

**MULTIPLEX PC Installation Guide**

98-40245.1 Ver. A

September, 1986

**MULTIPLEX PC Installation Guide**

98-40245.1 Ver. A      September, 1986

PLEXUS COMPUTERS, INC.

3833 North First Street

San Jose, CA 95134

408/943-9433

**Multiplex PC Installation Guide**  
**Version 1.10**

**Copyright (c) 1986**  
**Network Innovations Corporation**  
**All Rights Reserved**

## **Introduction**

Multiplex is a networking software package that links your PC to a "Host system", which is typically a larger, multiuser data processing system. Before using Multiplex, you must install the Multiplex software on your PC, following the instructions in this *Multiplex PC Installation Guide*.

The Multiplex software must also be installed on the Host system before you can use Multiplex with it. This Host installation is typically performed by the Host system administrator, and should already be completed. If you are responsible for installing Multiplex on the Host system, consult the *Multiplex Host Installation Guide* for Host installation instructions.

## **Installation Overview**

Installing Multiplex on your PC is a simple, four-step procedure:

- 1: Gather required information about your Host system and the communications link that connects your PC to it.
- 2: Install PC communications hardware, if necessary.
- 3: Install the Multiplex PC software.
- 4: Set the Multiplex configuration options correctly.

This Guide will lead you through each of these four steps. If it is necessary for you to install new PC communications hardware, you will also need the installation instructions provided by the manufacturer.

## **Step 1: Gather Necessary Information**

To successfully connect your PC to a Host system, Multiplex needs to know what type of communications link is used between the two systems. Depending on the type of link, Multiplex may also need additional information, such as:

- What telephone number should be dialed to contact the Host system?
- How fast should data be transferred over the link?
- Which communications port on the PC is used to communicate with the Host system?
- What error detection scheme is used to eliminate the possibility of errors in transferred data?

The *Multiplex Configuration Questionnaire* on the next page will help you decide what information Multiplex needs to successfully communicate with a particular Host system. Use the Questionnaire to record the information, which you will use in Step 4 of the installation procedure. If you do not know the answers to some of the questions on the Questionnaire, don't panic. Consult the user manuals for the Host system, or contact the Host system administrator, who should be able to supply the information you need.

## Multiplex Configuration Questionnaire

Gather the following information about your Host system and communications network. For each option, the choice which is pre-set when you install Multiplex is underlined:

Question	Option	Choices
<b>Network Configuration</b>		
A. What type of network connection links your PC to the Host system?	Network Type	<u>Async</u> / Ethernet
<i>For LAN networks only:</i>		
B. What is the name of the Host system on the network?	Host Name	_____
<i>For Asynchronous connections only:</i>		
C. Which PC I/O port is used?	I/O-Port	<u>COM1</u> / COM2
D. What is the communications speed?	Speed	300 / ... / <u>9600</u> / 19200
E. What parity is used? (Normally Even or Odd parity are used with 7 data bits; no parity is used with 8 data bits)	Parity	<u>None</u> / Even / Odd
F. How many data bits are used to represent each character? (Normally 7 if parity is used; ASCII-8 otherwise. Use Intl-8 only if Host system uses full 8-bit characters).	Bits	7 / <u>ASCII-8</u> / Intl-8
G. What flow control is used? (PC means the Host responds to XON/XOFF characters; Host means the Host transmits XON/OFF characters)	Flow-Ctl	None / PC / Host / <u>Both</u>
H. Is a modem used? If so, what type of modem?	Modem-Type	<u>None</u> / Hayes
<i>For Asynchronous modem connections only:</i>		
I. What type of dialing is used?	Dial-Type	<u>Tone</u> / Pulse
J. What is the phone number to auto-dial to reach the Host?	Phone	_____

## Host System Prompts

*For Asynchronous connections only:*

- |    |  |                 |                 |
|----|--|-----------------|-----------------|
| K. | What prompt is displayed by the Host to request a user name? | Login-Prompt    | <u>ogin:</u>    |
| L. | What prompt is displayed by the Host to request a password?  | Password-Prompt | <u>assword:</u> |
| M. | What prompt is displayed by the Host to request a command?   | Command-Prompt  | <u>\$</u>       |

## Host System Security

- |    |   |           |       |
|----|---|-----------|-------|
| N. | What user name is assigned to you on the Host system? | User-Name | _____ |
| O. | What password is assigned to you on the Host system?  | Password  | _____ |

## Host Database Management System

- |    |   |               |   |
|----|---|---------------|---|
| P. | What brand of Host DBMS system are you using?               | Brand         | <u>Informix / Ingres / Oracle / Unify</u> |
| Q. | What is the name of the demo database on the Host system?   | Database Name | <u>mpxdemo</u>                            |
| R. | In which directory on the Host system is the demo database? | Work-Dir      | <u>/usr/mpx/demo</u>                      |
| S. | What is your database user name for the demo database?      | DB User Name  | _____                                     |
| T. | What is your database password for the demo database?       | DB Password   | _____                                     |

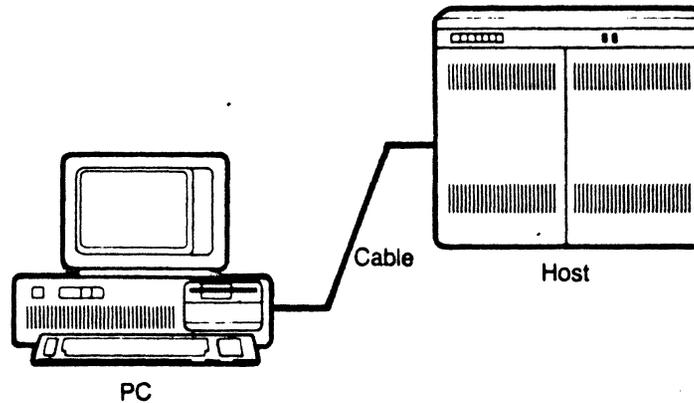
## Step 2: Install PC Communications Hardware

Multiplex supports many different kinds of communications links between PCs and Host systems. If you are already using your PC to communicate with another computer system, you probably have already installed the communications hardware needed by Multiplex. If not, you will need to install the communications equipment now.

Find the section below that applies to the particular communications link that connects your PC to the Host system. Follow the general instructions provided, along with the instructions provided by the manufacturer of your particular communications equipment. Appendix A and Appendix B provide detailed information on modem configuration and cabling requirements.

### Direct Asynchronous Connection:

A direct asynchronous connection uses a cable to connect a *serial port* on your PC directly to a *login port* on the Host system, as shown in the figure below:

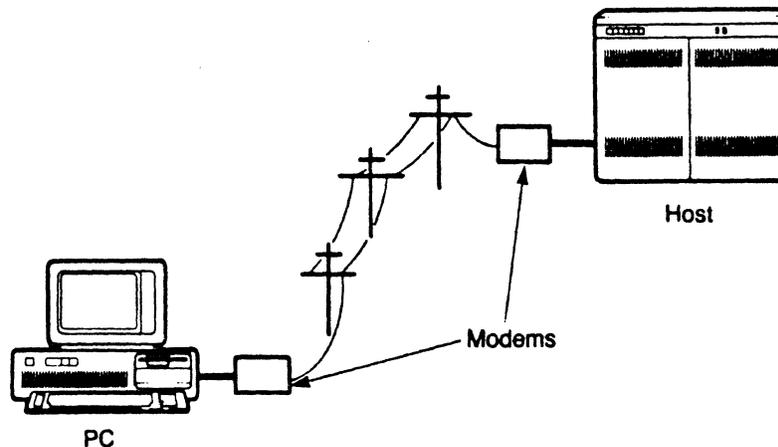


The serial port on your PC typically takes the form of a 25-pin connector. The serial port may be part of an IBM Communications Adapter, or part of one of the popular PC multifunction cards, such as the AST Six-Pak. If the PC card containing the serial port is not already installed in your PC, install it now, following the manufacturer's instructions.

You must use a *modem eliminator cable* to connect your PC to the Host system. This is the same type of cable used to connect a standard computer terminal to the Host system, and is probably available from your Host system administrator. Plug one end of the cable into the serial port on your PC. Plug the other end of the cable into an available login port on the Host system.

### Asynchronous Modem Connection:

An asynchronous modem connection uses a pair of *modems* to connect your PC to the Host system using a telephone line, as shown in the figure below. One of the modems connects your PC to the phone line; the other connects the Host system to the phone line.



Your PC modem may be either an *internal modem* (a PC card that fits into your PC) or an *external modem* (a separate box that is attached to your PC by a cable). If you are using an internal modem, install the modem card into your PC now, following the manufacturer's instructions. Then use a modular telephone cord to connect the modem to the telephone line.

If you are using an external modem, the modem attaches to a *serial port* on your PC. The serial port may be part of an IBM Asynchronous Communications Adapter, or part of one of the popular PC multifunction cards, such as the AST Six-Pak. If the PC card containing the serial port is not already installed in your PC, install it now, following the manufacturer's instructions. Then use a *modem cable* to connect the modem to your PC serial port. Finally, use a modular telephone cord to connect the modem to the telephone line.

Most modems have a set of *configuration switches* which can be set to control the modem's operation. Following the modem manufacturer's instructions, set the switches so that the modem is configured to:

- give the PC control over the Data Terminal Ready (DTR) signal
- pass the Carrier Detect (CD) signal back through the cable to the PC
- send modem command result codes back to the PC

The proper switch settings for some popular modem brands are given in Appendix B.

## Step 3: Install the Multiplex Software

The Multiplex software for your PC is supplied on a single *distribution diskette* labelled "Multiplex PC Software". Multiplex can be installed and used on PCs with dual diskette drives, or on a PC with a single diskette drive and one or more fixed disks.

### PC with Dual Diskette Drives

To use Multiplex on a dual diskette PC, you must install the Multiplex software from the distribution diskette onto a *working diskette*. The working diskette becomes your everyday working copy of Multiplex. Follow these steps:

1. Boot your PC normally using an MS-DOS system diskette.
2. Locate a blank diskette, place it in drive **B:**, and format it. This will become your Multiplex working diskette.
3. Remove the MS-DOS system diskette from drive **A:**, and insert the Multiplex distribution diskette into the **A:** drive.
4. Run the Multiplex PC installation script by typing the command:

**A>a:install b:**

The installation script will copy the correct files from the distribution diskette onto the working diskette in drive **B:**. The script displays progress messages as it copies the files.

5. When the message "PC Installation Complete" appears, remove the distribution diskette from the **A:** drive and store it in a safe place. You may need it again in the future to create a replacement diskette if your working diskette becomes damaged or worn.

Remove the working working diskette from the **B:** drive, and label it:

### PC-Multiplex: Working Diskette

This working diskette is now ready for use.

6. To start Multiplex, insert the working diskette into the **A:** drive, and make sure that it is the default drive. Insert a diskette that can be used to store working data into the **B:** drive. Then type the command:

**A>mpx**

After a few seconds, the Multiplex copyright message will appear.

## PC with a Fixed Disk

To use Multiplex on a PC with a fixed disk, you must install the Multiplex software from the distribution diskette into an *installation directory* on the fixed disk. The copy of Multiplex in the installation directory becomes your everyday working copy of Multiplex. The instructions below assume installation on the C: drive (typically the first or only fixed disk), but you can install Multiplex on a different drive simply by substituting its drive letter. Follow these steps:

1. Boot your PC normally.
2. Insert the Multiplex distribution diskette into the A: drive.
3. Run the Multiplex PC installation script for drive C: by typing the command:

```
C>a:install c:
```

4. The installation script creates an installation directory named `\nimp` on the C: drive if it does not already exist. Then, it copies the appropriate files from the distribution diskette into the directory. The script displays progress messages as it copies the files.
5. When the message "PC Installation Complete" appears, remove the distribution diskette from the A: drive and store it in a safe place. You may need it again in the future to reinstall Multiplex if working copy is accidentally erased.

This Multiplex software in the installation directory is now ready for use.

6. To start Multiplex, make sure that `C:\NIMPX` is your current working directory, and type the command:

```
C>mpx
```

After a few seconds, the Multiplex copyright message will appear.

## Step 4: Set Multiplex Configuration Options

For this step, you will need the information on the Questionnaire you completed in Step 1. For each question where the answer value for your Host system is *different* from the pre-set value, you will need to change the pre-set value. The instructions below will tell you how. You may also want to refer to the *Multiplex User's Manual* for information about how to use Multiplex menus and how to enter data when Multiplex requests it.

1. Start Multiplex, using the instructions from the previous step. The main Multiplex menu should appear at the top of the screen. The *menu pointer*, a reverse video rectangle, highlights the first menu choice. Use the arrow keys on the PC keyboard to move the menu pointer left and right through the menu.
2. To select an item from a menu, you move the menu pointer to the item, and then press the [Enter] key. Select "Configuration" from the main menu now by moving the menu pointer to the fourth choice and pressing [Enter].
3. If you are using a local area network connection (such as Ethernet), select Network and then select Host from the next menu displayed. When Multiplex asks you to enter the name of the Host system on the network, type the system name (question B), and then press [Enter]. Then select Quit, and skip to Step 4.7.
4. Look at the "Network Configuration" section of the Questionnaire. Are all of the pre-set values correct for your communications network? If so, you can skip directly to Step 4.8.

Select Network from the menu. The Network Configuration menu appears at the top of the screen, listing the Network Configuration options. For each option whose setting needs to be changed:

- select the option by name from the menu
  - Multiplex displays a menu of possible settings
  - select the correct setting from the menu
  - Multiplex automatically returns to the Network Configuration menu
5. If you using a direct asynchronous connection, select Quit, and skip to Step 4.6.

Select Modem from the Network Configuration Menu, select Type from the next menu, and Hayes from the next menu.

If you need to change the modem dial type, select Dial-Type from the menu, and then select Tone or Pulse dialing.

If you want Multiplex to auto-dial the Host system, select Phone from the menu, type the phone number to auto-dial, and then press [Enter].

Select Quit and then select Quit again to return to the Configuration menu.

6. If the Host prompts options do not need to be changed, skip to Step 4.7.

Select **Host-Prompts**, and then select **Login**, **Password** or **Command**, depending on which of the Host prompts options needs to be changed. When Multiplex asks for the new prompt value, type it, and then press [Enter].

Select **Quit** to return to the Configuration menu.

7. Select **Update** to permanently record all the configuration changes you have just made in the Multiplex configuration file. Multiplex displays a menu to confirm that you want to replace the contents of the configuration file. Select **Replace** to record your changes.

Select **Quit** to return to the Multiplex main menu.

8. Select **Exit** to end your Multiplex session.

Select **Yes** to confirm your choice and exit Multiplex.

This concludes installation of the Multiplex software on your PC. To start using Multiplex, turn to Chapter 2 of the *Multiplex User's Manual* and begin the Multiplex Guided Tour.

## **Appendix A: Cabling Information**

### **Modem Eliminator Cable**

The modem eliminator cable must provide, at a minimum, the three RS-232C signals identified as **Transmitted Data**, **Received Data**, and **Signal Ground**. The **Transmitted Data** and **Received Data** lines "cross" within the cable, so that the **Transmitted Data** output line from the PC connects to the **Received Data** input line on the Host system, and vice versa. Multiplex also manages the **Data Terminal Ready (DTR)** output signal from the PC. Some Host systems require this signal; the modem eliminator cable must carry it for these systems.

### **Modem Cable**

The modem cable must provide, at a minimum, the four RS-232 signals identified as **Transmitted Data**, **Received Data**, **Signal Ground**, and **Carrier Detect**. Multiplex also manages the **Data Terminal Ready (DTR)** output signal from the PC. If the modem requires this signal to operate, the modem cable must also carry it.

## Appendix B: Modem Configuration

Multiplex uses a modem configuration that is compatible with the modem settings required by Crosstalk, Hayes Smartcomm, and other popular PC communications packages. On a Hayes Smartmodem, the eight configuration switches should be set as follows:

Switch	Position	Function
1	UP	Modem responds to status of the Data Terminal Ready (DTR) signal sent by Multiplex
2	N/A	Send result codes as words/digits -- programmatically set to digits by Multiplex
3	DOWN	Send command result codes back to Multiplex
4	N/A	Echo/no echo of modem commands -- programmatically set to no echo by Multiplex
5	DOWN	Do not answer incoming calls
6	UP	Send Carrier Detect (CD) signal back to Multiplex
7	?	Set UP for single-line installations; Set DOWN for multi-line installations
8	DOWN	Enable modem recognition of commands sent by Multiplex