

MicroSim Installation Guide

for Windows



MicroSim
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Introduction

Welcome to MicroSim

Welcome to MicroSim's family of products. Whichever programs you have purchased, we are confident that you will find they meet your circuit design needs. The purpose of these products is to provide an easy-to-use environment for creating and implementing your circuit designs from start to finish.

Overview

The MicroSim family of products is fully integrated, giving you the flexibility to work through your circuit design in a consistent environment.

This guide describes installation and configuration procedures for Microsoft Windows 3.1 (or later), NT and 95.

After reading the general information in this chapter, follow the specific installation instructions discussed in Chapter 2.

The readme.wri File

Provided with your software is a `readme.wri` file that you should print and read carefully before beginning the installation process. This file contains last minute information that did not get included into this edition of the documentation.

The `readme.wri` file is located on Disk 1 of the diskettes and in the root directory of the CD-ROM.

Product Registration

You have an opportunity to fill out the registration card at the end of the installation process. If you elect not to do so, the file `regcard.wri` is available for you to fill out (double-click on the icon in the MicroSim program group) at anytime.

Please take a moment to complete the document, print it, and return it to MicroSim Corporation. This document allows us to keep you informed of new program announcements and product updates.

All registered users receive our quarterly newsletter, *MicroSim Source*, which provides valuable reference information.

MicroSim Documentation

Since MicroSim software is available in multiple configurations, we have coordinated the manuals in much the same manner.

The documentation is available in hard-copy and on-line. The type of documentation you receive depends on the configuration you have purchased. On-line documentation is distributed to users who install MicroSim products by CD-ROM. Refer to your user's guide for more information on the available hard-copy documentation.

Note *Circuit entry methods are executed through MicroSim Schematics.*

Note *Hard copy manuals can be purchased; contact the MicroSim sales office at (800) 245-3022.*

On-Line Manuals

As mentioned before, users that install MicroSim products via CD-ROM will receive on-line manuals.

On-line manuals are provided in Adobe's Portable Document Format (.pdf). They can be displayed and printed exactly as the original from any computer on most platforms (Windows 3.1 or later, NT and 95), regardless of the fonts or software programs on the computer.

The Acrobat Reader application for reading, navigating and printing PDF documents, is available on the MicroSim CD-ROM. Along with the Adobe Reader is an Acrobat Search application that allows you to load indexes of one or more manuals so you can search across them.

Please refer to any one of the Adobe on-line manuals that were installed with your MicroSim on-line manuals for more information on how to:

- use the Adobe Reader
- load indexes
- use the search tool

Before You Begin Installation

For diskette customers:

- a set of diskettes in 3.5" format that contains the programs, library files and example circuit and schematic files
- a set of Microsoft Win32 OLE installation diskettes
- a parallel security plug
- a set of hard-copy manuals

Note *If you purchased MicroSim Schematics only you do not need a parallel security plug to operate the software.*

New users may also order the book *SPICE, A Guide to Circuit Simulation and Analysis Using PSpice*, second edition (Prentice-Hall, 1992).

Before you begin the installation process you should check the shipping contents to make sure you have received all items for your operating system. The shipping contents for CD-ROM customers include:

- a CD-ROM that contains the following:
 - the MicroSim programs, library files and example circuit and schematic files
 - Microsoft Win32 OLE files
 - on-line manuals
- a parallel security plug
- a set of hard-copy manuals

If you purchased a system that includes circuit simulation and Probe waveform analysis, you should have the following documentation:

- *PSpice A/D & Basics+ User's Guide* or *PSpice & Basics User's Guide*
- *PSpice A/D Reference Manual*
- *MicroSim Application Notes*

If your system includes MicroSim Schematics, you should receive the following documentation:

- *MicroSim Schematics User's Guide*

If you discover that an item is damaged or missing, contact MicroSim Product Marketing:

(714) 770-3022 or (800) 245-3022

What's New in this Release?

If you are already familiar with a previous version of MicroSim software, you should read the *What's New in This Release* section of your user's guide and take note of the new features and product enhancements.

Technical Support

If you encounter a problem during installation or use of any of MicroSim’s products, contact Technical Support.

Application Engineers are available from 8:30 am to 5:00 pm, Pacific Standard Time, Monday through Friday.

When calling, make sure you have the following information readily available:

- your program ID number
- the program(s) you are using (PSpice, Parts, etc.)
- the type of computer and operating system you are using (including the release version)
- amount of memory installed in the system

The following table outlines the contact phone numbers and E-mail addresses for MicroSim.

Contact	Address/Number
Technical Support E-Mail	Tech.Support@MicroSim.com
Technical Support Phone	(714) 837-0790
24-hour Fax	(714) 455-0554
24-hour AutoFax	(714) 454-3296
24-hour BBS	(714) 830-1550

About the MicroSim BBS

On the BBS you will find information regarding operation and a message utility that allows you to provide your comments and suggestions. The BBS can be reached by dialing:

(714) 830-1550 (1200-14.4K baud, N-8-1)

The BBS supports several terminal types, including ANSI and VT100/VT102.

About MicroSim AutoFax

MicroSim AutoFax is a simple-to-operate automated fax response system. It is available 24-hours a day, 7 days a week (voice prompts are in English only).

With AutoFax you can:

- request a catalog of available Sales and/or Technical documents
- order documents
- listen to Quick Pick items
- access MicroSim product information, technical notes, and answers to some FAQs (Frequently Asked Questions)

About MicroSim's World Wide Web Site

Our WWW address is:

<http://www.microsim.com>.

Read about MicroSim product, service, and support offerings. View our quarterly customer newsletters (MicroSim Source, July and October 1995). Access our anonymous FTP site to download free evaluation software.

Installing MicroSim Applications

1

Overview

This chapter provides detailed instructions for installing MicroSim applications in the Windows environment. The following topics are covered:

- system requirements
- installing the security plug
- installing MicroSoft Win32 OLE files
- installing MicroSim applications

System Requirements

The following sections outline the minimum hardware and software requirements for installing MicroSim applications on Windows 3.1 (or later), 95 and NT.

Required Hardware

- an IBM 80386, 80486, or Pentium-based PC (or compatible) computer with the following features:
 - 640 kilobytes of DOS (low) memory
 - at least 8 megabytes of extended memory (not expanded or LIM) or more is recommended for configurations with PSpice A/D (or PSpice) and MicroSim Schematics.
 - 80x87 floating-point coprocessor (compatible with the system)
- VGA, EGA, or most other displays (color and monochrome) supported by Windows
- a parallel port (or a serial port if you are installing an upgrade to the single-user version)
- at least one high-density floppy drive or a CD-ROM drive
- a mouse

Note *At least 4 megabytes of extended memory (not expanded or LIM) for a MicroSim Schematics installation only.*

Note *A parallel port is not required if you are only installing Schematics.*

Required Software

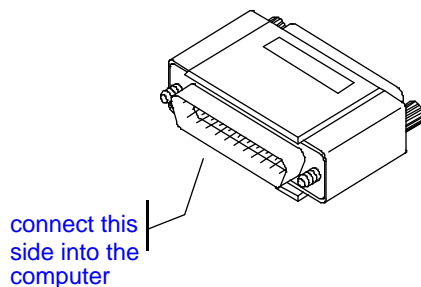
One of the following operating systems:

- Windows 3.1 (or later), installed and running in 386 enhanced mode, with:
 - MS-DOS 3.0 (or later; 5.0 recommended)
 - Microsoft Win32 OLE files (V1.30 or later)
- Windows 95
 - hinstall.exe (V2.01)
- Windows NT (V3.51)
 - hinstall.exe (V2.01)

Note *Microsoft Win32 OLE files are provided with the MicroSim diskettes and on the CD-ROM.*

Installing the Security Plug

Before installing MicroSim applications, you must install the security plug.



Install the security plug into a parallel port on the back of your computer.

Note *If you connect the security plug into the wrong type of port or backwards, you will not damage the security plug, however, the applications will not run.*

Testing the Security Plug

The security plug is transparent to other users of the port, such as, a printer. To verify there are no conflicts with the port, perform the following test:

- 1** Unplug the printer connector and install the security plug into the appropriate port (serial for non-network updates, parallel for new installations).
- 2** Plug the printer connector into the other end of the security device.
- 3** Run a print job to verify that your printer is operating properly.

The security plug should not interfere with data sent in either direction on the port. The interrogation of the security plug by the MicroSim software does not effect printer operation.

Non-Network

SECURITYPORT in the msim.ini file is only for serial plugs. All parallel ports will be scanned; there is no way to specify which port the plug is in.

Serial plug

If you currently have a serial security plug, and you are *updating* a non-network version, you can continue to use the same security plug, as long as you continue to run under Windows 3.1 (or later).

Note *If you want to run under Windows NT or 95, contact the MicroSim Sales Department for information on how to trade your serial plug for a parallel plug.*

Parallel plug

If you are installing a *new*, non-network version of the software, install the security plug on a parallel port. Parallel plugs run under Windows 3.1 (or later), NT and 95.

Network Installations

Additionally, if you are installing different simulator configurations (such as a combination of analog-only, digital-only, and mixed (A/D) simulators) then each package must be installed in a separate directory.

Single-network

If you are installing a network version of the software, install the security plug on a parallel port. See *Installing on PC-Based Networks*.

Multiple-network

If you are installing more than one network version, each security plug must be installed on a different license server.

Installing MicroSim Applications

Before You Begin

During the installation be ready to answer the following prompts:

- The drive and directory of where you want the applications to be installed.
- Whether you want to do a complete or partial installation.
- Whether you want to have the installer perform various system configuration options, such as creating a program group and icons.

Throughout the installation process, the installer displays the progress of the installation. If you want to abort the installation, press **[Esc]**. Note that doing this will result in an incomplete installation.

Note *Should you abort the installation process, be sure to delete the installed files from your system before beginning the installation again.*

Installing Win32 OLE Files for Windows 3.X

Note *You must install the Win32 OLE files (V1.30a or later) before you install MicroSim applications.*

If you have already installed Microsoft Win32 OLE files in conjunction with another program, you should still proceed with the following steps.

If the Win32 OLE files currently installed on your system are a more current version than what is provided with MicroSim software, you will be notified. If this occurs, keep the installed version and continue on with the installation.

If the Win32 OLE files provided with MicroSim software are a more current version, then the files will be updated

Note *Backing up this file is a precautionary measure that you should take in case the Win32 OLE installation is not successful.*

From CD-ROM

To install the Win32 OLE files, do the following:

- 1 Make a backup copy of your `\windows\win.ini` file under another file name.
- 2 Insert the CD into your CD drive.
- 3 Select the following directory on the CD through the File Manager:

`\ole325\130\disk1`

- 4 Double-click on the file `setup.exe`.
- 5 Follow the instructions on the screen to complete the installation.

From Diskettes

To install the Win32 OLE files, do the following:

- 1 Make a backup copy of your `\windows\win.ini` file under another file name.

Note

- 2 Insert Microsoft Win32 OLE installation disk #1 into your floppy drive.
- 3 Select the Program Manager and do the following:
 - a Select the File pull-down menu from the menu bar.
 - b Select Run.
- 4 In the Run dialog box type in the command line:

`<drive>:\setup.exe`

where *drive* is your local floppy drive.

- 5 Press or click OK.
- 6 Insert the Microsoft Win32 OLE installation disk #2 when prompted.
- 7 Follow the instructions on the screen to complete the installation.

Note *If you are updating the Win32 OLE files, you may not be prompted for disk #2.*

Installing hinstall.exe for Windows NT and 95

If you have an older version of `hinstall.exe` installed (prior to V2.01) you need to:

- 1 Uninstall `hinstall.exe` (`hinstall -r`).
- 2 Reboot.
- 3 Re-install `hinstall.exe` V2.01 (`hinstall -i`).
- 4 Type `hinstall /info` to see if the drivers were successfully installed.

If you are installing on computer running Windows NT, you need to be ADMINISTRATOR to install/uninstall `hinstall`.

From CD-ROM

To install `hinstall.exe`, do the following:

- 1 Insert the CD into your CD drive.
- 2 Select the Program Manager and do the following:
 - a Select the File pull-down menu from the menu bar.
 - b Select Run.
- 3 In the Run dialog box type in the command line:


```
<drive>:\hinstall.exe -i
```

 where *drive* is your CD-ROM drive.
- 4 Press or click OK.

From Diskettes

To install `hinstall.exe`, do the following:

- 1 Insert MicroSim installation disk #1 into your floppy drive.
- 2 Select the Program Manager and do the following:
 - a Select the File pull-down menu from the menu bar.
 - b Select Run.
- 3 In the Run dialog box type in the command line:


```
<drive>:\hinstall.exe -i
```

 where *drive* is your local floppy drive.
- 4 Press or click OK.

Installing the Applications from CD-ROM

To install MicroSim applications, you need to run the installation program from within Microsoft Windows.

- 1 Start Windows.
- 2 Insert the CD into your CD drive.
- 3 Select the Program Manager and do the following:
 - a Select the File pull-down menu from the menu bar.
 - b Select Run.
- 4 In the Run dialog box type in the command line:

`<drive>:\setup`

where *drive* is your CD-ROM drive.
- 5 Press or click OK.
- 6 Dialog boxes from the installation window will prompt you for information and instruct you on how to proceed through the installation.

Successful installation means all of your applications and the accompanying symbol and model library files will be installed. With your approval, a Windows Program Group called MicroSim will be created containing icons for each program.

Installing the Applications from Diskette

To install MicroSim applications, you need to run the installation program from within Microsoft Windows.

- 1 Start Windows.
- 2 Insert the MicroSim application setup disk labeled disk 1 into your floppy drive.
- 3 Select the Program Manager and do the following:
 - a Select the File pull-down menu from the menu bar
 - b Select Run.
- 4 In the Run dialog box type in the command line:
`<drive>:\setup`
where *drive* is your local floppy drive.
- 5 Press or click OK.

The installation window appears; dialog boxes from this window will prompt you for information and instruct you on how to proceed through the installation.

Successful installation means all of your applications and the accompanying symbol and model library files will be installed. With your approval, a Windows Program Group called MicroSim will be created containing icons for each program.

If you have Filter Designer, Device Equations, PLSyn, PSpice Optimizer, or MicroSim PCBoards you will receive separate installation diskettes.

The procedure for installing these applications is identical to the procedure outlined, except you must insert the specific program disk (step 2) instead of the application setup disk.

Note *This information applies to Windows 3.X only.*

Installing Schematics Only

A Schematics installation *only*, does not require a security plug or an authorization code, however, it does require a program ID number.

To install Schematics only, when prompted:

- 1 Enter the ID number.
- 2 Select the radio button: Schematics and/or symbol libraries only.

You will not be prompted for an authorization code.

The program ID number is recorded in the msim.ini file in the [MicroSim] section as MSIMID. This information then becomes available in the About box when you need to reference it for Technical Support. Your program ID number is always required when contacting MicroSim technical support.

Note *This information applies to Windows 3.X only.*

Installing All Other MicroSim Applications

All other installations require a program ID number, a security plug, and an authorization code.

For installations in which you want to install more than just Schematics, when prompted:

- 1 Enter the ID number.
- 2 Select the radio button: Other.
- 3 Enter your authorization code.

The installation will include Schematics as well as the other products you have purchased/licensed.

Installing and Selecting Libraries

Depending on the MicroSim applications you have purchased, you have several options when installing libraries:

- Analog simulation models with symbols—for those who have PSpice or PSpice A/D and plan to simulate using the analog devices provided by MicroSim.
- Digital simulation models with symbols—for those who have PSpice A/D or PLogic with PLSyn and plan to simulate using the digital device models provided by MicroSim.
- Component symbols (no models)—for those who have Schematics or MicroSim PCBoards and plan to use the schematic symbols.

Note *If you are installing Schematics only and you select one of the options that contain models; no model libraries will be installed, you will only get the symbols for the devices contained in those libraries. Model library installations require a PSpice or PSpice A/D license and authorization code.*

Installing Over a Previous Version

Note *If you already have a previous version of MicroSim applications installed on your system, read the following section very carefully.*

Each time you run the MicroSim installation program, it automatically makes a backup copy of your `msim.ini` (named `msim.bak`) and creates a new version.

Note *This information applies to Windows 3.X only.*

Customized `msim.ini` files:

If you have customized some of the settings in the `msim.ini` file (such as, color selection or printer information), you may want to make a back-up copy of the old file to ensure your settings do not get overwritten. After installation, you can refer to the backup copy when editing the new version of the `msim.ini`.

Circuit, schematic, data, and output files from earlier versions are compatible with this release, and do not require any special processing. However, some files created with this release may not be compatible with earlier releases.

Troubleshooting Your Installation

There are three components to every MicroSim product:

- program ID number—a 5-digit serial number
- security plug—either a parallel port (white) plug, or a serial port (black) plug
- authorization code—an alphanumeric string of 28 numbers and characters (the code is not case-sensitive so it doesn't matter whether you type the letters in upper or lower case)

Invalid authorization code or user ID

If you get this message, do the following:

- 1 Verify that the security plug is correctly installed on the appropriate port. See *Installing the Security Plug on page 1-3*.
- 2 Verify that you have entered the authorization code correctly.
- 3 For Windows NT and 95, verify that `hinstall` has been installed by typing: `hinstall /info`.

This program is incompatible with other files in the release area

If you get this message, do the following:

- 1 Run the installation program again.
- 2 Select “Regenerate License File” on the initial screen.
- 3 Verify that you are using the correct authorization code assigned for this release.

Configuring the Printer and Monitor

All MicroSim applications, as Windows applications, will use the default Windows printer and monitor configurations. Therefore, no special procedures are required for monitor selection and printer installation.

If you have already installed your printer through the Control Panel, you should designate it as your default printer. If you have not already installed your printer, refer to the instructions provided by your printer manufacturer and your Microsoft Windows documentation.

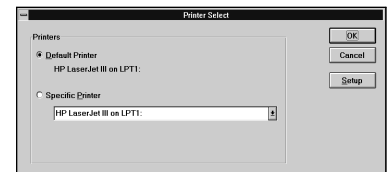
Configuring the Printer from within MicroSim Applications

For convenience, MicroSim applications provide the option to configure a printer from within each program.

To configure your printer, do the following:

- 1 Select the Printer Select menu.
- 2 Select a printer from the list of installed printers, or keep the currently selected default.
- 3 Once you have selected a printer, click Setup to display the Printer Setup menu for configuration.

This dialog box allows you to change such options as the print orientation (portrait or landscape), paper source, etc.



Customization Options

The command line options listed in the *PSpice A/D Reference Manual* are not required, however, they can be added to any application command line.

From the icon

The following procedure outlines how to add a command line option when you are running MicroSim applications from the icon—not from within Schematics.

The `msim.ini` file is updated when you make configuration changes from within Schematics. This file can also be modified using a standard text editor (such as Notepad).

- 1 Install the application as described on page **1-5**.
- 2 Find the program icon in the MicroSim program group.
- 3 Click once on the respective icon to select it, but do not start the program.
- 4 Select the File pull-down menu from the menu bar.
- 5 Select Properties from the File menu.
- 6 Edit the Command field to include the desired command line options.

The file `msim.ini` contains default configuration settings and some general software configuration settings. This file was created during installation, and is located in the directory where Windows is installed (usually `c:\windows`).

From within Schematics

The following procedure outlines how to add command line options when you are running MicroSim applications from within Schematics.

To change the command line options from within Schematics:

- 1 Select Editor Configuration from the Options menu.
- 2 Click the App Settings button in the Editor Configuration dialog box.
- 3 Change command line options as necessary.

Installing on PC-Based Networks

2

This chapter describes the procedure for installing MicroSim applications on PC-based networks. This chapter includes the following sections:

Stand-Alone versus Network Licenses on page 2-2

Security Plugs on page 2-3

Network Installations on page 2-4

Selecting a License Server on page 2-7

Installing a Network License on page 2-8

Network Classes on page 2-12

IPX Networks on page 2-12

Local Networks and Internetworks under Novell on page 2-13

Stand-Alone versus Network Licenses

Note *Refer to the readme.wri file for more information on running network versions under Windows NT and 95.*

Stand-alone licenses

allow a single user to use MicroSim applications on one computer at a time with a security plug attached directly to the computer. The applications can be copied to multiple computers, however, *only* the computer with the security plug will be able to run the applications.

Network licenses

allow multiple users to use MicroSim applications running in a network configuration with the security plug attached to a license server.

Note *The license server can be any computer on the network, such as a Novell Netware file server or a client workstation. This license server monitors the number of users.*

With both stand-alone and network versions, you can install the applications on a local drive, or on a network drive and then copy the necessary files to individual computers as needed.

Security Plugs

If you are updating to a network version of the applications from a non-network version, you should have received a new security plug with your new applications. See *Installing the Security Plug on page 1-3*.

If you have multiple security plugs, each plug must be installed on a different license server. See *Setting Up Multiple License Servers on page 2-7*.

Updating the Security Plug

If you are updating from a previous network version, you can continue to use the same security plug. However, you must run `nlupdate.exe`, which is located on the Network Security Plug update disk.

- 1 Install the security plug. See *Installing the Security Plug on page 1-3*.
- 2 Insert the Network Security Plug update disk into your floppy drive.
- 3 Select the Program Manager and do the following:
 - a Select the File pull-down menu from the menu bar
 - b Select Run.
- 4 In the Run dialog box type in the command line:
`<drive>:\nlupdate.exe`
where *drive* is your local floppy drive.
- 5 Press or click OK.

Using the Security Plug with other Security Devices

The security plug may be connected in series with other security devices. If you have multiple security plugs from MicroSim, they must be loaded on different license servers.

Network Installations

Network licensing allows you to run one or more copies of the programs (e.g., PSpice, Probe, or Parts) on any node on the network without being locked to a specific node. This is accomplished by designating one computer as a license server, to handle requests for individual licenses from elsewhere on the network.

The license server requires a security plug. The license server may be any computer on the network, such as a Novell Netware file server or a client workstation. The security plug attaches to the parallel port on the license server; the plug does not affect the operation of printers or other devices.

Once the license server is set up, each license is *checked in* and *checked out* from the license server by a utility running on the license server that administers the licenses throughout the network. This process is completely transparent.

See *Selecting a License Server on page 2-7*, for more information on license servers.

Note *For a complete list of supported protocols, please see the readme.wri file.*

The computers connected to the network that run the MicroSim applications do not need any additional software.

Note *The license server must remain running while MicroSim applications are in use.*

Setting Up Individual Computers

If you install the applications on a network drive, each computer connected to the network drive should have a copy of the `msim.inifile` on its local drive.

Which means, each computer that runs MicroSim applications should have a copy of the `msim.ini` file located in the `\windows` directory.

To setup individual computers:

- 1 Edit the `msim.ini` file to specify a local backup directory by changing the setting of the `BACKUP` entry (in the `[MicroSim]` section) to the name of a directory on the local drive.
- 2 Create a new program group and add the appropriate MicroSim icons.

You can also configure computers individually through the installation program option "Configure Network Node."

Installing Data Files: Local versus Network

Program executables and data files can be installed either locally (on individual local drives) or on a network drive.

Note *For best performance, install the executables and data files locally.*

Note *Changing the command line ensures that the temporary files written by the simulator do not conflict with the files from other users working from the same drive.*

If you are using MicroSim applications to simulate circuits that are located on a network (shared) drive, do the following.

Running PSpice (A/D) from the icon

- 1 Create a TEMP directory on a local drive, if one does not already exist.
- 2 In the Program Manager select Properties from the File menu.
- 3 Modify the simulator command line to include the following option:

`-wTEMP=<local temp drive and directory>`

where *<local temp drive and directory>* indicates the location of the TEMP directory.

Running PSpice (A/D) from Schematics

- 1 Create a TEMP directory on a local drive, if one does not already exist.
- 2 From Schematics:
 - a Select Editor Configuration from the Options menu.
 - b Click the App Settings button in the Editor Configuration dialog box.
- 3 Modify the simulator command line to include the following option:

`-wTEMP=<local temp drive and directory>`

where *<local temp drive and directory>* indicates the location of the TEMP directory.

Selecting a License Server

The computer you choose to be the license server will depend on your network configuration. However, whatever the configuration, the computer must have a parallel port. The main requirement for the license server is that the computer must be stable, which means it should not be subject to frequent re-booting. Additionally, the license service must be isolated from interruptions.

Setting Up Multiple License Servers

If you have more than one license server running NETBIOS/NETBEUI, do the following:

- 1 In the `autoexec.bat` file on each client workstation (i.e., any machine that will be running MicroSim applications) add the following line:

```
SET HASPNBNAME=<name>
```

where `name` is an arbitrary name up to eight characters, and is case sensitive.

Setting this environment variable at a station will force a search for a NetHASP server, which was loaded with the switch `-NBNAME=<name>`.

- 2 Start `nhsrvwin` on the license server with the following option:

```
nhsrvwin -NBNAME=<name>
```

Using the `-NBNAME` switch will only allow computers with a matching `HASPNBNAME` environment variable to obtain a license.

Note *If you have more than one license server running IPX, there are no special requirements.*

Installing a Network License

After you have selected a computer to be the license server, connect the security plug to the parallel port; then, proceed to the section that applies to your license administration application needs.

Setting Up a Novell Netware 386 File Server

The license administration application, `haspserv.nlm`, is in the form of an NLM (network loadable module). To install this application, do the following:

- 1 Copy `haspserv.nlm` from:
 - a the MicroSim Network Files disk, or
 - b the `\network` directory on the CD-ROMto the `SYS:SYSTEM` directory.

- 2 Type at the fileserver's console prompt:

```
load CLIB
load haspserv.nlm
```

Note *Add these commands to the `autoexec.ncf` file, which resides in the `SYS:SYSTEM` directory, to make sure the license server is activated when the file server boots up.*

The server application uses the SAP protocol to communicate between the license server and the applications.

Note *If you are using Novell Netware on a 386 file server, you must have V3.0 of the Novell software (or later).*

Setting Up a Novell Netware 286 File Server

The license administration application, `haspserv.vap`, is in the form of a VAP (value added process). To install this application, do the following:

- 1 Copy `haspserv.vap` from:
 - a the MicroSim Network Files disk, or
 - b the `\network` directory on the CD-ROMto the `SYS:SYSTEM` directory.
- 2 Re-boot the file server.

When the server is loaded, a message displays prompting for a confirmation on whether `haspserv` should be installed.

- 3 Click on Yes.
- 4 To avoid this message, add the following line to the `server.cfg` file in the `SYS:SYSTEM` directory:

```
VAP WAIT = 10
```

The server application uses the SAP protocol to communicate between the license server and the applications.

Setting Up Novell Netware Lite

The license administration application, `haspserv.exe`, is in the form of a TSR (terminate-stay resident) program. To install this application, do the following:

- 1 Copy `haspserv.exe` from:
 - a the MicroSim Network Files disk, or
 - b the `\network` directory on the CD-ROMto a public directory in the network's search map.
- 2 Start the program only by the license server, after the network application has been loaded.

When it runs, HASPSERV creates a file called `newhaddr.dat`, which is used by the program to find the license server.

Note *Note that if you move the `haspserv` files to another directory or change which computer is the license server, you must delete the old `newhaddr.dat` file.*

- 3 For each computer running the program (clients and servers), add the following line to the `autoexec.bat` file:

```
append <drive:>
```

where `<drive:>` maps to the location of `newhaddr.dat` located on the license server.

- 4 For the server, add the following:

```
append c:\msim63
```

- 5 For the client, add the following:

```
append f:
```

Setting Up Other PCs

Other computers may be used as the license server if they have IPX or NETBIOS loaded.

The license administration application, `nhsrvwin.exe`, is in the form of a TSR (terminate-stay resident) program. To install this application, do the following:

- 1 Copy `nhsrvwin.exe` from:
 - a the MicroSim Network Files disk, or
 - b the `\network` directory on the CD-ROM
 to the desired directory on the license server.
- 2 Run it from the Program Manager by doing the following:
 - a Select the File pull-down menu from the menu bar
 - b Select Run.
- 3 In the Run dialog box type in the command line:


```
<path>\nhsrvwin.exe
```
- 4 Press Enter ↵ or click OK.
- 5 When `nhsrvwin` is started, it automatically recognizes the network type and selects the appropriate protocol. You can override the protocol when starting `nhsrvwin` by using one of the following command line options:

```
-NETBIOS
-IPX
-IPXNOSAP
```

- 6 If you override the protocol used by the server, you also need to override the protocol used on each client workstation. To do this, create an environment variable named `NETHASPPROTOCOL` and set it to one of the three values:

```
SET NETHASPPROTOCOL=NETBIOS
SET NETHASPPROTOCOL=IPX
SET NETHASPPROTOCOL=IPXNOSAP
```

Note For a complete list of supported protocols, please see the *readme.wri* file.

This program can be placed in your start-up group.

Note The environment variable values must be in UPPERCASE letters. Note that you will need to set the environment variable in DOS before you start Windows.

Network Classes

Note For a complete list of supported protocols, please see the *readme.wri* file.

There are three classes of networks that NetHASP supports. Table 2-1 lists the classes and some specific examples.

Table 2-1 *Classes of Networks Based on Protocol*

IPX Networks	NETBIOS/NETBEUI Networks	Other Network Protocols
Novell Netware 2.x	Lantastic	Pathworks
Novell Netware 3.x	LAN Manager	Banyan Vines
Novell Netware 4.x in Bindery Emulation		PC/NFS

Pathworks is an example of a network that has both IPX and NETBIOS. It does not run either IPX or NEBOIS, but client workstations may run a NETBIOS layer over Pathworks' native protocol (NETBIOS must be set up as the primary protocol in this case).

Communication is actually performed with Pathworks' native protocol but the NETBIOS layer allows the NetHASP application to interface with Pathworks with the normal NETBIOS API.

All stations accessing the NetHASP license server must share a common network protocol. The NetHASP system currently supports two protocols:

- IPX
- NETBIOS/NETBEUI

If your network has both, ensure that both the clients and server are running the same protocol. Other network protocols are supported if they can run a NETBIOS layer on top of their standard protocol.

IPX Networks

On a Novell IPX-based network there are five possible situations of license server application vs. workstation/server; these are summarized in Table 2-2.

Table 2-2 *Netware License Servers*

Computer	License Server
Netware 2.x server	HASPSERV.VAP
Netware 3.x server	HASPSERV.NLM
Netware 4.x server (in Bindery Emulation)	HASPSERV.NLM
DOS Workstation	HASPSERV.EXE
Windows 3.x Workstation	NHSRVWIN.EXE

Local Networks and Internetworks under Novell

A local network

is a single cabling scheme identified by a unique network number, to which one or more stations are connected.

An internetwork

is a group of two or more local networks linked together.

When you load the NetHASP Server program, it advertises its name to the entire internetwork (by default) and serves all of the internetwork's local networks and stations (by default). If the default suits your needs, that is, you want the NetHASP Server program to sever the entire network, you can skip the following sections.

If the defaults do not suit your needs, you can instruct the NetHASP Server program to serve only a specific local network. The following sections describe how to load the various NetHASP Server programs to serve a local network *only*.

Specifying Local Networks with HASPSERV.NLM

To instruct HASPSERV.NLM to serve only those local networks connected to the file server on which HASPSERV.NLM is running, load it with the LOCALNET switch:

```
load haspserv localnet
```

To instruct a station to communicate only with the HASPSERV.NLM that serves the station's local network (and not with other servers loaded on the internetwork) set the following environment variable:

```
SET NETHASPPROTOCOL=LOCALNET
```

To instruct HASPSERV to advertise its address with a specific local network number, load it with the NET switch:

```
load haspserv net m [net n...]
```

where *m* and *n* are IPX network numbers in the internetwork. To find out the network numbers of a NetHASP Server, enter `config` in the file server console. The information displayed on the screen contains the network numbers.

Note *Note that although HASPSERV.NLM advertises its address with specific network numbers, it continues to serve all of the stations in the entire internetwork. HASPSERV serves the specified local networks only when it is loaded with the LOCALNET switch and with the NET switch, concurrently.*

Example

An internetwork consists of local networks A, B, C, etc. HASPSERV.NLM is running on a file server to which local networks A and B are connected directly. You want MicroSim applications to run only on computers belonging to local network A. Initially, HASPSERV.NLM was loaded as follows:

```
load haspserv
```

Loaded this way, HASPSERV.NLM serves all the local networks in the entire internetwork. This allows computers (from local networks other than local network A) to access the NetHASP key, and therefore, run MicroSim applications that aren't assigned to them. Additionally, computers from local network A search for the NetHASP key throughout the entire internetwork.

To solve this problem:

- 1 Load HASPSERV.NLM as follows:

```
load haspserv net A localnet
```

The LOCALNET switch prevents HASPSERV.NLM from serving all the computers in the entire internetwork. Moreover, the NET switch ensures that HASPSERV.NLM, now serves only local network A.

- 2 To ensure the computers in local network A communicate with the above HASPSERV.NLM, and not with others in the internetwork, set the following environment variable at each computer:

```
set NETHASPPROTOCOL=LOCALNET
```

Specifying Local Networks with other Servers

To instruct HASPSERV.EXE or NHSRVWIN.EXE to serve a local network, use *one* of the following switches when loading it:

```
haspserv -localnet
nhsrvwin -localnet
```

Note *If you load the NetHASP Server program without using the LOCALNET switch, it serves all of the networks and computers in the entire internetwork.*

You can instruct a computer to access only the NetHASP Server program (that advertised its name with the computer’s local network). To do this, set the computer’s environment variable, NETHASPPROTOCOL as follows:

```
SET NETHASPPROTOCOL=LOCALNET
```

Troubleshooting

Note *Refer to the readme.wri file for the latest network troubleshooting techniques.*

Table 2-3 *Network Troubleshooting Techniques*

Message	Page
Network Not Responding	2-17
Error Messages	2-18
Stand-alone, Non-network PC	2-20
Setting Time-out Length	2-20
Program Crashes	2-21
License Server Crashes	2-21

Network Not Responding

Table 2-4 *Network Not Responding Troubleshooting*

Instruction	Action/Solution
Is the security plug installed on a Novell fileserver, or some other PC on the network?	The plug can be installed on <i>either</i> the fileserver or a PC.
Is the PC with the plug running Windows 3.1 or 3.11, with <code>haspserv.exe</code> or <code>nhsrvwin.exe</code> ?	<ul style="list-style-type: none"> • Windows 3.11 requires <code>nhsrvwin.exe</code>. • If you are running Windows 3.1 and <code>haspserv.exe</code>, try <code>nhsrvwin.exe</code> instead.
Which protocol are you using?	<ul style="list-style-type: none"> • We support IPX and/or NETBIOS/NETBEUI. • You may run multiple protocols as long as one of the protocols is either IPX or NETBIOS/NETBEUI. • In the case of multiple protocols, e.g., TCP/IP and NETBIOS, NETBIOS must be primary.
Which version of <code>haspserv.exe</code> or <code>nhsrvwin.exe</code> are you running?	Use the version provided on the MicroSim Network Files disk or in the <code>\network</code> directory on the CD-ROM.
Are you using any options (e.g., <code>-NETBIOS</code>) on the <code>nhsrvwin.exe</code> line?	<p>The <code>-localnet</code> option only works with IPX and not with NETBIOS/NETBEUI.</p> <p>If you are having problems and have a NETBIOS/NETBEUI network, try adding (all caps):</p> <pre>SET NETHASPPROTOCOL=NETBIOS</pre> <p>to the <code>autoexec.bat</code> file of the client workstation, rebooting, and then starting <code>nhsrvwin.exe</code> with the <code>-NETBIOS</code> option, i.e.,</p> <pre>nhsrvwin -NETBIOS</pre>

Error Messages

Table 2-5 Error Messages Troubleshooting

Message	Description/Solution
<i>communication or protocol problems</i>	<p>Usually means NETBIOS/NETBEUI is not the primary protocol.</p> <p>If you are using Windows 3.11</p> <ol style="list-style-type: none">1 Select Network/Network Setup/Drivers.2 Make sure NETBEUI or NETBIOS is selected as primary. <p>If IPX/SPX Compatible Transport is anywhere in the list of protocols delete it if you don't need it. If you don't want to delete IPX/SPX Compatible Transport:</p> <ol style="list-style-type: none">1 Select Network/Network Setup/Drivers.2 Click on IPX/SPX Compatible Setup Transport/Setup.3 In the Advanced Protocol Settings dialog box, click on the Frame Type/Value.4 Select the correct Frame Type (whatever your network is defaulting to).
<i>communication or protocol problems on some computers, but not on others</i>	<p>If this message appears on some computers, but not on others:</p> <ol style="list-style-type: none">1 Check the items in the procedures listed above.2 If the computers that aren't working are on a different subnet than the computers that are working, the routers MUST be able to route NETBIOS.3 If you do not want to pass NETBIOS through the routers, you MUST get a different network license for every subnet running MicroSim applications.

Table 2-5 *Error Messages Troubleshooting*

<i>security plug is not connected to server</i>	See <i>Setting Up Multiple License Servers</i> on page 2-7.
<i>cannot find a license server</i>	<ol style="list-style-type: none"> 1 Make sure you are running <code>haspserv.exe</code> or <code>nhsrvwin.exe</code>. 2 If you are running Windows 3.1 or 3.11, and are running <code>haspserv.exe</code> try <code>nhsrvwin.exe</code> instead. 3 If some MicroSim applications work and others do not, and you updated from an earlier version, run <code>nlupdate</code> to update the plug. See <i>Updating the Security Plug</i> on page 2-3. 4 Try the procedures listed in “Communication or protocol problems.”
<i>license lost</i>	If you are experiencing this message frequently, and are running the IPX protocol, see <i>Local Networks and Internetworks under Novell</i> on page 2-13.

Stand-alone, Non-network PC

1 The PC must have a network card.

2 The IPX protocol must be loaded.

Note *You cannot run on a stand-alone PC using the NETBIOS protocol.*

3 In DOS, before launching Windows, type (all caps)

```
SET NETHASPPROTOCOL=IPXNOSAP
```

4 Move haspserv.exe or nhsvwin.exe to the MicroSim installation directory, e.g., c:\msim63.

5 Start haspserv.exe or nhsvwin.exe with the - ipxnosap option, i.e.,

```
nhsvwin -IPXNOSAP
```

Once the network license application has been installed on the license server, the application should operate smoothly.

Setting Time-Out Length

If you receive the following message:

```
Server is busy - check time-out lengths
```

There are two environment variables to set time-outs for the transactions between the PC and the license server.

SET NETHASPSSESSION=nn	Determines the maximum length of time (in seconds) for which the program will continue trying to establish a connection.
SET NETHASPSSENDRCV=mm	Determines the maximum length of time (in seconds) for each send and receive packet.

Program Crashes

When the computer running the application crashes, the license may remain *checked out* from the server. To correct this, you have three options:

- 1 If no one else is using the program, you can re-boot the license server.

Note *Note that if anyone is using the server, their sessions could be interrupted.*

- 2 After the computer has re-booted, re-run and then exit the program that was running at the time of the crash. This will make the license available for use by others.
- 3 The license will automatically check itself back in after 24 hours.

License Server Crashes

If the license server becomes unavailable for any reason while the application is running, you may be prompted to remedy the situation before you will be allowed to resume operation. Every attempt is made by the application to provide uninterrupted service.

Configuring the msim.ini File

3

Overview

The configuration file `msim.ini` is an ASCII text file that contains the initialization settings, which control how MicroSim applications programs are started, their color and initialization settings.

Introduction

The `msim.ini` file is created when you perform the installation process.

In Windows, it is located in the directory where Windows is installed (usually `c:\windows`). The file is divided into sections and each section has a title name enclosed in brackets.

For example, the first section is `[MICROSIM]`. Each section contains settings which follow the format:

`<keyword>=<value>`

where the `<keyword>` is the name of the setting and `<value>` defines the value of the setting.

For example:

`LIBPATH=c:\msim\lib`

indicates that the `LIBPATH` setting will point to the directory `c:\msim\lib`.

Changing the Settings

When the `msim.ini` file is created (during installation), it assigns default values to the settings. Most of the settings can be changed through dialog boxes within Schematics or Probe. However, some settings may only be modified with a text editor.

Note *If a text editor is used to modify settings, MicroSim applications should not be running at the time you make modifications. Changes made to `msim.ini` through a text editor should be saved to the file; they will take effect the next time the program is started.*

You can change the default settings using any text editor, for example, Notepad.

To change items that are configurable through the text editor, it is important to note that:

- the `<keyword>` is followed by an equal sign (=) with no spaces in between
- the `<value>` can be an integer, a string, or a quoted string, depending on the setting; start typing the `<value>` immediately after the equal sign
- for settings that turn a feature on or off, the `<value>` should be either ON or OFF
- you can include comments within the file but you must begin each comment line with a semicolon (;)

MSIM.INI Sections

The following sections provide information on the elements within the sections in `msim.ini` and will give you details on the permissible `<keyword>` and `<value>` settings.

Refer to the *Schematics User's Guide* for instructions on changing the settings which can be configured within Schematics dialogs. Refer to Probe Help for information on Probe commands.

Note *Many items will not appear in `msim.ini` unless the default values have been changed.*

[MicroSim] Section

The [MICROSIM] Section contains settings that are shared by Schematics, the simulator, and other programs.

When changing command line options from Schematics, do the following:

- 1 Select Editor Configuration from the Options menu.
- 2 Click the App Settings button in the Editor Configuration dialog box.

Use a text editor to edit this command line option.

BACKUP

Specifies the directory in which backup copies are to be placed. The default is set at installation. This line can be edited in the form:

`backup=<directory>`

where *<directory>* specifies the directory where backups will be written. If you are installing a network version, this directory cannot be write-protected and should be set to a local directory, not a network directory.

Use a text editor to edit this command line option.

EDITOR

Specifies the text editor to use for browsing the netlist and output files. This line can be edited in the form:

`editor=<editor name> %f`

where *<editor name>* specifies the text editor and *%f* specifies where the file name will be substituted in the command line. The default text editor is Textedit.

Edit this command line option from within Schematics.

LIBPATH

Specifies the directories where the Model, Symbol, and Package Libraries are located. See *LIBPATH on page 3-7*.

OPTIMIZERCMD

Specifies the command used to run PSpice Optimizer. This line can be edited in the form:

OPTIMIZERCMD=<optimizer> [*options*]*

where <optimizer> indicates the executable and [*options*] can be any of the available PSpice Optimizer switches.

Edit this command line option from within Schematics.

PLSYNCMD

Specifies the command that starts PLSyn. The default is PLSYN. This line can be edited in the form:

PLSYNCMD=<plsyn>[*options*]*

where <plsyn> indicates the executable for starting PLSyn, and [*options*] can be any of the available PLSyn switches.

Edit this command line option from within Schematics.

PLOGICCMD

Specifies the command that starts PLogic. This line can be edited in the form:

PLOGICCMD=<plogic>[*options*]*

where <plogic> indicates the executable for starting PLogic, and [*options*] can be any of the available PLogic switches.

Edit this command line option from within Schematics.

PARTSCMD

Specifies the command used to run Parts. This line can be edited in the form:

PARTSCMD=<parts> [*options*]*

where <parts> indicates the executable and [*options*] can be any of the available Parts switches.

Use a text editor to edit this command line option.

Edit this command line option from Schematics

PROBECMD

Specifies the command to run Probe. This line can be edited in the form:

PROBECMD=<probe>[*options*]*

where <probe> indicates the executable for starting Probe, and [*options*] can be any of the available Probe switches.

Edit this command line option from Schematics

PSPICECMD

Specifies the command used to run PSpice. This line can be edited in the form:

PSPICECMD=<pspice> [*options*]*

where <pspice> indicates the executable for starting PSpice, and [*options*] can be any of the available PSpice switches.

Use a text editor to edit this command line option.

Note SECURITYPORT in the msim.ini file is only for serial plugs. All parallel ports will be scanned; there is no way to specify which port the plug is in.

SECURITYPORT

Specifies the COM port on which the serial security plug is installed. This line can be edited in the form:

securityport=<COM*n*>

where <*n*> is the COM port number on which the security plug is installed, (COM1, COM2, COM3, or COM4). If no port is specified (the default) then all ports are checked.

Use text editor.

Edit this command line option from within Schematics.

STMEDCMD

Specifies the command used to run StmEd. The default is STMED.

STMED=<stmmed>[*options*]*

where <stmmed> indicates the executable for starting the Stimulus Editor, and [*options*] can be any of the available Probe switches.

LIBPATH

This variable originally gets set during installation to the directory in which the library files are installed. For example, if you install the programs in the directory c:\msim, the LIBPATH variable will be set to:

```
LIBPATH=c:\msim\lib
```

If you install Microsim applications into another directory, then a lib subdirectory will be created under your named directory. For example, if you specify c:\mydir as the directory where Schematics is to be installed, then your LIBPATH variable will be set to:

```
LIBPATH=c:\mydir\lib
```

More than one directory can be specified for LIBPATH by separating the paths with a semicolon (;). When a library file is referenced, Schematics will search for the file in the directories in the order specified by this variable. You can change the LIBPATH variable by editing this line in the form:

```
LIBPATH=<directory>[;<directory>]*
```

For example, if you want Schematics to search for Symbol Library files in more than one place you could set the variable to:

```
LIBPATH=c:\msim\lib;d:\diodes
```

In this case, Schematics will first look for a library file in c:\msim\lib. If it finds the specified library file, it will stop searching. Otherwise, it will look in the next directory, d:\diodes.

Command line options for MicroSim applications are explained in the *PSPice A/D Reference Manual*.

[MICROSIM Options] Section

The [MICROSIM OPTIONS] section specifies which MicroSim application and features are available. These settings are used by applications, such as Schematics, to determine which optional menu commands and dialogs used to interface to other programs should be made available.

Keyword	Description*
ANALOG	Enables/disables the interface for analog simulation (PSpice or PSpice A/D). Default: OFF.
DIGITAL	Enables/disables the interface for digital simulation (PSpice A/D or PLogic). Default: OFF.
DIGITALTIMING	Enables/disables the interface for digital timing simulation (PSpice A/D or PLogic). Default: OFF.
MONTECARLO	Enables/disables the interface for PSpice Monte-Carlo simulation. Default: OFF.
OPTIMIZER	Enables/disables the interface to the PSpice Optimizer. Default: OFF.
PACKAGETYPE	Specifies which package the user has purchased: Schematics, Basics, Basics+, MicroSim, AMD Standard, AMD Advanced. Default: MicroSim
PARTS	Enables/disables the interface to Parts. Default: OFF.
PCBOARDS	Enables/disables the interface to PCBoards. Default: OFF.
PLSYN	Enables/disables the interface to PLSyn. Default: OFF.
PROBE	Enables/disables the interface to Probe. Default: OFF.
SIMULATION	Enables/disables the interface for Schematics simulation. Default: OFF.
STMED	Enables/disables the interface to StmEd. Default: OFF.

* Set during installation.

[PARTS Libs] Section

The [PARTS LIBS] section lists the Symbol and Package Library files that are available to the schematic editor:

- 1 Select Editor Configuration from the Options menu.
- 2 Click the Library Settings button in the Editor Configuration dialog box to display the Library Setting dialog for entry of new library files.

You can also edit the “msim.ini” file directly to add entries in the form:

```
LIB<n>=<file name> [<symbol library extension>,  
                  <package library extension>]
```

where <n> is the number of the library file in ascending order in the list, <file name> is the name of the Symbol and Package Library file, <symbol library extension> specifies the extension of the Symbol Library file, and <package library extension> specifies the extension of the Package Library file. For example:

```
IB1=bipolar [.slb, .plb]
```

loads the Symbol Library file “bipolar.slb” and the Package Library file “bipolar.plb.” If the extension is omitted, the Symbol or Package Library file will not be loaded. For example:

```
LIB1=analog [.slb]
```

would load only the Symbol Library file “analog.slb” and not the Package Library file of the same name.

Note *The LIB<n> statements must be in ascending order with no gaps in numbering.*

Keyword	Description
LIB1=	List of all the Symbol and Package Library file names that will be used by Schematics. If you have user-defined Symbol or Package Library files, you will need to add your file names to this list.
LIB2=	
LIB3=	
.	
.	
.	
LIBn=	

[Probe] Section

The [PROBE] section defines the configuration settings used by Probe.

Keyword	Description
AUTOUPDATEINTERVAL	Controls the update interval for Probe waveforms. Options are Auto, Seconds, or Percent. The default is AUTO.
AUTOUPDATEPERCENT	Specifies the auto update interval for Probe waveforms in percent, if AUTOUPDATEINTERVAL is set to Percent. The default is 10.
AUTOUPDATESECONDS	Specifies the auto update interval for Probe waveforms in seconds, if AUTOUPDATEINTERVAL is set to Seconds. The default is 10.
CURSORBOTTOM	Specifies the bottom position of the cursor box. The default is 0.
CURSORRIGHT	Specifies the right position of the cursor box. The default is 0.
DGTLNAMELEFTJUSTIFY	Controls whether digital trace names are left justified or right justified. Valid settings are ON and OFF. The default is OFF, right justified.
DISPLAYEVALON	Turns on the display of traces and marked points used by Display Evaluation in the currently selected plot, on the currently selected Y axis. The default is OFF.
HISTNDIVISIONS	Specifies the number of divisions for histograms. The default is 10 divisions.
HISTSHOWSTATSON	Specifies that the histogram statistics will be displayed in the Probe window. The default is ON.
LASTFILEn	Specifies up to four of the most recently used files. This should not be changed by the user.
MARKDATAPOINTS	Specifies whether data points will be marked on Probe traces. This option can be set on or off. The default is OFF.

Keyword	Description
PRBFILE	Specifies the name of a “.prb” file which contains Probe macro, display, and goal function definitions. PRBFILE = <filename>.prb
PRINTERLINEWIDTH	Specifies the width of lines drawn during printing (in pixels). The default is 1.
SCROLLBARS	Controls display of scroll bars for Probe. Options are Always, Never, or Auto. The default is AUTO.
STATUSLINEON	Turns the status line in Probe on or off. The default is ON.
TRACECOLORSCHEME	Specifies the trace coloring scheme. This option can be set to Normal, Match, or Sequential. The default is NORMAL.
TRACESYMBOLS	Specifies how trace symbols will appear on traces in the Probe plot window. This option can be set to Always, Never, or Auto. The default is AUTO.

[Probe Display Colors] Section

To change the settings in the [PROBE DISPLAY COLORS] Section, use the format:

<item name>=<color>

where *<item name>* specifies the Probe item and *<color>* specifies the color.

For example, the entry FOREGROUND=DARKGREEN results in graph axes being drawn in dark green. Or, BACKGROUND=CYAN results in the screen background changing to the color cyan instead of the default color black.

Alternatively, you may specify varying degrees of color by using the R, G, B (red, green, blue) value of the color. For example, TRACE_2=255 0 0 is the same as TRACE_2=RED.

The available colors are: black, blue, brown, brightwhite, cyan, darkblue, darkcyan, darkgray, darkgreen, darkmagenta, darkred, green, lightgray, magenta, red, and yellow.

In some cases you may want to limit the number of colors used for drawing. The default and maximum number of colors is twelve.

Keyword	Description
BACKGROUND	Specifies the background color. Default: Black.
FOREGROUND	Specifies the foreground color. Default: White.
NUMTRACECOLORS	Specifies the number of trace colors. The default is six. This line can be edited in the form: <div>numtracecolors=<n></div> where <n> specifies the number of trace colors, before it starts repeating back to the 1st trace color.
TRACE_1	Specifies the color of the first trace. Default: BrightGreen.
TRACE_2	Specifies the color of the second trace. Default: BrightRed.

Keyword	Description
TRACE_3	Specifies the color of the third trace. Default: BrightBlue.
TRACE_4	Specifies the color of the fourth trace. Default: BrightYellow.
TRACE_5	Specifies the color of the fifth trace. Default: BrightMagenta.
TRACE_6	Specifies the color of the sixth trace. Default: BrightCyan.
TRACE_7	Specifies the color of the seventh trace. Default: Mustard.
TRACE_8	Specifies the color of the eighth trace. Default: Pink.
TRACE_9	Specifies the color of the ninth trace. Default: Lightgreen.
TRACE_10	Specifies the color of the tenth trace. Default: Darkpink.
TRACE_11	Specifies the color of the eleventh trace. Default: Lightblue.
TRACE_12	Specifies the color of the twelfth trace. Default: Purple.

[Probe Printer Colors] Section

To change the settings in the [PROBE PRINTER COLORS] section, use the format:

<item name>=<color>

where *<item name>* specifies the Probe item and *<color>* specifies the color to be printed on the page.

For example, the entry FOREGROUND=DARKGREEN results in graph axes being printed in dark green. The default and maximum number of colors is twelve. If, however, you are using a four pen plotter, you might want to set the maximum number of colors to three. The first three trace colors will be used for the colors of digital traces.

Keyword	Description
BACKGROUND	Specifies the background color. Default: White.
FOREGROUND	Specifies the foreground color. Default: Black.
NUMTRACECOLORS	Specifies the number of trace colors. The default is 6. This line can be edited in the form: <div>numtracecolors=<n></div> where <n> specifies the number of trace colors, before it starts repeating back to the 1st trace color.
TRACE_1	Specifies the color of the first trace. Default: Green.
TRACE_2	Specifies the color of the second trace. Default: Red.
TRACE_3	Specifies the color of the third trace. Default: Blue.
TRACE_4	Specifies the color of the fourth trace. Default: Yellow.
TRACE_5	Specifies the color of the fifth trace. Default: Magenta.
TRACE_6	Specifies the color of the sixth trace. Default: Cyan.
TRACE_7	Specifies the color of the seventh trace. Default: Mustard.

Keyword	Description
TRACE_8	Specifies the color of the eighth trace. Default: Pink.
TRACE_9	Specifies the color of the ninth trace. Default: Lightgreen.
TRACE_10	Specifies the color of the tenth trace. Default: Darkpink.
TRACE_11	Specifies the color of the eleventh trace. Default: Lightblue.
TRACE_12	Specifies the color of the twelfth trace. Default: Purple.

[Schematics Border], [Probe Border], and [PSpice Border] Sections

Note *These items should not be changed.*

These sections define the window size and position that will be used when the respective program is started. The items in this section are: ZOOMED, LEFT, TOP WIDTH, and HEIGHT.

[Printer Configuration] Section

The [PRINTER CONFIGURATION] section contains the configuration settings for the printer setup. Modify the default settings through the Printer Setup option in the File menu.