────────────────────────────────────┐
  │ Communication Device:   Ethernet    (WSI,Serial port,Ethernet,Dial-up net) │
  └──────────────────────────────────────────────────────────────────────┘




              << Use Tab/Shift-Tab keys to adjust field contents.>>



    _
```

Figure 4-3. Logicmaster 90 PLC Communications Options Menu

C. In this menu, press the Tab key to select a communication path to your PLC. Select **Ethernet** if you plan to communicate through an Ethernet card in your PC. Use **Dial-up net** if you plan to communicate with a remote Ethernet network through a serial connection. Use **Serial port** if you plan to communicate through a direct or multidrop serial connection. (The default choice is **Serial port**.)

D. Press **Esc** to return to the Setup File Editor menu and then press **F10** to save the setup file. The following messages will be displayed:

Setup file saved successfully as C:\lm90\lm90.dat

<<Press any key to exit>>

4. To return to the main menu, press **Esc, Esc**.

Identifying PLCs Accessible on the Ethernet Network

Before Logicmaster 90 can connect to a PLC on an Ethernet network, you must identify it in a list of network PLCs. There are separate lists for Series 90-30 PLCs and Series 90-70 PLCs. The lists are built by entering addressing information in the PLC List Screen, which is part of the Network Utilities. Selecting the right list for the current PLC type is accomplished from the Logicmaster 90 Main Menu.

Accessing the PLC List Screen

To access the PLC List Screen follow the steps below.

1. First choose a Series 90-30 or Series 90-70 PLC at the Logicmaster 90 main menu (as shown in Figure 4-1, above) by pressing **Shift**+**F3** or **Shift**+**F5**.

2. From the Logicmaster 90 Main Menu, press **F7... Logicmaster 90 Utilities**. The following screen will appear.
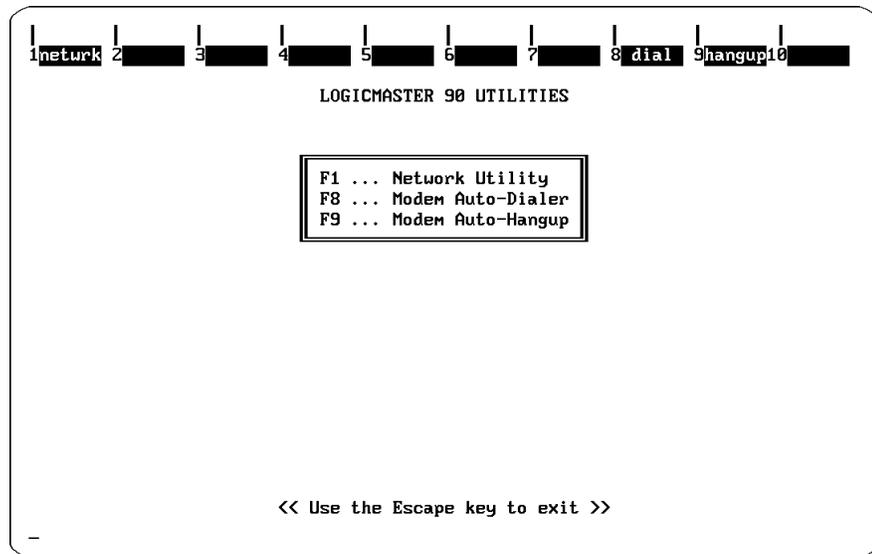
Figure 4-4. Logicmaster 90 Utilities Menu

3. From the Logicmaster 90 Utilities Menu, press **F1 ... Network Utility**. The password screen will appear.

```
        Enter Password :




    _
```
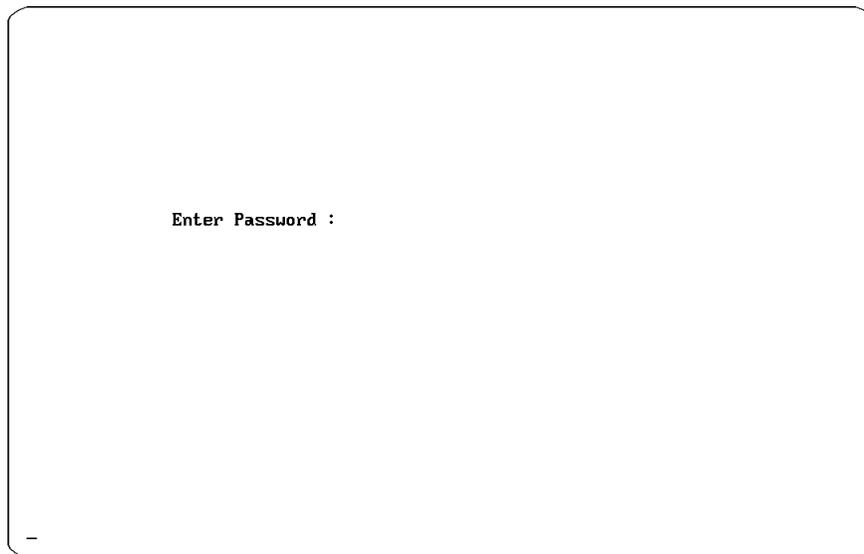
Figure 4-5. Password Screen

4. Enter the password and press **Enter**. (The default password is **netutil**). The Network Utilities Menu will appear.

Note

You can change the password in the **F7 ... Set Password** function in the Network Utilities screen. See page B-6 in Appendix B of this manual for details.

```
1plclst 2       3       4       5       6       7setpwd 8       9       10

                N E T W O R K     U T I L I T I E S

                         TCP Version 1.10


                    ┌─────────────────────────────┐
                    │  F1 ..... PLC List          │
                    │  F7 ..... Set Password       │
                    └─────────────────────────────┘






REPLACE
```
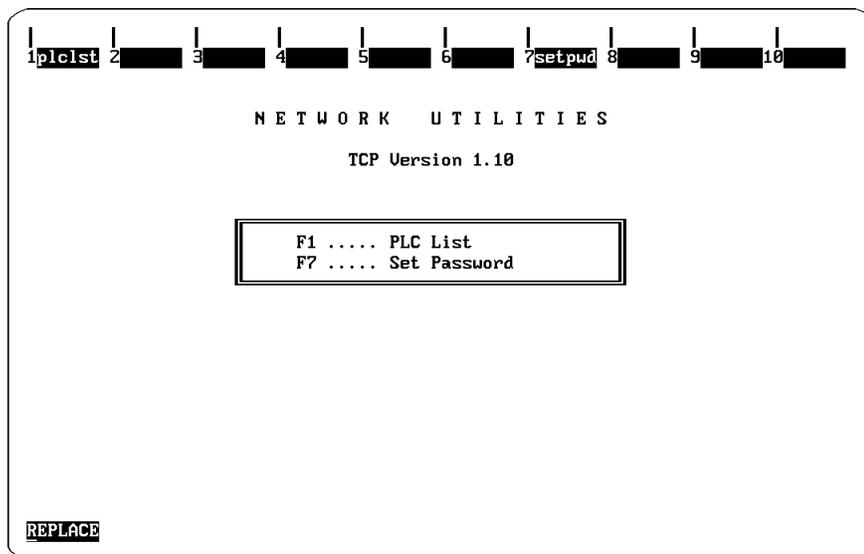
Figure 4-6. Network Utilities Menu

5. From the Network Utilities Menu, select **F1... PLC List**.

```
 ┌──────────────────────────────────────────────────────────────────┐
 │  │       │        │       │        │       │       │       │      │
 │ 1clear 2save  3add   4delete 5      6      7     8GSMImp 9    10   │
 │                                                                    │
 │  >                        P L C   L I S T                          │
 │                                                                    │
 │    PLC ID  MAC Address    IP Address      PLC ID  MAC Address    IP Address  │
 │    ──────  ───────────   ──────────────   ──────  ───────────   ────────────  │
 │   PLC1    080019030303  3.16.32.128                                │
 │   PLC2    080019020202  3.16.32.2                                  │
 │   PLC3    080019010101  3.16.32.3                                  │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │   REPLACE               '+': New entry.                            │
 └──────────────────────────────────────────────────────────────────┘
```
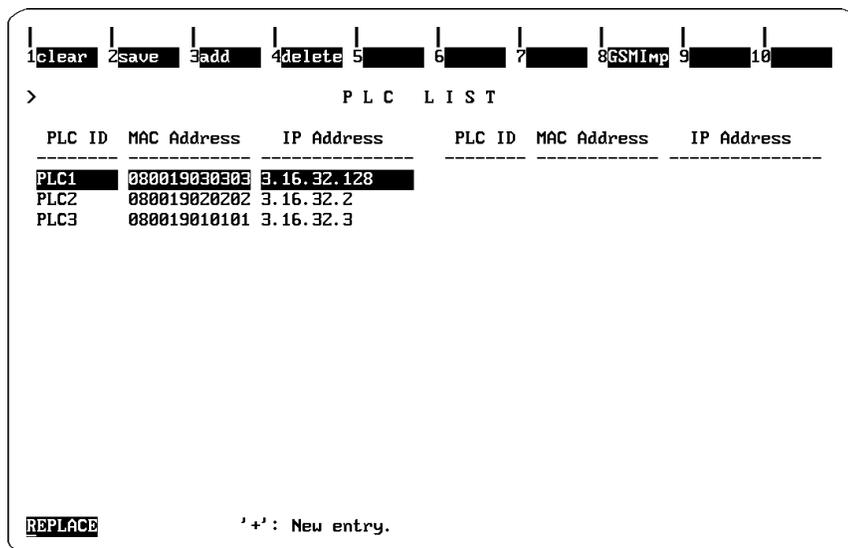
Figure 4-7. PLC List Screen

The MAC Address, PLC ID and IP Address fields in the PLC List screen will be blank initially. In the screen above, however, these fields contain the information for a sample PLC list.

Adding an Entry to the PLC List

To add entries to the list, press **F3** (add). This will open an edit field in which you can input the MAC Address of the module to which you desire communications. Enter the 12 hexadecimal characters printed on the module's Station Address label. After typing in the address, press **Enter** to add the entry to the list. Use the arrow keys to move the cursor to the IP Address Field for this MAC Address and enter the appropriate information. You must enter the IP address as assigned to the board via Logicmaster Configuration of the desired PLC. The MAC address is also referred to as the *board address*, and is shown in the Select PLC Connection screen.

See the *Series 90-70 TCP/IP Ethernet Communications User's Manual*, GFK-1004 or the *TCP/IP Ethernet Communications User's Manual for Series 90 PLCs* (GFK-1541) for additional information on MAC and IP addresses.

Assigning PLC IDs

After executing the Add function, the PLC List contains only MAC and IP addresses for the PLCs. You must assign a PLC ID to the PLC to establish communications with PLCs. See "Recommendations for Assigning PLC IDs" below.

This PLC ID is *local* to the personal computer running the Logicmaster 90 TCP/IP software. The PLC ID can be up to 8 characters long and can include any printable character. Assigning a PLC ID at this point is not optional; the user must assign a name.

To assign a PLC ID, move the cursor to the left hand field of the line containing the desired IP address, and type the PLC ID. Be sure to save the MAC and IP addresses and PLC IDs by pressing **F2** (save).

Recommendation for Assigning PLC IDs

The PLC ID is *local* to the computer running the Logicmaster 90 software and is not displayed on any Logicmaster 90 screen except the Select PLC Connection screen (described later in this chapter). For this reason, we strongly recommend that you *set the PLC ID equal to the SNP ID of the PLC*.

Only by following our recommendation for assigning PLC IDs will you be able to tell which PLC you are connected to in other parts of the Logicmaster 90 programming or configuration packages, simply by viewing the ID field that appears in the status line. A screen illustrating the use of this field is shown in Figure 4-9 on the next page.

The SNP ID is set in the PLC, using the Logicmaster 90 Configuration software. To set the SNP ID, press **F2** in the Logicmaster 90 main menu; then press **F2** (CPU Configuration) in the Configuration Software menu. For additional instructions on setting the SNP ID, refer to the appropriate user's manual: GFK-0466, *Logicmaster 90-20/30/Micro Programming Software User's Manual* or GFK-0263, *Logicmaster 90-70 Programming Software User's Manual*.

Connecting Logicmaster 90 TCP/IP Ethernet Software to the PLC

Note

Dial-Up Networking users must connect to a PPP or SLIP server that is connected to the remote Ethernet network with their target PLC before communication can be established. See Appendix C in this manual for details.

The Select PLC Connection screen is used to select the PLC you wish to communicate with from the PLC list created by Network Utilities, as explained in the previous section.

Note

A PLC list must be created before you can connect to a PLC. See "Identifying PLCs on the Network," earlier in this chapter for details.

Each PLC in the list is identified by its board (MAC) address and PLC ID. You may select a PLC from this list using the cursor keys or by typing its PLC ID in the Selected ID field. Refer to the instructions below.

To Establish Communications

1. From the Logicmaster 90 main menu, select either the Programmer (**F1**) or Configuration (**F2**) Package.

2. Specify the folder associated with the PLC you wish to access.

3. Go to the Select PLC Connection screen. Press **F7 ... Programmer Mode and Setup** to access the Programmer Setup menu as shown below. Then press **F3... Select PLC Connection**, to access the Select PLC Connection screen.

```
|PROGRM |TABLES |STATUS |        |        |LIB    |SETUP  |FOLDER |UTILTY |PRINT
1ports  2mode   3plcsel 4comset 5vumode 6       7       8       9      10

>

                     P R O G R A M M E R   S E T U P


             ┌──────────────────────────────────────────────────┐
             │ F1 ..... Printer Serial Port Setup                │
             ├──────────────────────────────────────────────────┤
             │ F2 ..... Set Prgmr Mode (Offline/Monitor/Online)  │
             ├──────────────────────────────────────────────────┤
             │ F3 ..... Select PLC Connection                    │
             ├──────────────────────────────────────────────────┤
             │ F4 ..... PLC Communications Serial Port Setup     │
             ├──────────────────────────────────────────────────┤
             │ F5 ..... View Modes Setup ( ALT-N )               │
             └──────────────────────────────────────────────────┘

                                          OFFLINE
C:\LM90\TURBO                          PRG: TURBO
REPLACE
```
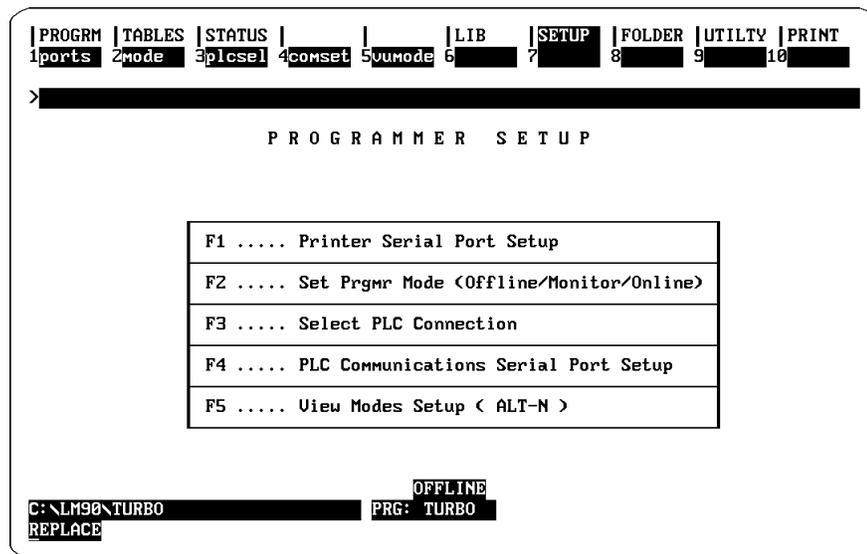
Figure 4-8. Programmer Setup Menu

```
|       |MODE   |PLCSEL |COMSET |VUMODE |       |       |       |       |
1show p 2show f 3defalt 4       5       6setup 7save   8       9      10

>

                 S E L E C T   P L C   C O N N E C T I O N

    FILE NAME   c:\lm90\%LAN070L.PSU
    SELECTED ID:    PLC1          BOARD ADDRESS:   080019030303

                       ID and Board Address List

        ┌──────────────────────────────────────────────────────────┐
        │ PLC1            080019030303       PLC2         080019020202│
        │ PLC3            080019010101                                │
        │                                                            │
        │                                                            │
        │                                                            │
        │                                                            │
        │                                                            │
        └──────────────────────────────────────────────────────────┘

        << Select an ID/Brd Address, then press save or setup  for connection >>
ID: 924_128 STOP/NO IO              MONITOR L4 ACC: WRITE LOGIC   LOGIC NOT EQ
C:\LM90\BLOGIC                      PRG: BLOGIC
REPLACE
```

"ID:" field shows the SNP ID (as set in the Assign PLC ID screen) of the connected PLC.

Figure 4-9. Select PLC Connection Screen

4. You can identify the PLC to which you want to connect in either of two ways.

   ■ Cursor to the desired PLC in the list and press **Enter** to select it.

   ■ Or, type the PLC ID in the SELECTED ID field and press **Enter** to select it.

5. To connect to the selected PLC, press **F6 setup** (or **F7 save**, which also sets up the connection).

   Logicmaster 90 software will then attempt to connect to the selected PLC. When successful, the ID field and other PLC status information will be updated in the status displayed at the bottom of the screen. The ID shown here is the PLC's SNP ID. For more information, see "Recommendation for Assigning PLC IDs."

6. If you want to connect to the selected PLC whenever Logicmaster 90 is started, execute the **F7 save** function to save the selected PLC. It will be remembered and automatically selected each time the Logicmaster 90 Programming or Configuration software is started until you make a new selection on this screen.

From this point, use Logicmaster 90 as usual.

Storing Programs in RUN Mode (RUN-Mode Store)

Series 90-70

Logicmaster 90 communications through a Series 90-70 Ethernet Interface are processed differently by the PLC from communications through the CPU serial port or the programmer port on a Bus Transmitter module. Communications through an Ethernet Interface are processed in the *Communications Window* portion of the PLC sweep, while communications through the CPU serial port or the programmer port are processed in the *Programmer Window*.

The PLC CPU does not permit Logicmaster 90-70 to store programs when the PLC is in RUN mode unless the window Logicmaster is actually using is set to LIMITED mode. Consequently, RUN-mode store requires different PLC window mode settings for network programmers.

Before attempting to store a logic program to a Series 90-70 PLC in RUN mode when Logicmaster 90-70 is using Ethernet or Dial-up net communications, you must first set the PLC COMMUNICATIONS window to LIMITED mode. To use RUN-mode store when Logicmaster 90-70 is using Serial communications, you must set the PROGRAMMER window to LIMITED mode. For both cases, we recommend a time setting of 50 milliseconds for the window.

Note

Logicmaster 90-70 prohibits storing programs in RUN mode if the window Logicmaster is currently using is not set to LIMITED mode.

PLC window modes are set in the PLC Sweep Control screen. This screen is accessed from the Logicmaster 90-70 Programming main screen by pressing **F3 ... PLC Control and Status**, and then **F8 ... PLC Sweep Control**.

Note

If the watchdog timer is set too close and RUN mode store/load occurs, a watchdog timer fault may occur.

Series 90-30

No configuration changes are necessary to perform RUN-Mode Store functions supported by the Series 90-30 CPUs.

Error Messages

Logicmaster 90 for Windows loads an MS-DOS communication driver, and the MS-DOS driver loads the Windows drivers. The Windows drivers, in turn, rely on communication hardware and Windows system drivers that must be installed on your computer. When an error occurs while setting this communication path, one of the drivers displays an error message. This appendix explains how you can locate and correct the error by understanding the message.

Error Messages From the MS-DOS Driver

You may see an error message in the MS-DOS window as you attempt to start a Logicmaster 90 Programming or Configuration software package. These errors indicate that the MS-DOS driver was unable to start a Windows driver successfully. Here is a typical example:
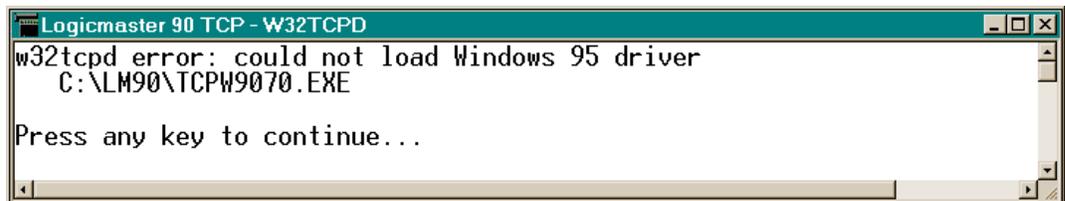
```
Logicmaster 90 TCP - W32TCPD                          _ □ ×
w32tcpd error: could not load Windows 95 driver
   C:\LM90\TCPW9070.EXE

Press any key to continue...
```

The table below lists all the error messages the MS-DOS driver can display and corrective actions for each.

Error Message	Corrective Action
Invalid operating system detected	Logicmaster 90 TCP/IP for Windows will not install or run under Microsoft Windows 3.x. You must run either Windows NT or Windows 95/98.
Too few command line arguments Invalid command line argument Could not load Windows 95/98 driver Could not load Windows NT driver Could not load TSR driver	One or more files used by Logicmaster 90 TCP/IP for Windows is corrupted or missing. Re-install the Logicmaster 90 Windows software.

Error Messages From the Windows Drivers

The Windows drivers display Windows message boxes to inform you that the network communication drivers required by Logicmaster 90 TCP/IP for Windows are not installed on your computer. Here is an example:

Logicmaster 90 TCP/IP for Windows ☒

The TCP/IP network protocol must be installed before using this software. See the "To install a network protocol" topic in Windows Help.

[OK]

This table lists the error messages the Windows drivers can display and corrective actions for each.

Error Message	Corrective Action
You must install networking software and the TCP/IP network protocol before using this software.	Windows network drivers are not installed on your computer. See chapter 3 of this manual.
The TCP/IP network protocol must be installed before using this software. See the "To install a network protocol" topic in Windows Help.	TCP/IP protocol drivers are not installed on your Windows 95/98 or Windows NT version 4.0 computer. See the suggested Help topic or chapter 3 of this manual.

Appendix **B**	*TCP/IP-Ethernet Network Utilities*

This appendix describes the functions of the Network Utilities in detail. These screens are used primarily by the personnel responsible for the operation of the network. But the PLC List screen is also very valuable to those using the Logicmaster 90-30 TCP/IP or Logicmaster 90-70 TCP/IP software for programming and configuring the PLCs on the network.

Selecting the Network Utilities

To select the Network Utility functions:

1. From the Logicmaster 90 Main menu select the Logicmaster 90 Utilities by pressing the **F7 ... Logicmaster 90 Utilities** function key. The following screen will be displayed.

```
 1 neturk  2        3        4        5        6        7        8  dial  9 hangup 10

                         LOGICMASTER 90 UTILITIES


                      ┌─────────────────────────────┐
                      │ F1 ... Network Utility      │
                      │ F8 ... Modem Auto-Dialer    │
                      │ F9 ... Modem Auto-Hangup    │
                      └─────────────────────────────┘




                     << Use the Escape key to exit >>
 _
```
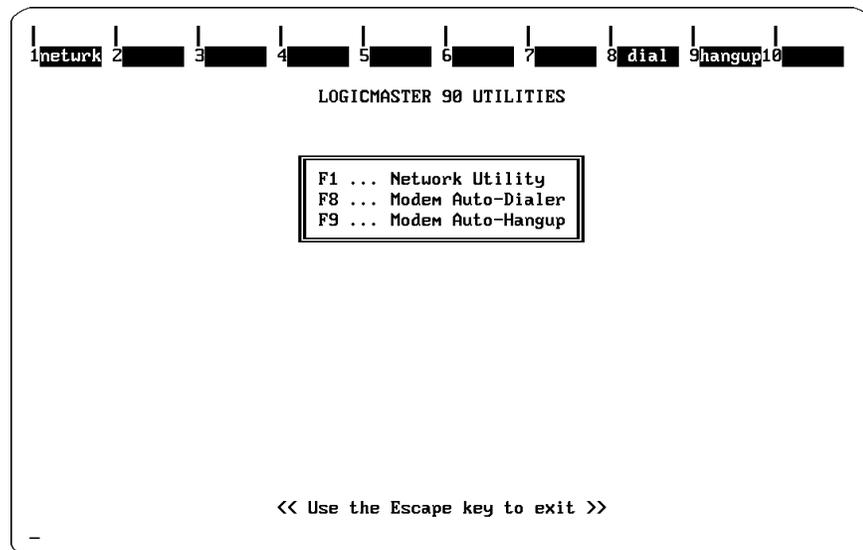
Figure B-1. Logicmaster 90 Utilities Menu

none
none

none
none
none
none
none
none
none
none
none
none
none
none

2. Select the Network Utility by pressing **F1 ... Network Utility**. The password screen will then appear.

```
Enter Password :




_
```

Figure B-2. The Password Screen

Enter the password and press **Enter**. (The default password is **netutil**). The Network Utilities Menu will appear.

Note

You can change the password in the **F7 ... Set Password** function in the Network Utilities. See page 5-6 for details.

```
1plclst 2       3       4       5       6       7setpwd 8       9       10

                    N E T W O R K    U T I L I T I E S

                           TCP Version 1.10

                    ┌─────────────────────────────┐
                    │   F1 ..... PLC List          │
                    │   F7 ..... Set Password       │
                    └─────────────────────────────┘




REPLACE
```
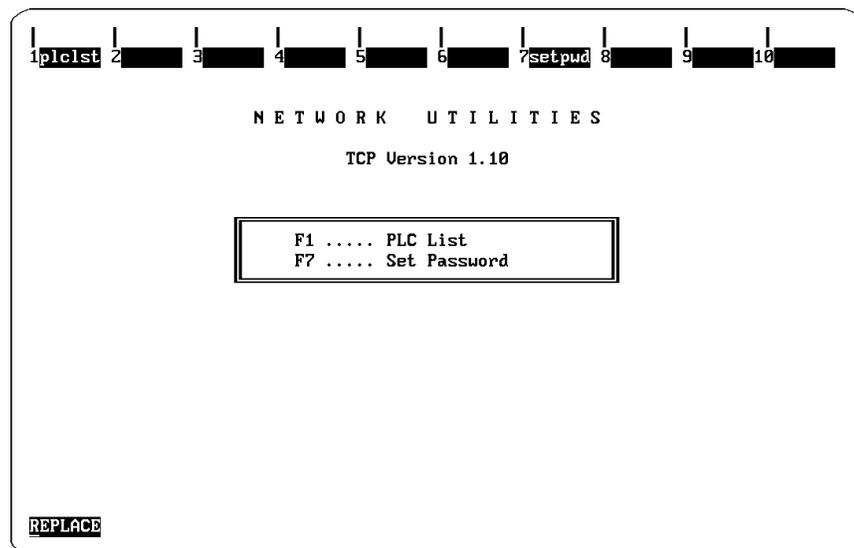
Figure B-3. Network Utilities Menu

From the Network Utilities menu the following screens can be selected:

PLC List. Provides a list, entered by the user, of PLCs on the network. This list is subsequently displayed within the Logicmaster 90 programming packages on the Select PLC Connection screen.

Set Password. Allows you to change the password used to enter the Network Utilities. These screens are described in detail later in this appendix.

Network Utilities Operation

The keys used in the Network Utilities submenus are described below.

Function Keys. The table below describes the function keys used in the Network Utilities.

Table B-1. Use of the Function Keys in the Network Utilities

Key	Name	Function
F1	clear	Clears values of the displayed list.
F2	save	Saves the values of the displayed list.
F3	add	Adds a PLC name to the PLC List.
F4	delete	Deletes a PLC name from the PLC List.
F8	GSMImp	Special function to import PLC addressing information from GEnet System manager.

Field Selection Keys. The four **arrow** keys (**up**, **down**, **right**, and **left**) are used to select a field. The selected field is shown in reverse video.

Editing Keys. In cases where the selected field can be edited the following keys are used:

Table B-2. Use of the Editing Keys in the Network Utilities

Key	Function
right arrow	Moves to the cursor to the PLC ID field
left arrow	Moves the cursor to the IP addr field.
Ctrl-right arrow	Moves the cursor to the right. The cursor can not be moved beyond the maximum length. The cursor can not be moved to a position in the field such that a space would result. There is no wrap around.
Ctrl-left arrow	Moves the cursor to the left. There is no wrap around.
Delete	Deletes the character above the cursor.
Insert	Switches keyboard between *Insert* and *Replace* modes.
0 - 9	Keys allowed for decimal input.
0 - 9 **a - f** **A - F**	Keys allowed for hexadecimal input. The 'a' - 'f' keys are converted to upper case ('A' - 'F').
0 - 9 **A - Z,** **_(underscore)**	Keys allowed for alphanumeric strings.

Exiting a Screen. The **Esc** key is used to exit the current screen and return to the previous screen or menu.

PLC List Screen

When the PLC List screen is displayed the list of PLCs is read from a file. This file is used by the Logicmaster 90 programming package to display the list of PLCs for connection. You may clear or modify this list of PLCs on the screen but these changes are not automatically written to the file. Press **F2 save** to write any changes to the file.

The PLC List screen is shown below.
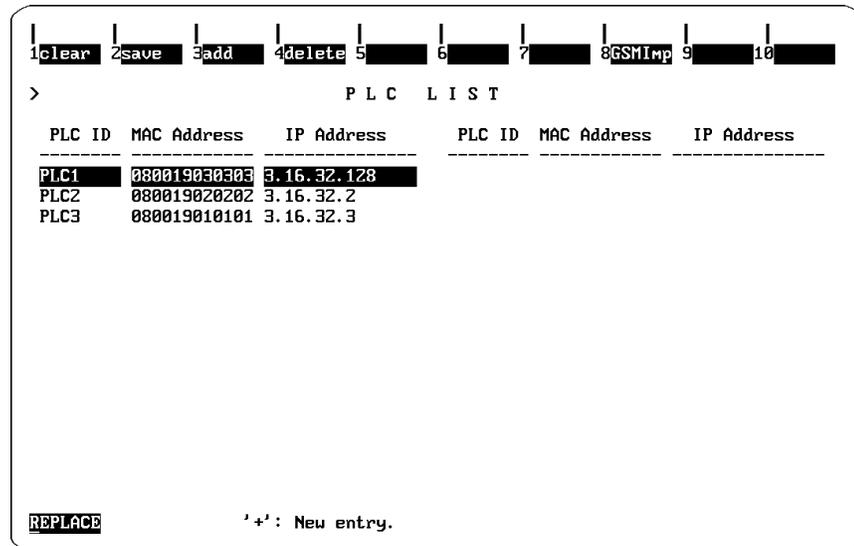
Figure B-4. PLC List Screen

Clear Function. To clear the list of PLCs on the screen, press **F1 clear**.

Save Function. To write the currently displayed list to the file, press **F2 save**.

Add Function. To add a PLC ID to the list, press **F3 add**, and enter a full 12-digit MAC address. Press ENTER to add to the list. Refer to the section "Adding an Entry to the List" in Chapter 3 for more information.

Delete Function. To delete an entry from the list, position the cursor on the name and press **F4 delete**.

GSMImp Function. To import addressing information for Series 90/70 PLCs previously configured using the GEnet System Manager (GSM), press **F8** (GSMImp). You will be prompted to enter the location of the GSM root directory. Upon entering this information, the GSM database will be searched for configured devices that support TCP/IP Ethernet communication. Matching entries will be added to the PLC list. See the *TCP/IP Ethernet Communications for the Series 90-70 PLC User's Manual* (GFK-1004) for details about the GSM.

Set Password Screen

The Set Password screen allows you to change the password for the Network Utilities. The screen displays the password prompt as shown below.

```
        Enter current password : *******
        Enter new password : ******
        Verify new password :*******

                Password set

                Press any key to continue ...


 _
```
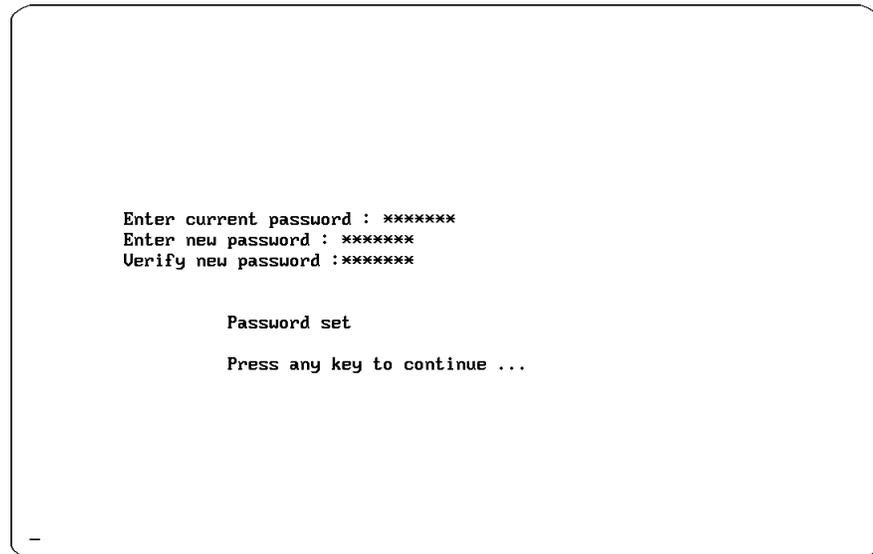
Figure B-5. Set Password Screen

To change the password:

1. Type in the current password at the Enter current password prompt and press **Enter**. The New password prompt will be displayed.

    Enter new password:

2. Type in a new password and press **Enter**. Passwords are case sensitive ("netutil", "Netutil" and "NETUTIL" are different). The **backspace** key is treated as a character in the password and does not correct typing errors. The Verify password prompt will be displayed.

    Verify new password:

3. Type in the new password and press **Enter**. The following messages will then be displayed.

    Password set
    Press any key to continue ...

4. Be sure to keep a secure record of the new password.

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Connecting to a PPP or SLIP Server

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This appendix provides details on opening a connection to a PPP or SLIP server. The connection must be established before starting the Logicmaster 90 Programming or Configuration software.

Windows 95/98

PPP Operation

1. After Dial-Up Networking has been previously installed and configured for PPP operation , open the My Computer/Dial-Up Networking folder and double click the connection icon. If not configured, follow the instructions in Windows Help for Dial-Up Networking.

2. Enter the username and password for your account on the PPP server and click the Connect button.

3. You will see the dialing window, and you should hear your modem pick up the telephone line and dial the server. The display should quickly change to the verifying stage. After a moment or so you will be logged in and verified.

SLIP Operation

1. You must first install SLIP support software. The software is included in the Windows 95/98 CD-ROM distribution, but is not included in the Windows 95 floppy disk distribution. It can be obtained from Microsoft, as part of the Windows 95 Resource Kit.

2. After Dial-Up Networking has been previously installed and configured, open the My Computer/Dial-Up Networking folder and double click the connection icon. If not configured, follow the instructions in Windows Help for Dial-Up Networking.

3. Enter the username and password for your account on the SLIP server and click the Connect button.

4. You will see the dialing window, and you should hear your modem pick up the telephone line and dial the server.

5. In the (after SLIP logon) terminal window, enter your Login Name and Password.

6. At the SLIP terminal prompt, type **SLIP** and the IP Address for your computer. If a server assigns an IP Address for our computer, just type **SLIP**.

7. Click Continue.

8. Another window will appear and will ask for an IP Address. Enter the same IP address you selected (or were assigned by the server) above.

9. Click OK.

10. The display should quickly change to the verifying stage. After a moment or so you will be logged in and verified.

For Windows NT 4.0

PPP Operation

1. After Dial-Up Networking has been previously installed and configured, open the My Computer/Dial-Up Networking folder and double click the connection icon. If not configured, follow the instructions in Windows Help for Dial-Up Networking.

2. From the Dial-Up Networking dialog box select the Phonebook Entry for the PPP connection (previously configured), which will provide a server specification, the number to be dialed and the dialing location.

3. Click **dial**.

4. Another dialog box will appear. Enter the Username and Password for your account on the PPP server and click the OK button.

5. You will see the dialing window, and you should hear your modem pick up the telephone line and dial the server. The display should quickly change to the verifying stage. After a moment or so you will be logged in and verified.

SLIP Operation

1. After Dial-Up Networking has been previously installed and configured, open the My Computer/Dial-Up Networking folder and double click the connection icon. If not configured, follow the instructions in Windows Help for Dial-Up Networking.

2. From the Dial-Up Networking dialog box select the Phonebook Entry for the SLIP connection (previously configured), which will provide a server specification, the number to be dialed and the dialing location.

3. Click **dial**.

4. Another dialog box will appear. Enter the Username and Password for your account on the SLIP server and click the OK button.

5. You will see the dialing window, and you should hear your modem pick up the telephone line and dial the server.

6. In the (after SLIP logon) terminal window, enter Login Name and Password.

7. At the SLIP terminal prompt, type **SLIP** and the IP Address for your computer. If a server assigns an IP address for your computer, just type **SLIP**.

8. Enter the IP address the was selected or assigned into the IP Address field located at the bottom of the terminal window.

9. Click **DONE**.

The display should quickly change to the verifying stage. After a moment or so you will be logged in and verified.

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