IBM Network Station

Using IBM Network Station Manager V2R1, September 2000

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SC41-0690-00

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Note

Before using this information and the product it supports, be sure to read the information in “Appendix F. Notices” on page 99.

This edition applies to version 2, release 1, modification 0 of IBM Network Station Manager (product number 5648-C07) and to all subsequent releases and modifications until otherwise indicated in new editions.

Contents

v
Who should read this book v
Information available on the World Wide Web . . . v
Related information v
How to send your comments vi

Chapter 1. Logging in to your IBM Network Station 1
Getting started. 1
Using the Roam function 1
Initial desktop folders and applications 2
Host Access folder 3
Netscape Communicator 9
Network Station Manager 11
Extras folder 12
Tool Kit. 16
Desktop logoff, help, and lock screen functions 18
Managing your desktop applications 19
Understanding printer datastreams 19

Chapter 2. Using the IBM Network Station Manager program. 21
Overview 21
IBM Network Station Manager program flow . . . 24
Who can use the IBM Network Station Manager program? 25
Working with IBM Network Station Manager program preference selections 27
Starting the IBM Network Station Manager program 29
Examples of working with the IBM Network Station Manager program Setup Tasks 30
Setting the administrator password 31
Configuring a custom folder. 32
Adding an application to a folder 33
Adding the Calibration Tools application to a folder 34
Moving an application to a different folder . . . 35
Automatically starting applications on your Network Station desktop 37
Configuring a Network Station for light pen or touch screen devices 39
Configuring the 5250 Emulator application for use on the Network Station 39
Configuring the Netscape Communicator browser for Java. 40
Disabling the Network Station screen saver. . . 41
Controlling color on your Network Station desktop. 41
Automatically updating the boot code 44
Overriding the Network Station boot setting . . 45
Updating the Domain Name Server (DNS) configuration on the Network Station. 47
Configuring a local program for all users . . . 48
Configuring a remote program for all users. . . 50
Configuring an ICA connection to a PC server. . 52
Allowing private user updates of ICA connection entries 56
Configuring Java for the Network Station . . . 59
Including system, group, or user preferences in a kiosk profile 59
Using the IBM Network Station Manager program to enable the touchscreen daemon. . . 59
Configuring a local area network-attached printer 60
Configuring a Network Station-attached printer for other users 61
Setting the Time Zone (TZ) Environment Variable 62
Accessing and using How To Help 64

Chapter 3. Working With the IBM Network Station Setup Utility and the NS Boot Utility 65
Type 8361 (Series 300) and Type 8362 (Series 1000) 65
Accessing the IBM Network Station setup utility 65
IBM Network Station setup utility tasks 66
The NS Boot utility for Series 2200 and Series 2800 thin clients 75
Identifying the NS Boot version 75
Updating the NS Boot utility version on a Series 2200 or 2800 thin client 76
Updating the NS Boot utility version of several thin clients 76
Using the NS Boot utility. 77
NS Boot utility tasks 78

Appendix A. Problem resolution. 83

Appendix B. Using special characters in the Optional Parameters field 87
Operators 87
Reserved words 87

Appendix C. Using TN3270E display support and printer support 89
Configuring persistent 3270 LU session names. . . 89
Valid types of -DISPLAY_NAME parameters . . 89
Configuring printers with the IBM Network Station Manager program 91
Configuring TN3270E general printer support. . . 91
Configuring TN3270E application-specific printer support. 92

Appendix D. Updating the NS Boot version H2033190 (03/31/99) 93
Selecting the operating system for the Network Station 93
Updating the H2033190 (03/31/99) NS Boot version from NVRAM settings. 94

Updating the H2033190 (03/31/99) NS Boot version from a DHCP server 95

Appendix E. Resetting the Series 2800 (Type 8364) Network Station to the NS Boot utility 97

Appendix F. Notices 99
Trademarks 101

Index 103

Who should read this book

Note: Be careful not to confuse the V2R1 IBM Network Station Manager program with the V2R1 IBM NetVista Thin Client Manager Operations Utility. While both programs enable you to manage IBM Network Station and IBM NetVista thin clients remotely, these programs differ in the following ways:

- These programs enable you to manage different types of thin clients.
- These programs can only be installed on specific server platforms.
- These programs support different thin client management tasks.

Information available on the World Wide Web

You can obtain the latest version of this book on the World Wide Web from the following URL: `http://www.ibm.com/nc/pubs` This is the same URL that is printed on the cover of this book.

Related information

The following information is available for the IBM Network Station Manager product:

	Information name	Information description
	Installing IBM Network Station Manager for AS/400, SC41-0684	Describes the installation and simple configuration of an AS/400 Network Station environment. It is shipped with the IBM Network Station Manager licensed program. Updates to this information are at http://www.ibm.com/nc/pubs.
	Installing IBM Network Station Manager for RS/6000, SC41-0685	Describes the installation and simple configuration of an RS/6000 Network Station environment. It is shipped with the IBM Network Station Manager licensed program. Updates to this information are at http://www.ibm.com/nc/pubs.
	Installing IBM Network Station Manager for Windows NT, SC41-0688	Describes the installation and simple configuration of a Windows NT Network Station environment. It is shipped with the IBM Network Station Manager licensed program. Updates to this information are at http://www.ibm.com/nc/pubs.
	Using IBM Network Station Manager, SC41-0690	Describes the basic tasks for managing user desktops through the IBM Network Station Manager program. It is shipped with the IBM Network Station Manager licensed program. Updates to this information are at http://www.ibm.com/nc/pubs.
	IBM Network Station Advanced Information	Describes tasks and information beyond a basic installation and configuration of your Network Station environment. This information is only available at http://www.ibm.com/nc/pubs.

	Information name	Information description
	IBM Network Station Manager help text	Describes the basic how-to tasks for configuring your Network Station desktop appearance. This information is availble by clicking the help icon in the IBM Network Station Manager program.
	Desktop help	Describes how to use and operate the Network Station desktop. This information is available by clicking the help icon in the lower right of the Network Station desktop.

How to send your comments

Your feedback is important in helping to provide the most accurate and high-quality information. If you have any comments about this book or any other documentation, fill out the readers' comment form at the back of this book.

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  - Other countries: 1-507-253-5192
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  - IBMMAIL, to IBMMAIL(USIB56RZ)
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- The page number or topic to which your comment applies.

Chapter 1. Logging in to your IBM Network Station

Getting started 1
Using the Roam function 1
Initial desktop folders and applications 2
Host Access folder 3
5250 Emulator 3
3270 Emulator 5
VT Emulator 7
ICA Remote Application Manager 7
Understanding software combinations 9
Netscape Communicator 9
Netscape Communicator supported URL types 10
Netscape Communicator supported commands and helper applications 11
Network Station Manager 11
Extras folder 12
File Manager 13
Text Editor 13
Paint 13
Calendar 14
Calculator 14
Video Player 14
Audio Player 15
RealPlayer 15
JMF 1.1 15
Tool Kit 16
Calibration Tools 16
Advanced Diagnostics 16
Print Monitor 18
Desktop logoff, help, and lock screen functions 18
Managing your desktop applications 19
Understanding printer datastreams 19

Getting started

After you power on your IBM Network Station thin client (hereafter referred to as Network Station), the **IBM Network Station Login** screen appears (see Figure 1). You can log in by typing your username and password in the appropriate fields.

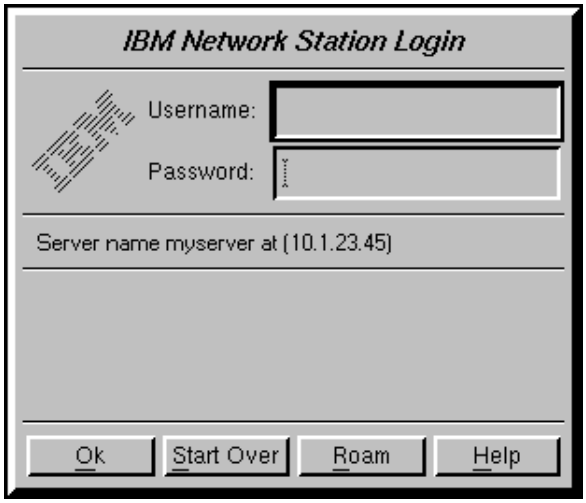

Figure 1. IBM Network Station Login screen

Using the Roam function

Roam allows a user to log in to a server other than the server that is displayed on the **IBM Network Station Login** screen.

Notes:

1. The User ID and password are subject to the same length restrictions that are found on the boot server. If your boot server is an AS/400, for example, and you wish to roam to a Windows NT server, your User ID cannot be more than 10 characters long. This is a length restriction that exists on the AS/400 boot server.

2. You can only roam to servers that are at IBM Network Station Manager Version 2 Release 1. You can not roam to a Version 1 server.

To log in to a server other than the server name that is displayed on the **IBM Network Station Login** screen, take the following steps:

1. Click **Roam**, a prompt for a network address appears (see Figure 2).
2. For the server where your user account is established, type:
   - The name of the server
   - The Internet Protocol (IP) address, or
   - The system name.

   Click **OK**.
3. Enter your Username and Password on the **IBM Network Station Login** screen, and click **OK**.

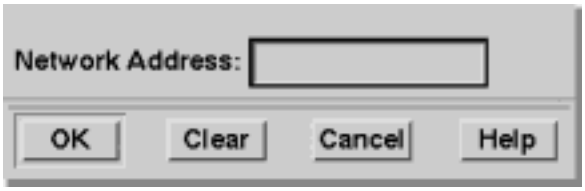

Figure 2. Network Address Screen used for roaming

For more information about roaming, and working with multiple servers, see *IBM Network Station Advanced Information* at the following website:
`http://www.ibm.com/nc/pubs`

Initial desktop folders and applications

The folders and applications that are discussed in this chapter are pre-configured and shipped by IBM. You can find these folders and applications on the Network Station desktop launch bar. The launch bar is located on the left side of the Network Station desktop (see Figure 3 on page 3).

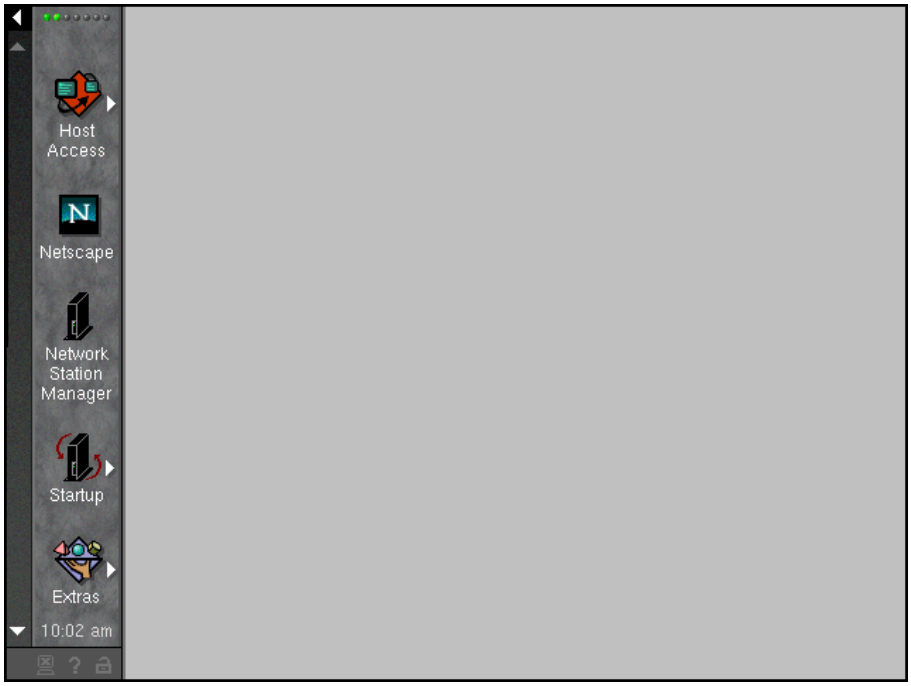

Figure 3. Network Station desktop

You can change the launch bar location of folders, and the applications and contents of a particular folder by using the IBM Network Station Manager program. See “Chapter 2. Using the IBM Network Station Manager program” on page 21 for more information. The following desktop folders and applications are pre-configured and shipped by IBM:

- Host Access folder
- Netscape application
- Network Station Manager program
- Extras folder
- Tool Kit folder

Host Access folder

The **Host Access** folder contains applications that give users access to different hosts through emulation sessions or, in the case of ICA, a direct connection. The following applications are contained in the **Host Access** folder:

- 5250 Emulator
- 3270 Emulator
- VT Emulator
- ICA Remote Application Manager

5250 Emulator

The **5250 Emulator** application provides access to AS/400 systems. You can configure 5250 sessions by using the Network Station Manager program. If you configure the 5250 session to autostart, a 5250 session appears on your Network Station immediately after login (see Figure 4).

5250 emulation provides AS/400 system users with greater function than they normally receive if they use nonprogrammable work stations (NWS) to access the system. Additional function is available by clicking various pulldown options from the 5250 menu bar. Pulldown options allow users to quickly access 5250 emulation functions. Functions such as multi-session support, font selection, screen printing, and on-line help information are examples of some pulldown options available from the 5250 menu bar.

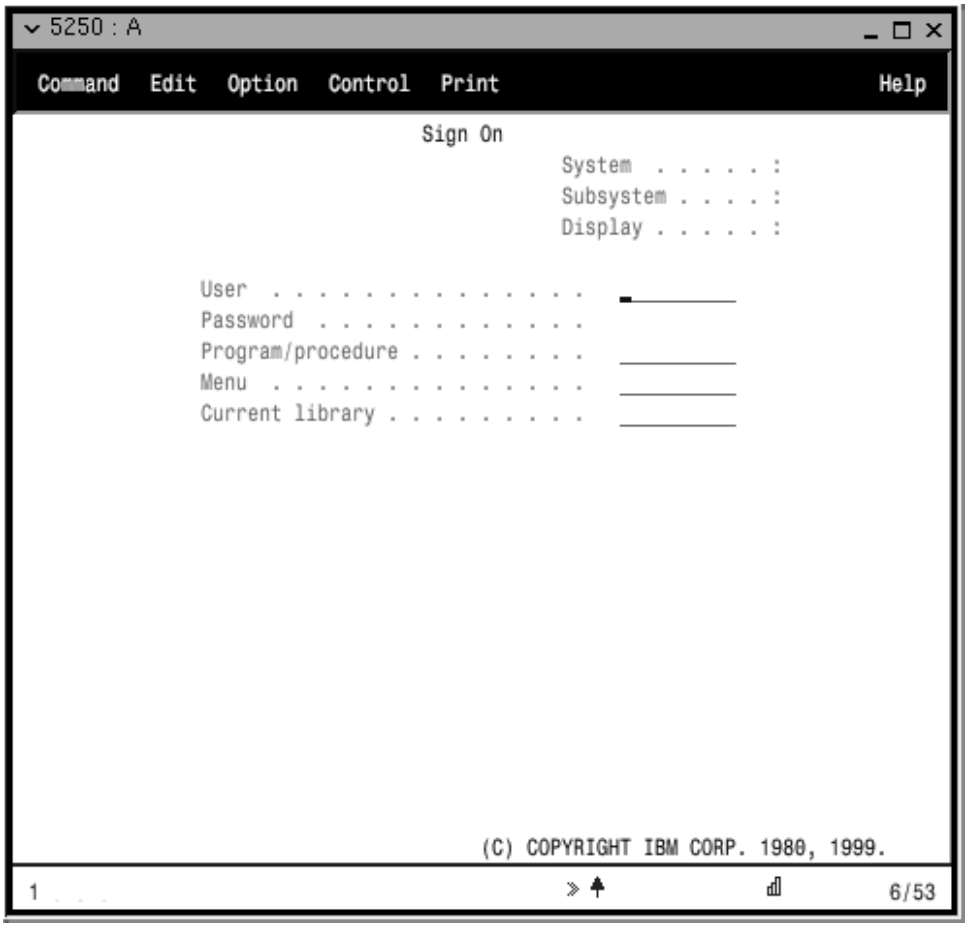

Figure 4. 5250 session display

Locate the **5250 Emulator** icon in the **Host Access** folder to start a new 5250 session (see Figure 5 on page 5).

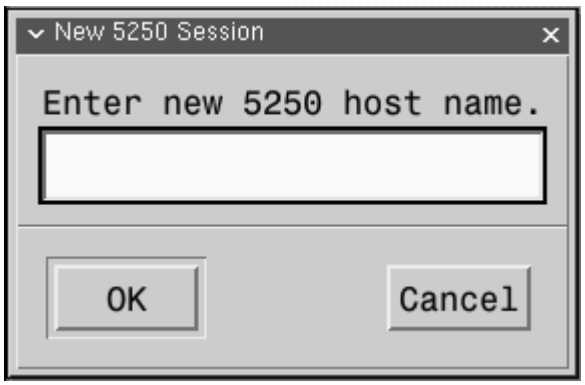

Figure 5. New 5250 session dialog box

Note: You can use the system name or the IP address of the system to connect to or start a session.

The sign-on screen may take a few moments to display, depending on the volume of network traffic.

You can access on-line help for the 5250 Emulator or your AS/400 session by clicking **Help** from the session window. Accessing the 5250 emulation on-line help provides more information about how to make each of these 5250 emulation functions work. To access help for AS/400, sign on to the AS/400 and press **F1**.

3270 Emulator

The **3270 Emulator** application provides access to System/390 systems. You can configure 3270 sessions by using the Network Station Manager program.

3270 emulation provides System/390 system users with greater function than they normally receive if they use nonprogrammable work stations (NWS) to access the system. Additional function is available by clicking various pulldown options from the 3270 menu bar. Pulldown options allow users to quickly access 3270 emulation functions. Functions such as multi-session support, font selection, screen printing, and on-line help information are examples of some pulldown options available from the 3270 menu bar.

If you configure the 3270 session to autostart, a 3270 session appears immediately after login (see Figure 6 on page 6).

Figure 6. 3270 Session display

Locate the **3270 Emulator** icon in the **Host Access** folder to open a New 3270 Session window (see Figure 7).

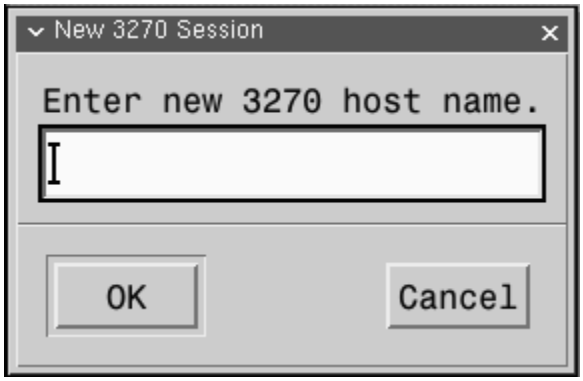

Figure 7. New 3270 Session dialog box

Note: You can use the system name or IP address to log on.

The sign-on screen may take a few moments to display, depending on the volume of network traffic.

You can access on-line help for the **3270 Emulator** or your System/390 session by clicking **Help**.

Accessing the 3270 emulator on-line help provides more information about how to make each of these 3270 emulation functions work.

VT Emulator

The **VT Emulator** application provides access to RS/6000 systems. You can configure VT emulation sessions by using the Network Station Manager program.

VT emulation provides RS/6000 system users with greater function than they normally receive if they use nonprogrammable work stations (NWS) to access the system. Additional function is available by clicking various pulldown options from the VT emulator Menu bar.

Pulldown options allow users to quickly access VT emulator functions. Pulldowns are available to allow you to quickly access VT emulator functions. Functions such as Reset, Trace Log, and Print Screen are examples of some pulldown options available from the VT emulator menu bar.

If the **VT Emulator** session is configured to autostart, a **VT Emulator** session appears immediately after login.

Click the **VT Emulator** icon, located in the **Host Access** folder, to open a **New VT Emulator Session** window (see Figure 8).

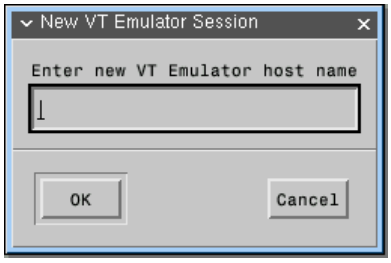

Figure 8. VT Emulator Dialog Box

Note: You can use the system name or IP address to log on.

The sign-on screen may take a few moments to display, depending on the volume of network traffic.

You can access on-line help for the **VT Emulator** or your AIX session by clicking **Help**.

Accessing the VT emulator on-line help provides more information about how to make each of these emulation functions work.

ICA Remote Application Manager

The ICA Remote Application Manager provides access to one or more ICA-configured PC servers that support ICA (Independent Computing

Architecture). The ICA Remote Application Manager works with PC servers that have WinFrame or MetaFrame installed. You can configure the presentation of each session by using the Network Station Manager program.

The ICA Remote Application Manager allows you to create new connection definitions, or edit the definitions of existing connections. You can configure new ICA connections from your desktop by using the IBM Network Station Manager program.

If you configure the ICA Client session to autostart, the ICA Remote Application Manager will appear immediately after login. Otherwise, click the **ICA Remote Application Manager** application, located in the **Host Access** folder (see Figure 9).

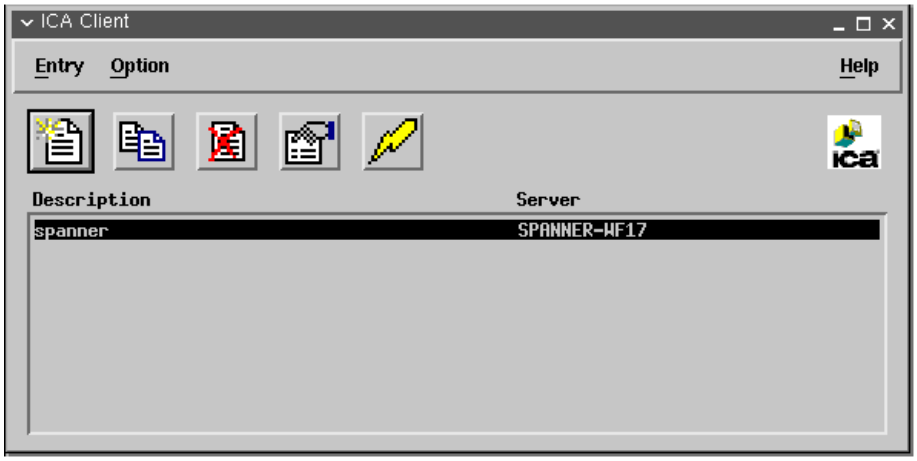

Figure 9. ICA Client Session display

The ICA Remote Application Manager program presents PC server connection entries. You can select one of the PC server connection entries to open an **ICA Client** window, which displays the available PC server choices.

When the user selects a PC server, the ICA client program starts on the Network Station. The ICA client program then connects to the requested PC server. After the user logs onto the PC server, the Windows-based application specified for that connection starts. The list of PC servers from which the user may select is created two ways:

1. The system administrator can create ICA connection entries by using the IBM Network Station program. You can add, change, or remove ICA connection entries by selecting **Applications—>ICA Remote Application Manager** from the **Setup Tasks** menu of the IBM Network Station Manager program. The ICA connection entries created by the system administrator with the ICA Remote Application Manager program are stored in a Network Station Manager profile.
2. If the system administrator allows private user updates, then the user can add, change, or remove their own private connection entries. Users can also use the ICA Remote Application Manager program; however, users access this program from their Network Station desktop. They do not use the IBM Network Station Manager program interface.

   Note: Private users connection entries are stored in the home directory of the user. These are not stored in a Network Station Manager profile.

The sign-on screen can take a few moments to display, depending on the volume of network traffic.

You can allow users to configure their own ICA connections with the IBM Network Station Manager program. See “Configuring an ICA connection to a PC server” on page 52, and “Allowing private user updates of ICA connection entries” on page 56 for additional information.

Understanding software combinations

Citrix is a company that supplies software products. The products come bundled with Windows NT 3.51 and Windows NT 4.0, and allow you to load a Windows NT desktop session from the server onto your IBM Network Station. You can access your Windows-based applications with the Windows NT session. The following items are Citrix software products:

- Citrix WinFrame

  Citrix WinFrame is a bundled combination of WinFrame and ICA. You use Citrix WinFrame with Windows NT 3.51 as a Windows application server. You can order WinFrame from Citrix. When you order WinFrame 1.7, you receive Windows NT 3.51 with WinFrame built on to it. See the Citrix WinFrame manual to configure your printers.
- Citrix MetaFrame

  MetaFrame is a bundled combination of MetaFrame and ICA. You can order MetaFrame software separately and install it on the Windows NT 4.0 Terminal Server Edition (TSE). See the Citrix MetaFrame manual to configure your printers.

For more information relating to PC servers, you can go to the following Web sites:

- WinFrame and MetaFrame — http://www.citrix.com
- WinCenter — http://www.ncd.com
- Windows NT Server 4.0, Terminal Server Edition — http://www.microsoft.com

Netscape Communicator

The **Netscape** icon provides access to the Netscape Communicator application.

The **Netscape Communicator** application provides you with a browser session capable of reaching the Internet, or your local Intranet.

The Netscape Communicator application appears on your desktop when you click the **Netscape** icon (see Figure 10 on page 10).

Figure 10. Netscape Communicator

You can configure the appearance and function of Netscape by using the IBM Network Station Manager program. See "Chapter 2. Using the IBM Network Station Manager program" on page 21 for additional information. Select **Applications—>Netscape** from the **Setup Tasks** menu of the IBM Network Station Manager program, and configure the following features or settings of the Netscape Communicator application:

- Proxy configurations
- Java applets (enable or disable running Java applets)
- Mail server type
- Java Classpaths (Internet Foundation Classes, IIOP, JavaScript Debugger, LDAP)
- Java heap, stack, and Native code size

Netscape Communicator supported URL types

Netscape Communicator supports the following URL types:

Table 1. Netscape Communicator supported URL types

URL type	Description
http:/ /	Hypertext transfer protocol
https:/ /	Hypertext transfer protocol through SSL
ftp:/ /	File transfer protocol
news:/ /	NNTP protocol
snews:/ /	NNTP protocol through SSL
news:	Default news server
ldap:/ /	Lightweight directory access protocol
gopher:/ /	Gopher protocol
telnet:/ /	Launches telnet helper application
javascript:	Runs JavaScript statements
mocha:	Runs JavaScript statements
pop3:/ /	Post office protocol

Table 1. Netscape Communicator supported URL types (continued)

URL type	Description
addbook:	Adds vCard entries to the Communicator address book
about:	Netscape internal URLs
file:/ /	Local file system access
mailbox:	Mail folder access
imap:/ /	Internet Message Access Protocol

Netscape Communicator supported commands and helper applications

Netscape Communicator supports the following commands and helper applications:

Helper Application or Command	Description
Java Plug-in	The Java Plug-in allows Netscape to use the IBM JVM (Java Virtual Machine) instead of the default JVM that is shipped with Netscape
xpdf	xpdf is a viewer for Portable Document Format (PDF) files (also called 'Acrobat' files, because of the Adobe Acrobat PDF software). **Note:** xpdf was designed to create postscript files, but cannot spool data to a printer. If the first character of the postscript output file name is a | (pipe), xpdf will pipe postscript data to a command, instead of creating a file. To print to the first parallel port, specify the following for the output filename: |lpr -PPARALLEL1.
xterm	xterm provides an X windows session.
ncaudio	ncaudio is an audio player application that supports the following audio file types extensions: aif, aiff, aifc, au, and wav.
realaudio	realaudio is an audio player application that supports rpm audio file extensions.
ncedit	ncedit is a text editor application that supports the following text file extensions: rtf and rtx.
ncxanim	ncxanim is a video player application that supports the following video file extensions: mpeg, mpg, mpe, avi, qt, mov, movie.
rvplayer	rvplayer is a video application that supports the swf video file extension.

Network Station Manager

The **Network Station Manager** icon provides access to the Network Station Manager program. IBM pre-configures the icon to launch the Network Station Manager program on your user configuration server.

You can use the Network Station Manager program to build your Network Station desktop and customize your folders and applications.

After you click the **Network Station Manager** icon and authenticate your userid, the main screen of the IBM Network Station Manager program appears (see Figure 11).

Figure 11. IBM Network Station Manager program

Access the Network Station Manager program when you want to make changes to Network Station user desktops. You can configure applications, change application settings, create environment variables, and customize folders and applications for the launch bar with this application.

To learn more about the Network Station Manager program, refer to “Chapter 2. Using the IBM Network Station Manager program” on page 21.

Extras folder

The **Extras** folder contains icons that give you access to a variety of specialized applications. You can access the following applications from the **Extras** folder:

- File Manager
- Text Editor
- Calendar
- RealPlayer
- Calculator
- Paint
- Audio Player
- Video Player

File Manager

You can access the **File Manager** application from the **Extras** folder. The Network Station File Manager allows you to view, organize, and manage your personal folders and files.

Note: You must store audio and video files in the following directory for users to access them from the Network Station:

- `/userbase/home/"username"/registry/documents` where `"username"` is the User ID of the user.

Files that are stored in the `home` directory, or `public_html` directory of a user will **not** be accessible with the File Manager application.

The File Manager on-line help provides information on the following topics:

- Managing file manager windows
- Managing folders (creating, renaming, deleting, moving)
- Managing files (renaming, deleting, editing, moving, sending)

Text Editor

You can access the **Text Editor** application from the **Extras** folder.

The Text Editor on-line help provides information on the following tasks:

- Creating files
- Opening files
- Saving files
- Formatting text
- Inserting images
- Creating links
- Manage files (renaming, deleting, editing, moving, sending)

Paint

You can access the **Paint** application from the **Extras** folder. The Paint application allows you to work with images and graphics.

The Paint application on-line help provides information on the following tasks:

- Managing files and folders
- Using the Colors Palette
- Changing graphic views
- Changing image sizes
- Using paint tools
- Using text tools
- Using cut, copy, paste within the application

Calendar

You can access the **Calendar** application from the **Extras** folder. The Calendar application allows you to manage your personal calendar.

The Calendar application on-line help provides information on:

- Using the To Do list
- Using an Events list (single event or repeating events)
- Appointment list
- Printing your calendar

Calculator

You can access the **Calculator** application from the **Extras** folder. The Calculator application allows you to perform mathematical operations.

Video Player

You can access the **Video Player** application from the **Extras** folder. The Video Player allows you to play video files on your desktop.

Note: You must store audio and video files in the following directory for users to access them from the Network Station:

- `/userbase/home/"username"/registry/documents` where `"username"` is the User ID of the user.

Files that are stored in the `home` directory, or `public_html` directory of a user will **not** be accessible with the File Manager application.

The Video Player on-line help provides information on the following topics:

- Supported video file types (AVI, MPEG, QuickTime)
- How to play a file

- Volume control
- Finding and correcting problems

Audio Player

You can access the **Audio Player** application from the **Extras** folder. The Audio Player allows you to play or record audio files from your desktop.

Note: You must store audio and video files in the following directory for users to access them from the Network Station:

- `/userbase/home/"username"/registry/documents` where `"username"` is the User ID of the user.

  Files that are stored in the `home` directory, or `public_html` directory of a user will **not** be accessible with the File Manager application.

The Audio Player on-line help provides information on the following topics:

- Supported audio file types (AU, WAV, AIF, Real Audio 3.0)
- Loading a file
- Volume control
- Fast-forward
- Record.
- Finding and correcting problems

RealPlayer

You can access the **RealPlayer** application from the **Extras** folder.

Note: Version V2R1 supports RealPlayer Version 5.0.
The RealPlayer application allows you to play video and audio files from your desktop. This application supports AVI, MPEG, and QuickTime video file types. The RealPlayer application on-line help provides information on the following topics:

- Loading a file
- Volume control
- Fast-forwarding
- Finding and correcting problems

JMF 1.1

PTF4 of the V2R1 IBM Network Station Manager program includes the Java Media Framework 1.1 application. JMF 1.1 allows you to view and listen to video and audio files from your desktop. JMF 1.1 supports AVI, QT, MPG, and MOV (2.0) video file types, and WAV, AU, AIFF, and MPG audio file types.

To add this application to the **Extras** folder on the Network Station desktop, see the example, "Adding an application to a folder" on page 33. You can also add JMF support to your Netscape Communicator browser from the IBM Network Station Manager program. See "Configuring the Netscape Communicator browser for Java" on page 40.

If you would like to learn more about programming Java applications and incorporating JMF 1.1 in them, browse the `http://javasoft.com` web site for Java Media Framework, listed under the Products and APIs link.

Tool Kit

The **Tool Kit** folder contains applications that give you access to diagnostic and service tools. The **Tool Kit** folder contains the following applications:

- Calibration Tools
- Advanced Diagnostics
- Print Monitor

Calibration Tools

The **Calibration Tools** application allows you to calibrate touch screens or light pens that are connected to the Network Station. The **Calibration Tools** icon can only appear on a Network Station desktop when you have configured the workstation settings of that Network Station for touch screens or light pens.

There are two ways that you can configure the workstation settings for Network Stations, and enable the **Calibration Tools** icon to appear on the Network Station desktop:

1. You can use the IBM Network Station Manager program to configure one Network Station at a time so that the **Calibration Tools** icon appears on the Network Station desktop (see "Configuring a Network Station for light pen or touch screen devices" on page 39).
2. You can use the command line utility to configure more than one Network Station at a time so that the **Calibration Tools** icon appears on the Network Station desktop. For more information about the command line utility, see *IBM Network Station Advanced Information* at the following website: `http://www.ibm.com/nc/pubs`

Advanced Diagnostics

The **Advanced Diagnostics** icon provides access to the Advanced Diagnostics application, which you can access from the **Tool Kit** folder.

Advanced Diagnostics allows you to run commands to monitor and diagnose problems with your Network Station. The following are Advanced Diagnostics commands:

- - arp (address resolution display and control)

  The arp program displays and changes the Internet-to-Ethernet address conversion tables that are used by the address resolution protocol (arp(4)). With no flags, the program displays the current ARP entry for host name. You can specify the host by name or by number, using Internet dot notation.

- -iostat

  iostat command monitors system input and output device loading by observing the time the physical disks are active in relation to their average transfer rates. The iostat command generates reports that you can use to change system configuration to better balance the input and output load between physical disks.

- -netstat

  The netstat command symbolically displays the contents of various network-related data structures for active connections. The Interval parameter, specified in seconds, continuously displays information regarding packet traffic on the configured network interfaces. The Interval parameter takes no flags. The System parameter specifies the memory that is used by the current kernel. Unless you are looking at a file of the contents of main or auxiliary storage, the System parameter should be /unix.

- -nfsstat

  The nfsstat command shows statistical information pertaining to the ability of a client or server to receive calls. You can also use this command to reset this statistical information to 0 (zero). If you receive no flags, the default is nfsstat -csnr. With this option, the command shows everything, but resets nothing.

- -pstat

  The pstat command is a non-interactive form of the crash command. pstat interprets the contents of the various system tables and writes it to standard output. You must have root user or system group authority to run the pstat command.

- -traceroute

  The traceroute command tries to trace the route that an IP packet follows to an Internet host by launching UDP probe packets with a small maximum time-to-live (Max_ttl variable). Then the traceroute command listens for an ICMP TIME_EXCEEDED response from gateways along the way. Probes are started with a Max_ttl value of one hop, which is increased one hop at a time until an ICMP PORT_UNREACHABLE message is returned. The ICMP PORT_UNREACHABLE message indicates either that the host has been located or that the command has reached the maximum number of hops allowed.

  Note: The traceroute command is intended for use in network testing, measurement, and management. It should be used primarily for manual fault isolation. Because of the load it imposes on the network, the traceroute command should not be used during normal operations or from automated scripts.

- -vmstat

  The vmstat command reports statistics about processes, virtual storage, disks, traps, and central processing unit (CPU) activity. Reports generated by the vmstat command can be used to balance system load activity.

If the `vmstat` command is called without flags, the report contains a summary of the virtual memory activity since system startup. If the `-f` flag is specified, the `vmstat` command reports the number of forks since system startup. The `PhysicalVolume` parameter specifies the name of the physical volume.

Print Monitor

You can access the **Print Monitor** application from the **Tool Kit** folder. Figure 12 appears after clicking the **Print Monitor** icon.

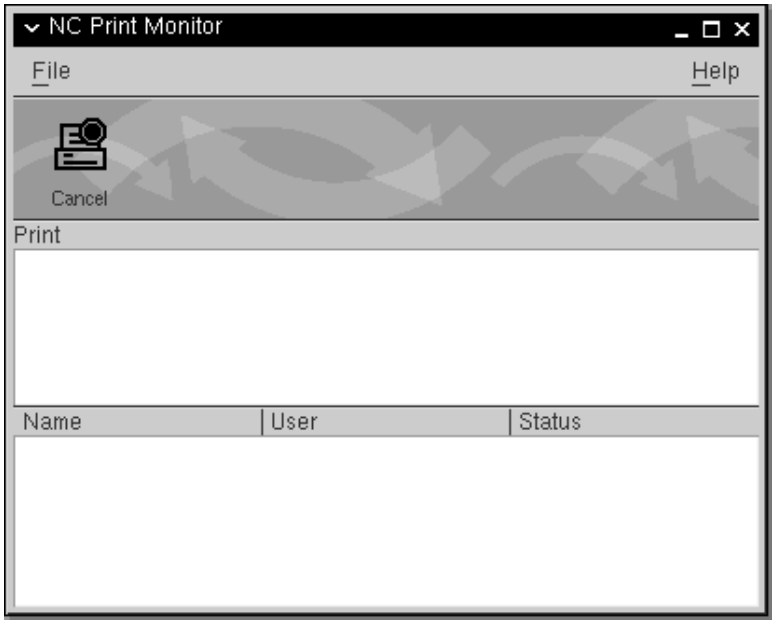

Figure 12. Print Monitor

The Print Monitor application allows you to control printing operations. You can view, move, and cancel print jobs on selected printers. The Print Monitor on-line help provides additional information.

Desktop logoff, help, and lock screen functions

You can log off, access desktop help, and lock your screen by clicking on the following icons:

Note: You can configure these icons from the IBM Network Station Manager program. Configuration options include the ability to remove them from the desktop.

The **logoff** icon prompts you for logoff confirmation when clicked.

The **Help** icon provides access to the desktop help information.

The **lock** icon prompts you for lock screen confirmation when clicked.

Managing your desktop applications

The design of your Network Station desktop, quantity, and location of folders and applications is controlled by the IBM Network Station Manager program. This program provides a browser-based graphical interface, allowing you to determine the configuration for all Network Station users, groups of users, or individual users.

See “Chapter 2. Using the IBM Network Station Manager program” on page 21 for more detailed information.

Understanding printer datastreams

It is important that you know the datastreams which your default applications (those applications that are shipped with the IBM Network Station Manager licensed program) produce. Knowing which datastream each application produces allows you to choose a printer capable of processing and printing the files that your applications create. Table 2 shows the supported datastreams for each application.

Table 2. Applications and Datastreams

Desktop Location and Default Application Name	PostScript Datastream	PCL Datastream	ASCII Datastream
Host Access - 5250 Session	X	X	X
Host Access - 3270 Session	X	X	X
Host Access - Windows-based Applications	X		
Host Access - VT Emulation	X	X	X
On Launch Bar - Netscape Communicator	X		
Extras - File Manager	X		
Extras - Text Editor	X		
Extras - Calendar	X		
Extras - Paint	X		

You can use the IBM Network Station Manager program to administer printers for your Network Station users.

“Chapter 2. Using the IBM Network Station Manager program” on page 21 provides the following examples of using printers from a Network Station:

1. “Configuring a local area network-attached printer” on page 60.
2. “Configuring a Network Station-attached printer for other users” on page 61.

Chapter 2. Using the IBM Network Station Manager program

Overview 21
IBM Network Station Manager program flow . . . 24
Who can use the IBM Network Station Manager program? 25
System administrators 26
Individual users 27
Working with IBM Network Station Manager program preference selections 27
Additive preference selections 28
Working with workstation preference selections 28
Starting the IBM Network Station Manager program 29
Examples of working with the IBM Network Station Manager program Setup Tasks 30
Setting the administrator password 31
Configuring a custom folder. 32
Adding an application to a folder 33
Adding the Calibration Tools application to a folder 34
Moving an application to a different folder . . . 35
Automatically starting applications on your Network Station desktop 37
Configuring a Network Station for light pen or touch screen devices 39
Configuring the 5250 Emulator application for use on the Network Station 39
Configuring the Netscape Communicator browser for Java. 40
Disabling the Network Station screen saver. . . 41
Controlling color on your Network Station desktop. 41
Using the desktop theme function of the Desktop Display Setup Task 42
Using the pop-up menu accessible from your Network Station desktop 42
Using the Screen saver setting in the Workstations function of the Hardware Setup Task 43
Using the Desktop background setting in the Workstations function of the Hardware Setup Task 43
Automatically updating the boot code 44
Overriding the Network Station boot setting . . 45
Updating the Domain Name Server (DNS) configuration on the Network Station. 47
Configuring a local program for all users . . . 48
Configuring a remote program for all users. . . 50
Setting up an AIX session icon on the desktop launch bar. 51
Configuring an ICA connection to a PC server. . 52
Defining an ICA connection entry 54
Connecting to local printers with the ICA Client 54
Carrying out ICA load balancing 55
Allowing private user updates of ICA connection entries 56
Configuring Java for the Network Station . . . 59
Including system, group, or user preferences in a kiosk profile 59
Using the IBM Network Station Manager program to enable the touchscreen daemon. . . 59
Configuring a local area network-attached printer 60
Configuring a Network Station-attached printer for other users 61
Setting the Time Zone (TZ) Environment Variable 62
Accessing and using How To Help 64

Overview

The IBM Network Station Manager program is a browser-based application that you can use to perform the following tasks:

- To construct the launch bar for the Network Station desktop:

  You use the **Desktop->Launch Bar** function of the application to configure the types and number of folders and applications. Figure 3 on page 3 shows the IBM-shipped Network Station launch bar and desktop.
- To configure settings for:
  - The System - All IBM Network Station thin clients or all Network Station users.
  - A Group - A group of Network Station users.
  - A User - A specific Network Station user.
  - A Workstation - A specific Network Station.
- To configure or customize specific setup tasks:
  - Hardware, such as workstations and printers.
  - Applications, such as 5250 sessions, Netscape Communicator, or locally or remotely configured programs.

– Desktop look and content, such as font size, icon placement, and desktop background.
– Environment and Administration, such as network settings such as proxies, as well as language settings for messages and menus.

Note: Be careful not to confuse the V2R1 IBM Network Station Manager program with the V2R1 IBM NetVista Thin Client Manager Operations Utility. While both programs enable you to manage IBM Network Station and IBM NetVista thin clients remotely, these programs differ in the following ways:

- These programs enable you to manage different types of thin clients.
- These programs can only be installed on specific server platforms.
- These programs support different thin client management tasks.

Refer to Figure 13 on page 23 to view the main screen of the IBM Network Station Manager program. The frame at the left of the screen contains the **Setup Tasks** menu. Setup tasks are selected functions of various applications that you can manage from the IBM Network Station Manager program.

Examples of tasks you can perform from the IBM Network Station Manager program include:

- Configuring printers (under **Hardware**).
- Customizing a 5250 session (under **Applications**).
- Changing font size for icons and menus (under **Desktop—>Display**).
- Configuring folders and applications for the Network Station desktop (under **Desktop—>Launch Bar**).
- Adding mount points for the Network Station thin clients (under **Environment—>Network**).

Note: All of these examples are configurable.

Figure 13. Network Station Manager program main screen

See Figure 14 on page 24 for an expanded list of setup tasks that you can manage with the IBM Network Station Manager program.

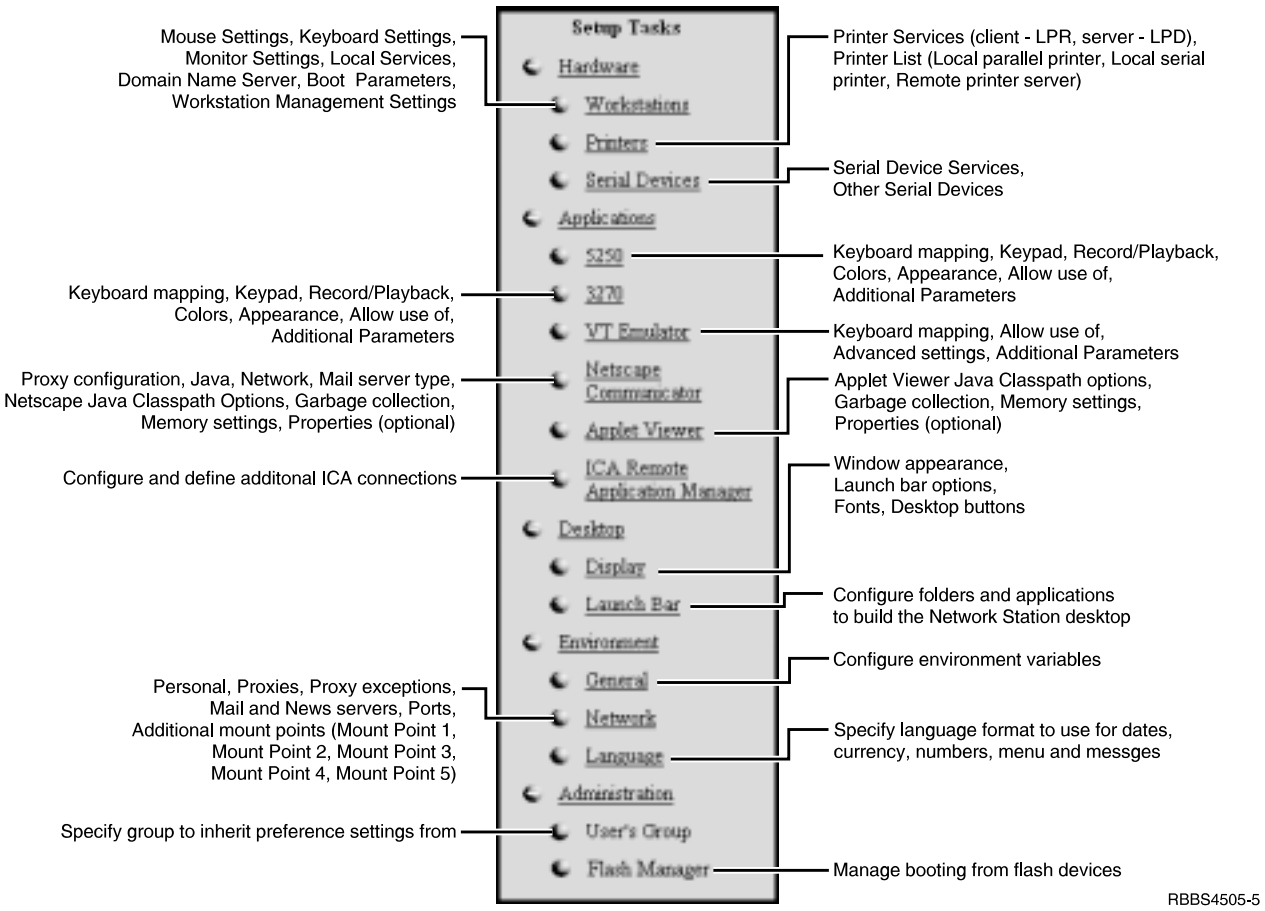

Figure 14. Setup tasks supported by the IBM Network Station Manager program

IBM Network Station Manager program flow

See Figure 15 on page 25 for a view of the IBM Network Station Manager program flow. Figure 15 on page 25 highlights the differences between the preference selections and setup tasks with which a system administrator and user can work.

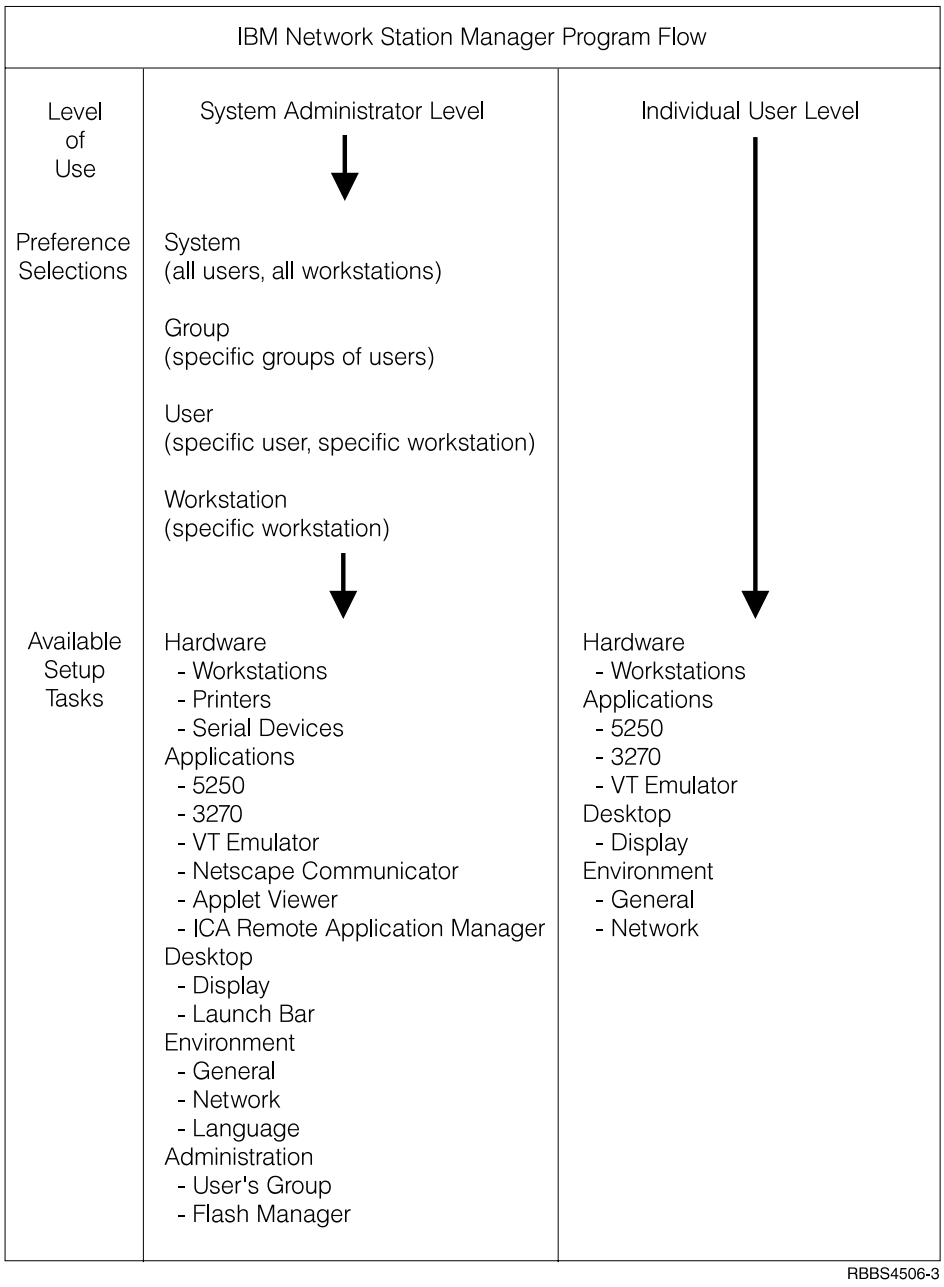

Figure 15. IBM Network Station Manager program layout

Who can use the IBM Network Station Manager program?

Both system administrators and users can access and use the IBM Network Station Manager program (see Figure 15). The special authorities defined on the host server determine the level of function available to users.

On an AS/400, for example, system administrators must have special authorities (`SPCAUT (*SECADM` and `*ALLOBJ)` authority). Other users should have a level of authority less than `*SECADM` and `*ALLOBJ`.

Windows NT users must be in the NSMUser group. Windows NT administrators must be in the NSMAdmin group in addition to the NSMUser group.

For RS/6000, users must have a userid on the same server that the IBM Network Station Manager program is installed. Administrators must be either root or a member of the NSMAdmin group.

System administrators

System administrators have full access to the IBM Network Station Manager program. System administrators can work at system-wide levels, or for a specific group, user, or workstation. For example, an administrator could specify that all Network Station users have one 5250 emulation session available, and that one particular user could have an additional 5250 emulation session.

For information about how to sign on to the IBM Network Station Manager program, see “Starting the IBM Network Station Manager program” on page 29.

Figure 16 shows the screen a system administrator sees after signing onto the IBM Network Station Manager program. Notice the range of functions that are presented in the **Setup Tasks** menu.

Note: The appearance of this screen varies, depending on the browser you are using.

Figure 16. System administrator level

Figure 17 on page 27 compares these functions to the range of functions that are available to users.

Individual users

Users can also have access to the IBM Network Station Manager program. However, the functions that a user can work with are limited.

Figure 17 shows the screen that a user would see after signing on to the IBM Network Station Manager program. Notice the range of functions that are presented in the **Setup Tasks** menu.

Figure 17. User level

The flexibility of the IBM Network Station Manager program allows broad system-wide settings management by the administrator, and individual settings management by the user.

Working with IBM Network Station Manager program preference selections

The IBM-supplied preference selections are the default selections that are supported by the IBM Network Station Manager program. For example, the IBM-supplied default preference selection for mouse button configuration is right-handed.

You can not change IBM-supplied preference selections. You can override IBM-supplied preference selections by using the IBM Network Station Manager program feature of **System** or **User** level preference selections.

There are four levels of preference selection:

- **System-level preference selections**. You can use system-level preference selections to change settings for all users or all workstations. System preference selections take precedence over IBM-supplied preference selections.
- **Group preference selections**. You can use group preference selections to change settings for all users that are in a specific group. Group preference selections take precedence over system-wide preference selections and IBM-supplied preference selections.
- **User preference selections**. You can use user preference selections to change settings for an individual user. User preference selections take precedence over IBM-supplied, system-wide, and group preference selections.
- **Workstation preference selections**. You can use workstation preference selections to change settings for workstations. Workstation preference selections take precedence over IBM-supplied and System-level preference selections.

Additive preference selections

Settings work differently in the **Launch Bar** function of the **Setup Tasks** menu. For applications that are configured using the launch bar function, the IBM-supplied, System-specified, and User-specified preference selections are cumulative. The **Environment** variables are slightly different. For the same environment variable, the value set at the user level takes precedence over the value set at the system or IBM-supplied levels. The values for a given environment variable are not additive there are two variables at the system level: IBM-supplied, and System-level, with one variable at the user level.

For example, every Network Station user has one 5250 session specified as the IBM-supplied default. (You can find the 5250 session in the **Host Access** folder on the Network Station desktop.) If the administrator used the System-wide preference level to assign all users an additional 5250 session, then all users would have two 5250 sessions available. If the administrator then used the User preference level to assign `USERXYZ` another 5250 session, then `USERXYZ` would have three 5250 sessions. The origin of these sessions would be one each from IBM-supplied, System-level, and User-level preference selection.

Working with workstation preference selections

You can identify each Network Station by TCP/IP host name, MAC address, or IP address. Select only one of these methods of identification when saving workstation preference selections for a Network Station. This helps you to avoid possible workstation preference overrides.

- **Using DNS**. If you enter the TCP/IP host name, it must match the hostname that is given to the client exactly (DNS is case-sensitive). BOOTP or DHCP tells each Network Station their hostname. Only include the hostname option that is specified on the Network Station's client statement in BOOTP or DHCP.
- **IP address**. You must type IP addresses as dotted decimals (for example, `9.1.2.3`).
- **MAC address**. You must type MAC addresses that are separated by colons (for example, `00:00:E5:80:7C:8F`).

  MAC addresses are case sensitive on the RS/6000 server.

Tips on identifying or referring to your Network Station: Following are some tips for addressing your Network Station:

IP addressing

You can use the IP address when you are starting the Network Station through NVRAM, BOOTP, or DHCP. When you use the IBM Setup Utility or the NS Boot utility, you can type the IP address you configured using

DHCP, BOOTP, or NVRAM. However, be aware that the Network Station IP address may change on every boot if you use the dynamic addressing feature of DHCP.

TCP/IP hostname

You can use the TCP/IP host name when you are starting the Network Station through BOOTP or DHCP. Type the hostname you configured into DHCP or BOOTP. You can replace a Network Station and maintain the previous Network Station configuration values by performing the following tasks:

- Using the TCP/IP hostname or IP address.
- Setting up the new Network Station with the hostname or IP address of the previous Network Station.

MAC address

You can use the MAC address when you are starting the Network Station through NVRAM, BOOTP, or DHCP. Each Network Station has a permanent MAC address that does not change even if you reconfigure your network. The MAC address only changes if you decide to reprogram it on the Network Station. You can find the MAC address of your Network Station by using the IBM Setup Utility or the NS Boot Utility. See "Chapter 3. Working With the IBM Network Station Setup Utility and the NS Boot Utility" on page 65 for more information.

Using the workstation browse function: Click **Workstation Browse** to see a list of all workstations configured using the IBM Network Station Manager program. You can also add and configure new workstations within the **Workstation Browse** function.

Starting the IBM Network Station Manager program

To best understand and learn how the IBM Network Station Manager program works, you should sign on and follow the examples in this chapter.

To start working with the IBM Network Station Manager program, power on your Network Station. Click the **Network Station Manager** icon from the launch bar on your Network Station desktop. See Figure 18.

Figure 18. IBM Network Station Manager program

Note: You can also use the following Web browsers to sign on to the IBM Network Station Manager program:

- Netscape Communicator 4.5 or later.
- Microsoft Internet Explorer 4.0 or later

Type `http://yourservername/networkstationv2/admin` in the URL field of your browser.

An IBM Network Station Manager program sign on screen appears:

Note: This is the sign on screen for an AS/400 server. The sign-on screen for the IBM Network Station Manager program depends on the type of server from which you are accessing the program.

Figure 19. Sign on screen

Type your user ID and password, and click **Sign on**.

The main screen of the IBM Network Station Manager program appears (see Figure 16 on page 26).

Examples of working with the IBM Network Station Manager program Setup Tasks

Note: You must be a system administrator to work with these examples. See “System administrators” on page 26 for more information.

Figure 20. Main screen of the IBM Network Station Manager program

Figure 20 shows the **Set Preference Selection** window and **Setup Tasks** menu.

To get started with any example:

__ 1. Choose the level of preference you want to work with from **Set Preference Level** list.

__ 2. Choose the setup task you want to work with from the **Setup Tasks** menu.

__ 3. Choose the function you want to configure.

Notes:

1. You may want to use your own user ID when working with these examples and learning how to use this program. To do this, select the **User** preference selection, and type your user ID in the input field.
2. To see the changes you make using the IBM Network Station Manager program, you must logoff and then logon to your Network Station. Some changes, such as hardware changes, require you to restart the thin client.

Setting the administrator password

You control access to the IBM Setup utility or the NS Boot utility with the administrator password. You may not want users to have access to these utilities. You can use these utilities to manually configure such things as your boot server, boot file server, language type, and monitor resolution. See “Chapter 3. Working With the IBM Network Station Setup Utility and the NS Boot Utility” on page 65 for more information.

__ 1. From the main screen of the IBM Network Station Manager program, make your preference selection **System**.

__ 2. From the **Setup Tasks** menu, click **Hardware—>Workstations**.

__ 3. Scroll to **Workstation Management Settings**.

__ 4. Type the **password, contact person, and workstation location** information into the appropriate fields (see Figure 21).

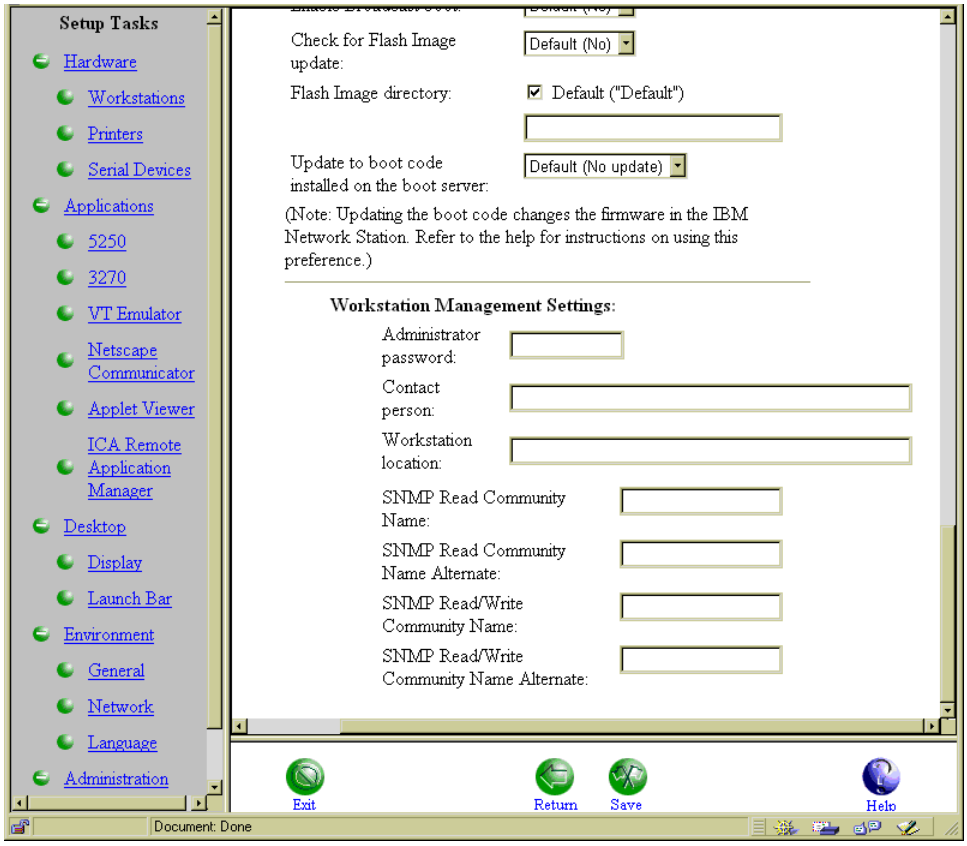

Figure 21. Setting the administrator password

__ 5. Click **Save** to keep your changes.

Password control to the IBM Setup Utility or the NS Boot utility is now in place.

Configuring a custom folder

You can configure or create custom folders, name them, and place them in any position on the desktop using the IBM Network Station Manager program. You can also place folders inside existing folders.

__ 1. From the main screen of the IBM Network Station Manager program, make your preference selection **User**, and type your User ID.

__ 2. From the **Setup Tasks** menu, click **Desktop—>Launch Bar**.

The Launch Bar Settings screen appears.

__ 3. In the **Launch Bar Content** list, select any existing folder or application.

The **Custom** folder you are configuring appears after the folder or application that you highlighted.

The folder appears at the end of the **Launch Bar Content** list if you do not specify placement.

__ 4. In the **Folders** list, click **Custom**.

This action highlights **Custom** (see Figure 22).

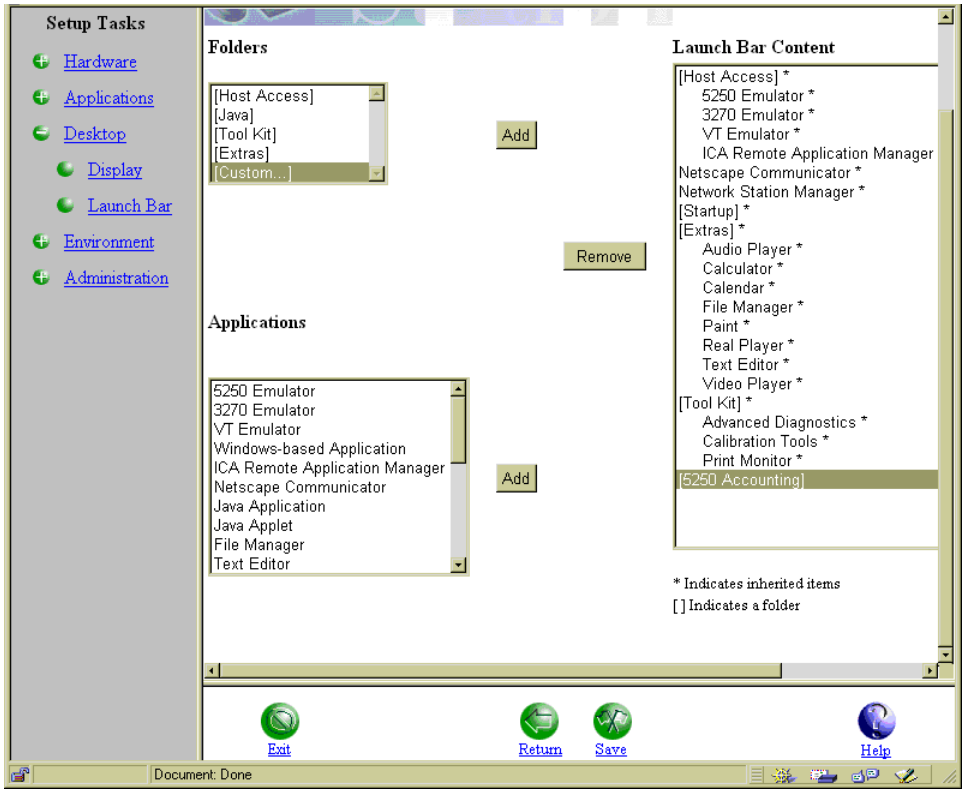

Figure 22. Configuring a custom folder using the Launch Bar Setup Task

__ 5. Click **Add** to place the **Custom** folder in the **Launch Bar Content** list.

In this example the **Custom** folder name is **5250 Accounting**.

__ 6. To complete the folder configuration, click **Save**.

The next time you log on to your Network Station, you can locate this folder on the Network Station launch bar.

Adding an application to a folder

Note: You can put applications in any folder, or directly on the Network Station launch bar.

In this example, you add the Calculator application to the 5250 Accounting folder.

__ 1. From the main screen of the IBM Network Station Manager program, make your preference selection **User**, and type your User ID.

__ 2. From the **Setup Tasks** menu, click **Desktop—>Launch Bar**.

The **Launch Bar Settings** screen appears.

__ 3. In the **Launch Bar Content** list, select the **5250 Accounting** folder.

Selecting this folder means that the Calculator application resides in the 5250 Accounting folder on the Network Station launch bar.

__ 4. In the **Applications** list, select the **Calculator** application and then click **Add** (see Figure 23 on page 34).

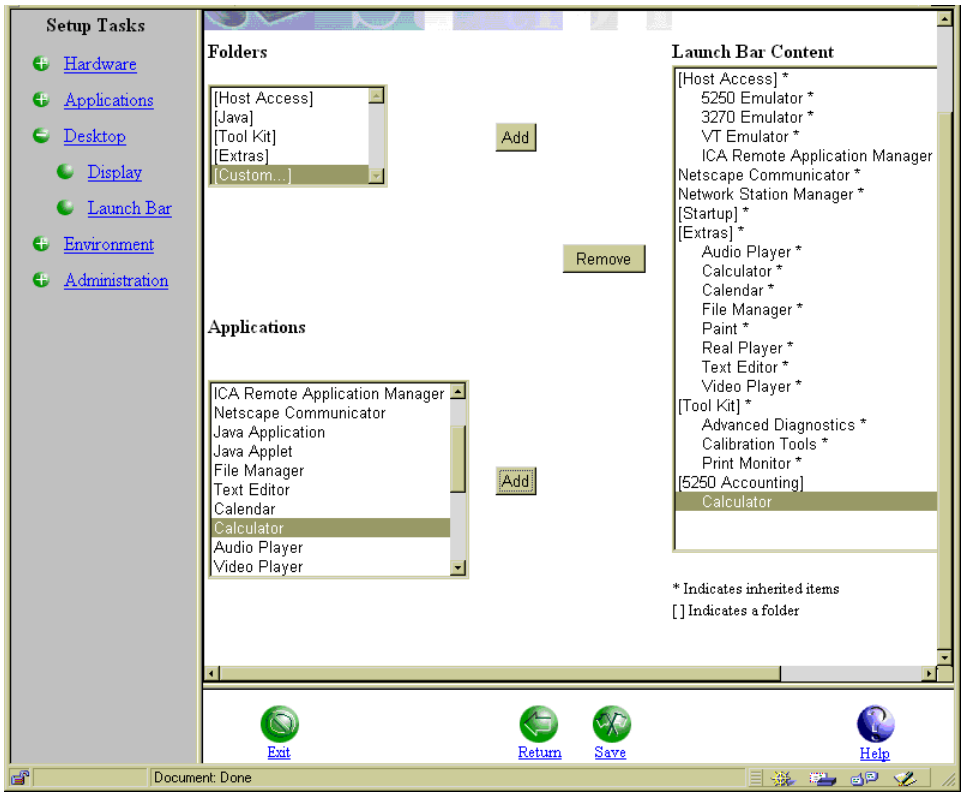

Figure 23. Adding applications to folders using the Launch Bar Setup Task

__ 5. Click **Save** to keep your changes.

The next time you log on to your Network Station, you can locate this application in the **5250 Accounting** folder on the Network Station launch bar.

Adding the Calibration Tools application to a folder

__ 1. From the main screen of the IBM Network Station Manager program, make your preference selection **User**, and type your User ID.

__ 2. From the **Setup Tasks** menu, click **Desktop—>Launch Bar**.

The **Launch Bar Settings** screen appears.

__ 3. In the **Launch Bar Content** list, select the **Tool Kit** folder.

When you select this folder, you are indicating that you want the **Calibration Tools** application to be accessible from the **Tool Kit** folder on the launch bar.

__ 4. In the **Applications** list, select the **Calibration Tools** application and then click **Add** (see Figure 24 on page 35).

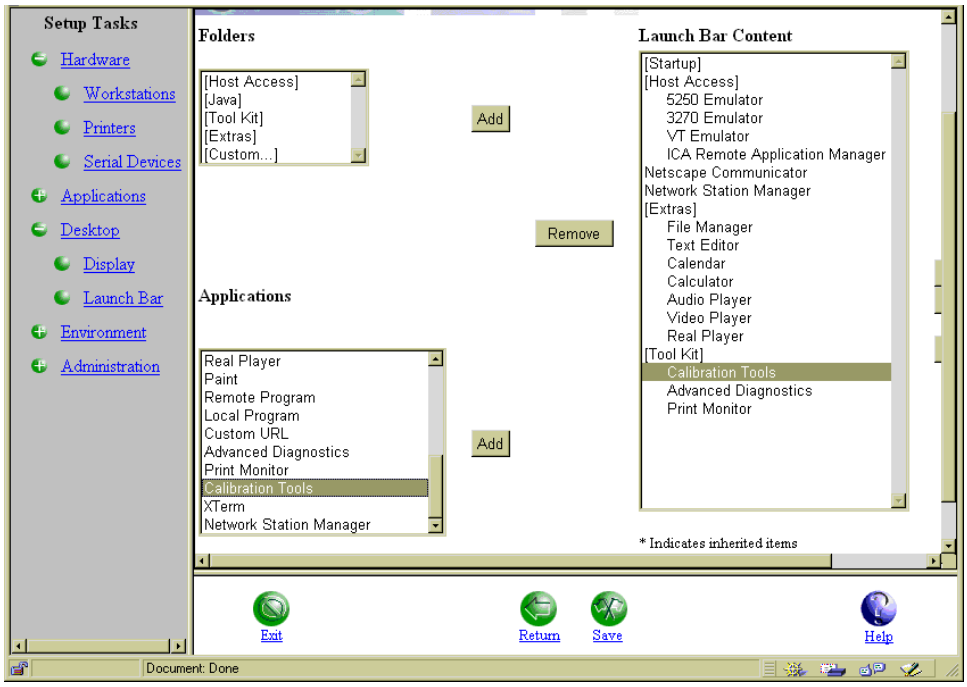

Figure 24. Adding the Calibration Tools application to your desktop

__ 5. Click **Save** to keep your changes.

Perform the following procedure to see the **Calibration Tools** icon on your desktop:

1. From the main screen of the IBM Network Station Manager program, make your preference selection**Workstation** and type your User ID.
2. From the **Setup Tasks** menu, click **Hardware—>Workstations**.

   The **Workstations** screen appears.
3. Scroll to **Monitor Settings**.
4. Click the appropriate selection, either **Touch screen**, or **Light pen**.
5. Click **Save** to keep your changes.

   The next time you log in to your Network Station, you will see the **Calibration Tools** icon on your desktop in the **Tool Kit** folder.

Moving an application to a different folder

You can move applications from one folder to another. This example explains how to move the calculator application from the **Extras** folder to the **Tool Kit** folder.

Note: When you are using the IBM Network Station Manager program at the **User** level, you cannot move **System** level applications. An asterisk (*) beside the application name indicates applications that are at the **System** level. Perform the following example from the **System** level:

__ 1. From the main screen of the IBM Network Station Manager program, make your preference selection **System**, and type your User ID.

__ 2. From the **Setup Tasks** menu, click **Desktop—>Launch Bar**.

   The **Launch Bar Settings** screen appears.

__ 3. In the **Launch Bar Content** list, select **Extras—>Calculator** (see Figure 25 on page 36).

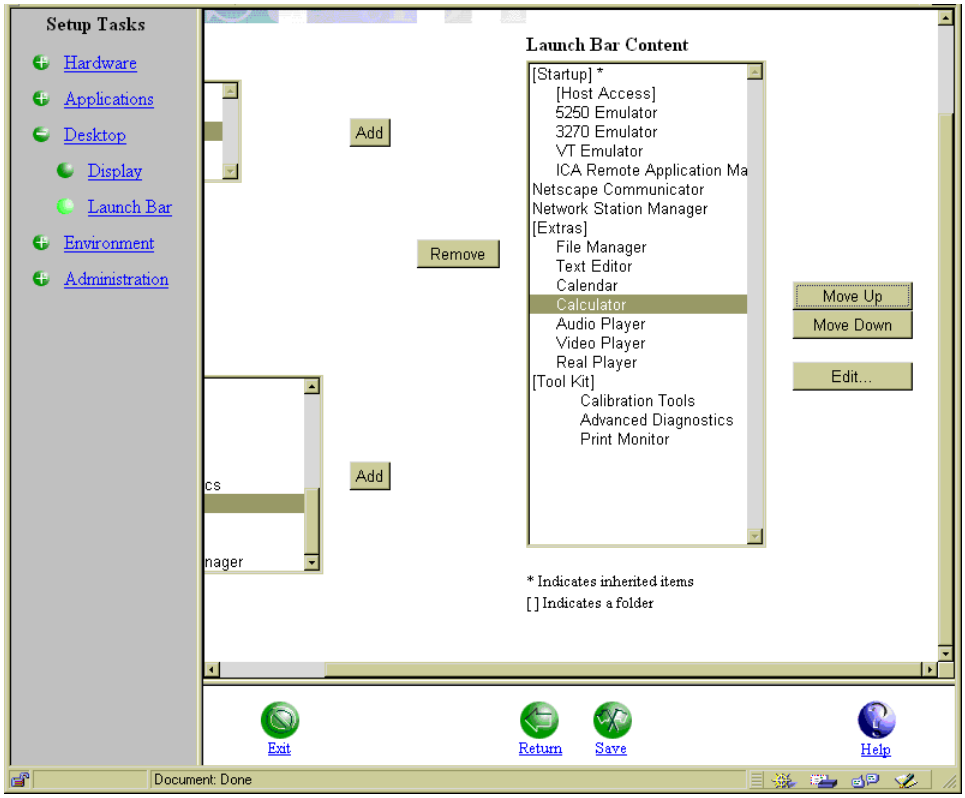

Figure 25. Moving an application from one folder to another - part one

__ 4. Click **Move Down** until the **Calculator** application is in the **Tool Kit** folder (see Figure 26 on page 37).

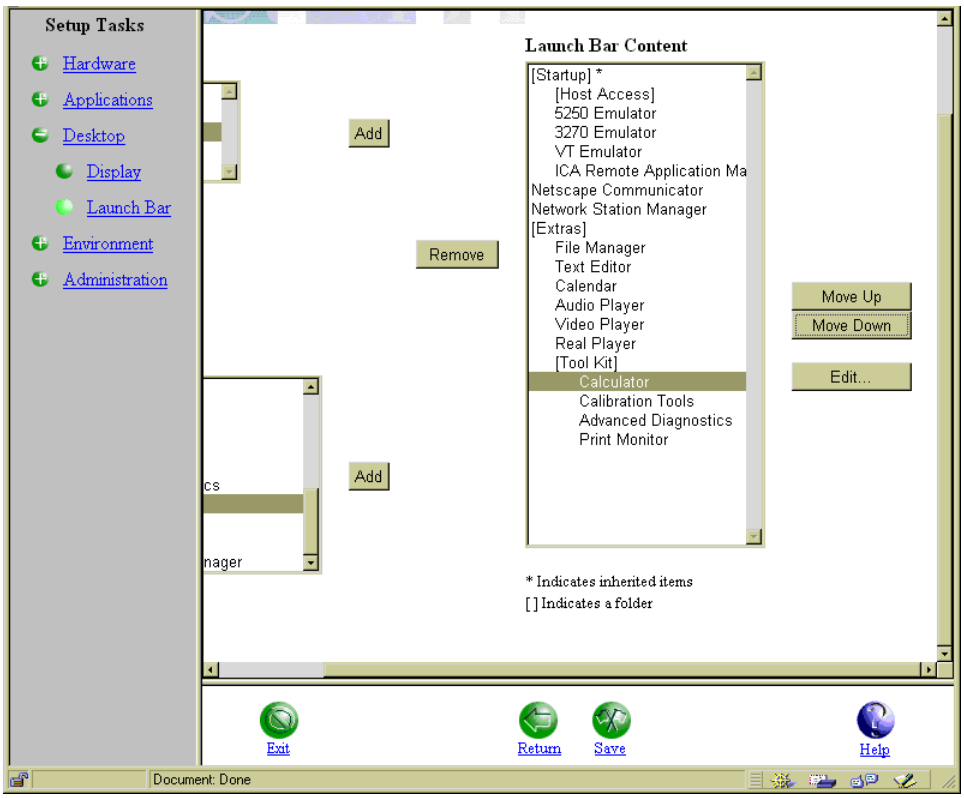

Figure 26. Moving an application from one folder to another - part two

__ 5. Click **Save** to keep your changes.

The next time you log in to your Network Station, the **Calculator** application will be in the **Tool Kit** folder.

Automatically starting applications on your Network Station desktop

You can start applications automatically on your Network Station desktop.

You must place the application inside the IBM-supplied **Startup** folder. You can place any number of applications in the **Startup** folder.

This example explains how to place the calendar application in the **Startup** folder. When you first log on to your Network Station, your calendar starts automatically.

__ 1. From the main screen of the IBM Network Station Manager program, make your preference selection **User**, and type your User ID.

__ 2. From **Setup Tasks** menu, click **Desktop—>Launch Bar**.

The **Launch Bar Settings** screen appears.

__ 3. In the **Launch Bar Content** list, select **Startup** (see Figure 27 on page 38).

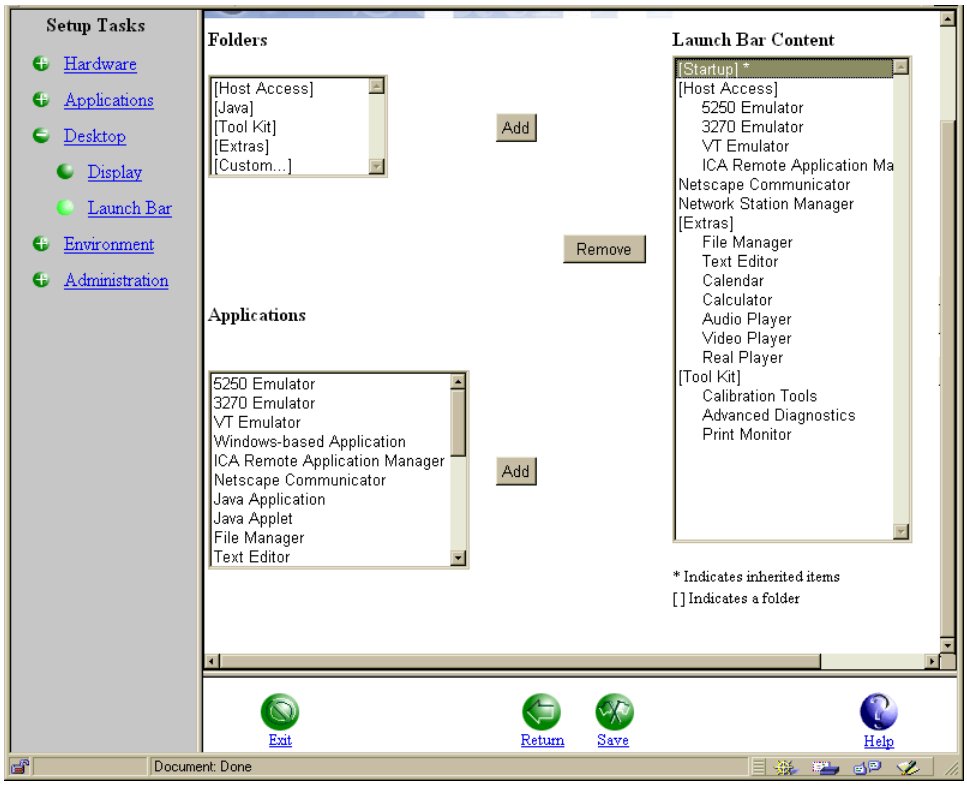

Figure 27. Automatically starting an application — part one

__ 4. In the **Applications** list, select **Calendar** (see Figure 28 on page 39).

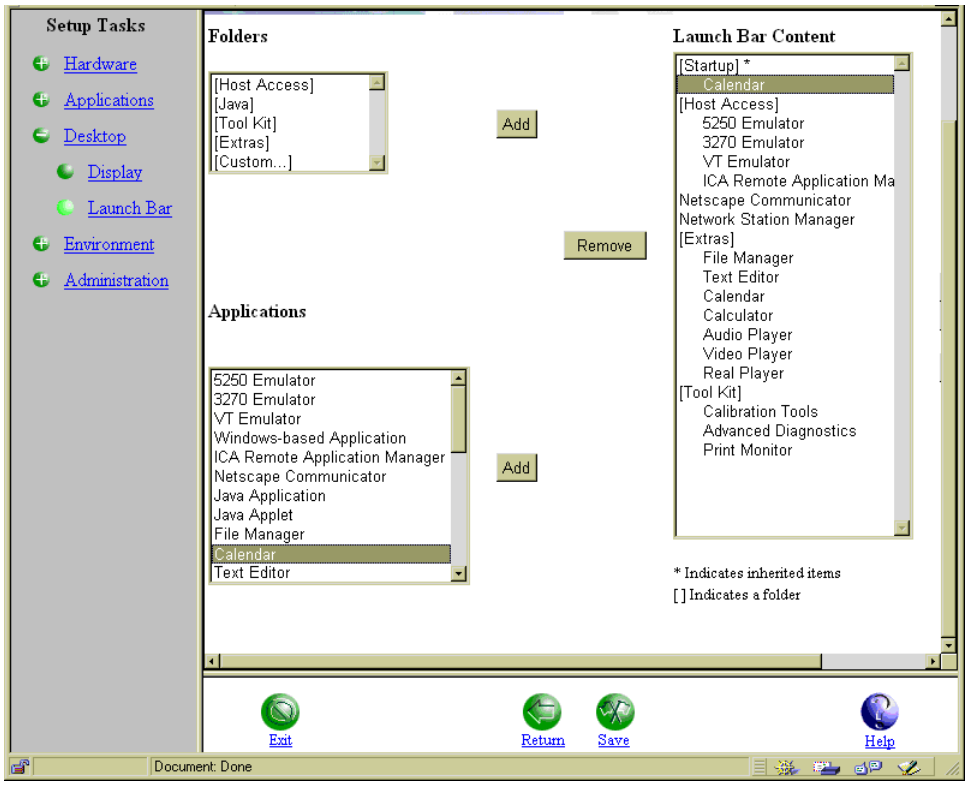

Figure 28. Automatically starting an application — part two

__ 5. Click **Add** to place the **Calendar** application in the **Startup** folder.

__ 6. Click **Save** to keep your changes.

The next time you log in to your Network Station, the **Calendar** application will automatically start on the desktop.

Configuring a Network Station for light pen or touch screen devices

You can add light pens and touch screens to the workstation configuration for one Network Station at a time, using the IBM Network Station Manager program. The **Calibration Tools** icon appears on the Network Station desktop when you configure a Network Station for light pen or touch screen devices.

1. From the main screen of the IBM Network Station Manager program, make your preference selection **Workstation**.
2. From the **Setup Tasks** menu, click **Hardware—>Workstations**.
3. Select a light pen or touch screen option from the **Monitor Settings** menu.
4. Click **Save** to change the workstation configuration settings.

   The **Calibration Tools** icon appears on the desktop of the workstation that you configured for a light pen or touch screen device the next time a user powers on the workstation.

Configuring the 5250 Emulator application for use on the Network Station

You can configure applications by using the launch bar function of the IBM Network Station Manager program.

This example shows how to configure the 5250 emulator application and place it in the **Host Access** folder.

Note: You can put applications in any folder, or directly on the Network Station launch bar.

__ 1. From the main screen of the IBM Network Station Manager program, make your preference selection **System**.

__ 2. From the **Setup Tasks** menu, click **Desktop—>Launch Bar**.

The **Launch Bar Settings** screen appears.

__ 3. In the **Host Access** folder, highlight the **5250 Emulator**.

__ 4. Click **Edit** to edit the application (see Figure 29).

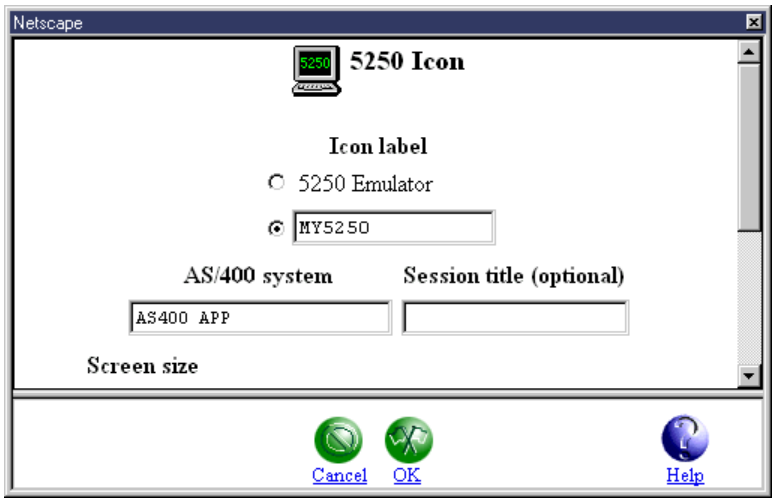

Figure 29. Completing the 5250 Edit screen

__ 5. Type a name for the application that you will remember (`MY5250`, for example) in the **Icon label** field.

__ 6. Type the IP address or name of the system (`AS400APP`, for example) in the **AS/400 system** field.

The **AS/400 system** field identifies which AS/400 to which you want to connect. This value can be an IP address or the name of the system (`AS400APP` in this example).

__ 7. Click **OK—>Save** to accept and save your configuration.

The next time you log on your Network Station, locate the 5250 Emulator application that is named `AS400APP`. It appears in the **Host Access** folder on your Network Station desktop launch bar.

Configuring the Netscape Communicator browser for Java

You can configure the Netscape Communicator browser for Java from the IBM Network Station Manager program.

This example shows how to set the user-defined classpath for Java applications in the Netscape configuration.

__ 1. From the main screen of the IBM Network Station Manager program, make your preference selection **User**.

You can also perform this procedure from the **System** or **Group** preference selections.

__ 2. From the **Setup Tasks** menu, click **Applications—>Netscape Communicator**.

__ 3. In the main IBM Network Station Manager window, scroll to the Netscape Java classpath options heading.

You can configure the Netscape browser for Java by selecting from the pre-defined classpath check boxes, or you can enter a user-defined classpath.

__ 4. To enable the Netscape browser to support the Java Media Framework 1.1 application (JMF 1.1), enter the following classpath in the text field:

```
$JAVA_HOME/lib/jmf.jar
```

__ 5. Click **Save**.

Disabling the Network Station screen saver

This example explains how to disable the Network Station screen saver from the IBM Network Station Manager program.

Note: You can disable the Network Station screen saver for multiple workstations by using the command line utility. For more information about the command line utility, see *IBM Network Station Advanced Information* at the following website: `http://www.ibm.com/nc/pubs`

1. From the main screen of the IBM Network Station Manager program, make your preference selection **Workstation**.
2. From the **Setup Tasks** menu, click **Hardware—>Workstations**.
3. Deselect the **Default (10 Minutes)** setting box for the screen saver under the **Monitor Settings** options.
4. Set the **Minutes before screen saver turns on** value to zero (0).
5. Click **Save**.

   The screen saver will not activate at the workstation once a user restarts, or powers on the workstation.

Controlling color on your Network Station desktop

You can control the color of your Network Station desktop several ways:

- The **Desktop theme** setting of the **Desktop Display Setup Task.**
- The pop-up menu accessible from your Network Station desktop, if it is enabled.
- The desktop background setting in the **Workstations** function of the **Hardware Setup Task**.

There is a relationship between these functions. The value that you specify for desktop background in the **Workstations** function of the **Hardware Setup Task** takes precedence over any value specified in the **Desktop theme** function.

The color theme that you select from the desktop pop-up menu has precedence over the desktop background in the **Workstations** function of the **Hardware Setup Task** and the **Desktop theme** function.

The theme you select changes only the launch bar background color if you have changed the default settings in either of the following functions:

- The desktop theme setting of the **Desktop Display Setup Task**.
- The desktop background setting in the **Workstations** function of the **Hardware Setup Task**.

Using the desktop theme function of the Desktop Display Setup Task

__ 1. From the main screen of the IBM Network Station Manager program, make your preference selection **System**.

__ 2. From the **Setup Tasks** menu, click **Desktop—>Display**.

The **Desktop Display Settings** screen appears.

__ 3. Scroll forward to **Desktop themes**.

__ 4. In the **Desktop themes selection** list, select **Water Drops** (see Figure 30).

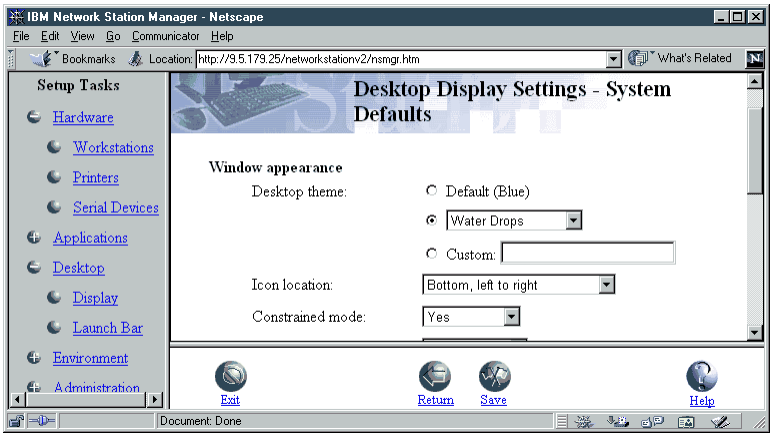

Figure 30. Selecting a background color using Color themes in the Desktop Display settings from Setup Tasks

__ 5. Click **Save** to keep your changes.

The next time you log on to your Network Station, your background will be the **Water Drops** image.

Using the pop-up menu accessible from your Network Station desktop

You can change the color theme of your desktop and launch bar by using the pop-up menu on the Network Station desktop to select a color theme.

Note: The theme you select changes only the launch bar background color if you have changed the default settings in either of the following functions:

- The desktop background setting in the **Workstations** function of the **Hardware** setup task.
- The **Desktop theme** setting of the **Desktop Display** setup task.

__ 1. From the Network Station desktop, click the left or right mouse button.

The desktop pop-up menu appears.

__ 2. Locate and select **Color themes**.

__ 3. Select a color theme of your choice from the **Select Color Theme** list (see Figure 31 on page 43).

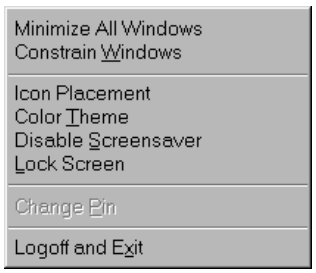

Figure 31. Selecting a color theme using the Network Station's desktop pop-up menu

The color theme selection is applied immediately.

Using the Screen saver setting in the Workstations function of the Hardware Setup Task

This example uses a custom file for the desktop screensaver setting. The custom file name for this example is `new.xbm`.

1. From the main screen of the IBM Network Station Manager program, make your preference selection **System**.

   Note: If you perform this procedure at the **System** level, all Network Stations within the system will share the same screen saver. To set the screen saver for a single Network Station, make your preference selection **Workstation**.

2. From the **Setup Tasks** menu, click **Hardware—>Workstations**.

   The **Workstation Settings** screen appears.

3. Scroll to the **Monitor Settings** heading and locate the **Screen saver** field.

4. Select the **Custom screen saver path** radial button, and type `/usr/local/nc/boot/login/new.xbm` in the text field, substituting your custom screen saver file name for `new.xbm`.

   You can select custom background images that are stored in the `/usr/local/nc/boot/login/` directory, and that are in XWindows bit format (`.xbm`).

5. Click **Save** to keep your changes.

   The next time you log on to your Network Station, your background will be the image that is contained in the custom file that is named `new.xbm`.

Using the Desktop background setting in the Workstations function of the Hardware Setup Task

You can control the background color by accessing the **Workstations** function of the **Hardware** setup task.

This example uses a custom file for the desktop background setting. The custom file name is `BACKGROUND1_OUR_LOGO`. The **background color** is light gray. The **foreground color** is spring green.

__ 1. From the main screen of the IBM Network Station Manager program, make your preference selection **System**.

__ 2. From the **Setup Tasks** menu, click **Hardware—>Workstations**.

   The **Workstation Settings** screen appears.

__ 3. Scroll forward to **Monitor Settings** and locate the **Desktop background** field.

__ 4. In the **custom background image path** field, type /usr/local/nc/boot/login/BACKGROUND1_OUR_LOGO, and select **light gray** from the background color list. Select **spring green** from the foreground color list.

You can select custom background images that are stored in the /usr/local/nc/boot/login/ directory, and that are in XWindows pixel format (.xpm).

__ 5. Click **Save** to keep your changes.

The next time you log on to your Network Station, your background will be the image that is contained in the custom file that is named BACKGROUND1_OUR_LOGO.

The gray color and the spring green color are applicable to the background and foreground of the active window (decorations around the active window).

Automatically updating the boot code

You can update your Network Station boot code to ensure that the boot code on your Network Station matches the boot code on the boot server. Updating the boot code can also provide access to the latest function of the IBM Network Station Manager licensed program.

You may want to alert your users that a warning message appears on their workstation during the boot code update. The warning indicates ***not*** to power off the workstation during the update.

Attention: Powering off a Network Station while updating boot code can cause damage to Network Station hardware.

You must type **Y** (yes) to complete the boot code update.

__ 1. From the main screen of the IBM Network Station Manager program, make your preference selection **System**.

__ 2. From the **Setup Tasks** menu, click **Hardware—>Workstations**.

__ 3. Scroll to **Boot Parameters**.

__ 4. Click the **Update boot code that is installed on the boot server—>Update** (see Figure 32 on page 45).

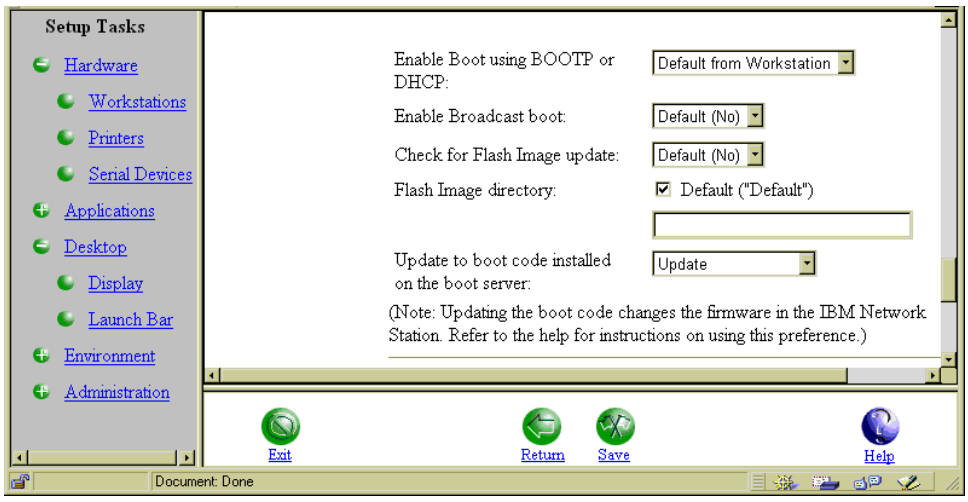

Figure 32. Update to boot code installed on the boot server

__ 5. Click **Save** to keep your changes.

Network Station thin clients on the network receive the newest level of boot code the next time they start from the network.

Overriding the Network Station boot setting

You can override the boot setting for your Network Station. This allows you to specify a different method of receiving the boot code.

__ 1. From the main screen of the IBM Network Station Manager program, make your preference selection **System**.

__ 2. From the **Setup Tasks** menu, click **Hardware—>Workstations**.

__ 3. Scroll to **Boot Parameters—>Enable Boot using BOOTP or DHCP** (see Figure 33 on page 46).

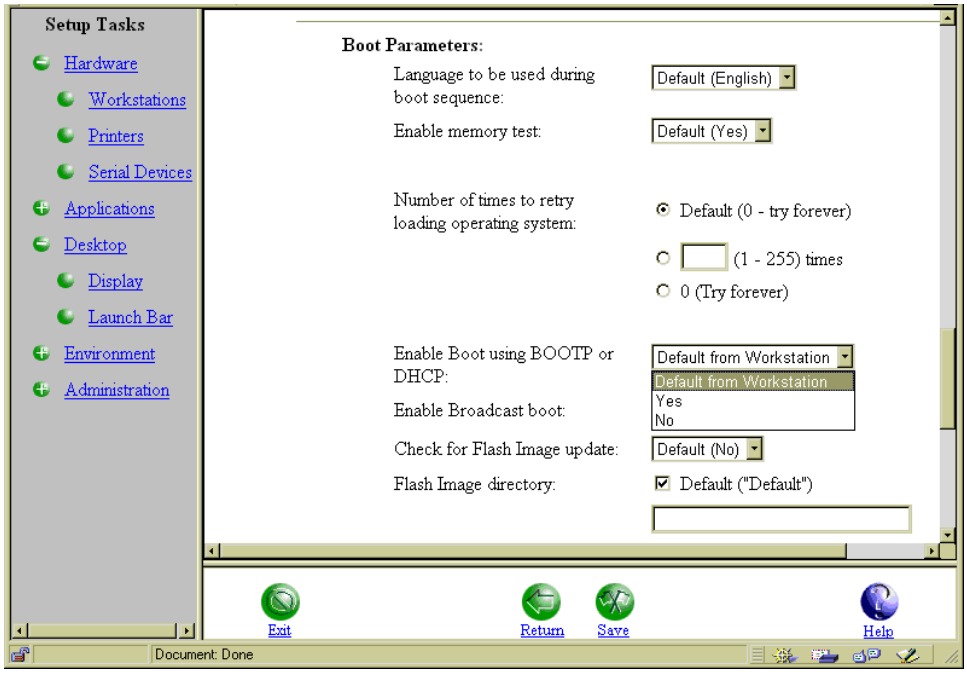

Figure 33. Overriding the Network Station boot setting

__ 4. Choose the method you would like to use to override the Network Station boot setting. The possible choices are:

Default from workstation

- If you select **Default from workstation**, and you have Network Stations that are machine type 8361 or 8362, the value set in the IBM Network Station Setup Utility under the **Set Network Parameters** task determines the boot configuration. The value can be either `Network`, or `NVRAM`. See “Type 8361 (Series 300) and Type 8362 (Series 1000)” on page 65 for additional information.
- If you select **Default from workstation**, and you have Network Stations that are machine type 8363 or 8364, the value set in the NS Boot utility under the **Configure network settings** task determines the boot configuration. The values that are set in the NS Boot Utility determine the boot configuration. Look in the **Change IP address settings**. The network priorities are **BOOTP**, **DHCP**, and **NVRAM**. See “The NS Boot utility for Series 2200 and Series 2800 thin clients” on page 75 for additional information.

Yes

- If you have Network Stations that are machine type 8361 or 8362, selecting this choice indicates that **Network** is the boot method. You can either start **DHCP** or **BOOTP**, depending on your configurations in the IBM Network Station Setup Utility.
- If you have Network Stations that are machine type 8363 or 8364, selecting this choice indicates that the **Network priority** can be **DHCP**, **BOOTP**, or **Local (NVRAM)**. You can also set the priority preferences for all three.

No

- Network Stations that are type 8361 and 8362 boot from the server that is specified in the **Boot Host IP Address** field of the **Set Network Parameters** screen in the setup utility. Selecting **No** means that the boot method is **NVRAM**.
- Type 8363 and type 8364 Network Station thin clients boot from the server that is specified in the NS Boot utility. You need to configure your Local (NVRAM) network parameters in the **Configure network settings** menu if you select the **No** option. You can specify the boot file server in the **Boot file server IP address** field, located in the **Change boot file server settings** menu.

__ 5. Click **Save** to apply the change.

Updating the Domain Name Server (DNS) configuration on the Network Station

IBM Network Stations take their DNS configuration (domain name, domain name server, and host table) from the start-up Host server. If the DNS configuration changes (for example, you add or delete servers or IBM Network Stations), you should update the IBM Network Station DNS configuration.

This setting has a checkbox field that, if checked, performs an update of the IBM Network Station Manager program DNS information.

If you choose to perform the DNS update, you will update the IBM Network Station Manager program DNS information with the host server configuration for domain name, domain name server, and host table.

To update the DNS information:

__ 1. From the main screen of the IBM Network Station Manager program, make your preference selection **System**.

__ 2. From the **Setup Tasks** menu, click **Hardware—>Workstations**.

__ 3. Scroll to **Domain Name Server**.

__ 4. Click the **Update Network Station Manager DNS file** check box (see Figure 34 on page 48).

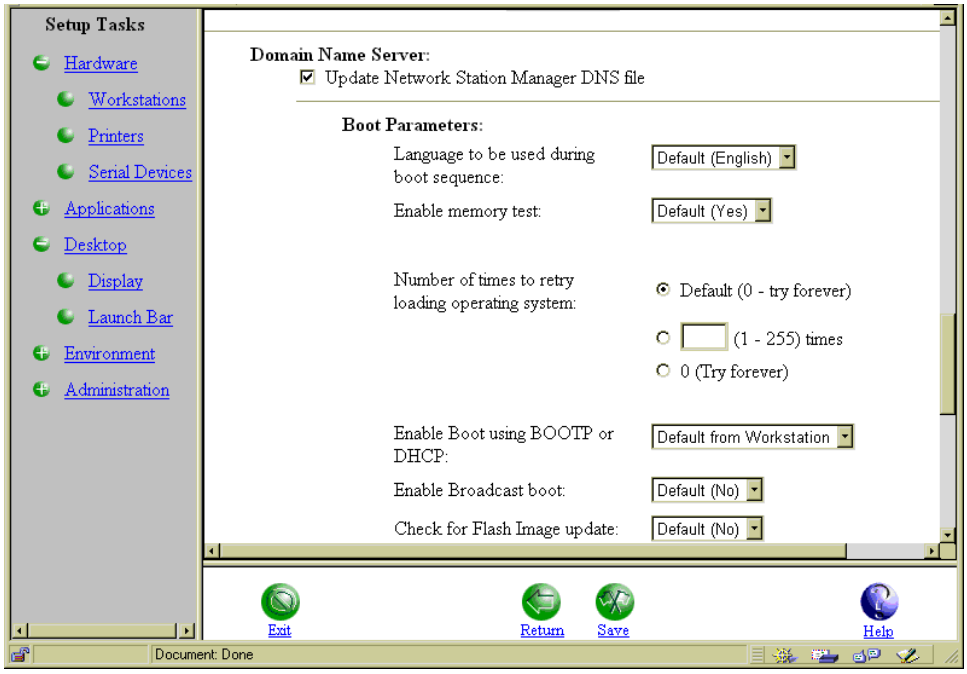

Figure 34. Updating the domain name server (DNS) information

__ 5. Click **Save** to apply the change.

Your Network Station DNS information updates the next time you restart the Network Station.

Configuring a local program for all users

You can make programs that are stored on your local server available to Network Station users.

Assume that you want to provide all Network Station users with a folder that contains games. This example shows how to configure the game that is named Minesweeper as a local program.

__ 1. From the main screen of the IBM Network Station Manager program, make your preference selection **System**.

__ 2. From the **Setup Tasks** menu, click **Desktop—>Launch Bar**.

The **Launch Bar Settings** screen appears.

__ 3. In the **Launch Bar Content** list, locate and highlight the last folder or application.

The new **Games** folder appears directly below the last folder or application that you clicked.

__ 4. In the **Folders** list, click **Custom—>Add**.

The **Folder edit** window appears.

__ 5. Type the name **Games** in the input field and click **OK**.

The **Games** folder is now the last entry in the **Launch Bar Contents** list.

__ 6. Click **Move Down** until the **Games** folder is left-justified in the **Launch Bar Contents** list.

__ 7. From the **Applications** list, click **Local Program—>Add**.

The Local Program application appears in the **Games** folder (see Figure 35). The **Local Program Icon** edit window appears (see Figure 36).

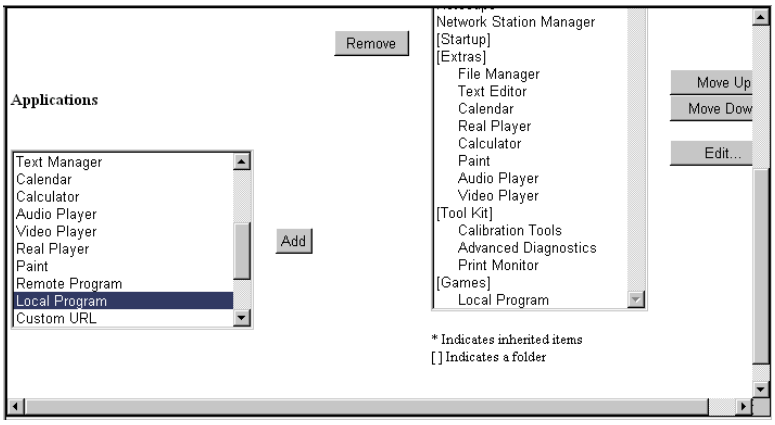

Figure 35. Configuring a local program for all users - part one

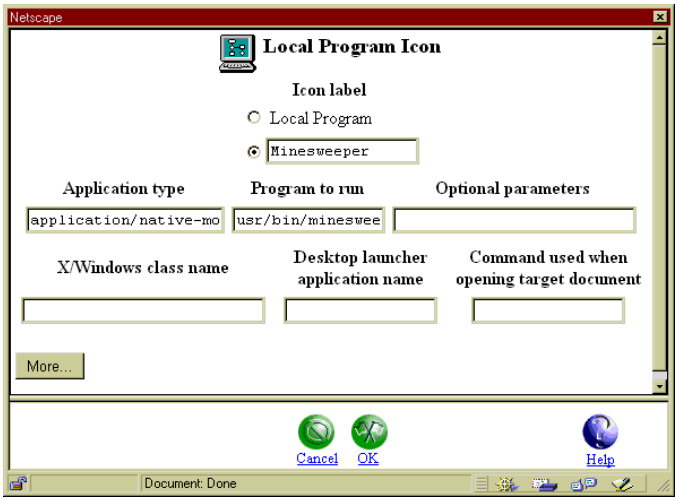

Figure 36. Configuring a local program for all users - part two

__ 8. Type `Minesweeper` in the **Icon label** field.

__ 9. Type `application/native module` in the **Application type** field.

__ 10. Type `/usr/bin/minesweeper` in the **Program to run** field.

The **Program to run** field points to the location of the program.

__ 11. Enter the X/Windows class for the program into the **X/Windows class name** field.

This enables the active icon features that indicate the that program is running on the desktop.

__ 12. Click **More** to specify the following program attributes:

- Minimum memory needed to start application.
- Application priority when memory is low.
- Restrict application to a single window.
- Save window size.
- Save window position.

__ 13. Click **OK—>OK—>Save** to apply and save the configuration information.

The next time you log on to your Network Station you can locate the **Games** folder on the Network Station launch bar. The **Minesweeper** application now appears in the **Games** folder.

Configuring a remote program for all users

You can make programs that are stored on other remote servers available to Network Station users.

Assume that you want to provide all Network Station users with a folder that contains remote programs. This example shows how to configure a remote application and place the application in a folder that is named **Remote Applications**. This example uses Lotus Notes as the remote application.

__ 1. From the main screen of the IBM Network Station Manager program, make your preference selection **System**.

__ 2. From the **Setup Tasks** menu, click **Desktop—>Launch Bar**.

The **Launch Bar Settings** screen appears.

__ 3. In the **Launch Bar Content** list, locate and highlight the last folder or application.

The new **Remote Applications** folder appears below the last folder or application you clicked.

__ 4. In the **Folders** list, click **Custom—>Add**.

The **Folder edit** window appears.

__ 5. Type `Remote Applications` in the input field and click **OK**.

The **Remote Applications** folder is now the last entry in the **Launch Bar Content** list.

__ 6. Click **Move Down** to make the **Remote Applications** folder left-justified in the **Launch Bar Content** list.

__ 7. In the **Applications** list, click **Remote Program—>Add**.

The **Remote Program** application now appears in the **Remote Applications** folder (see Figure 37).

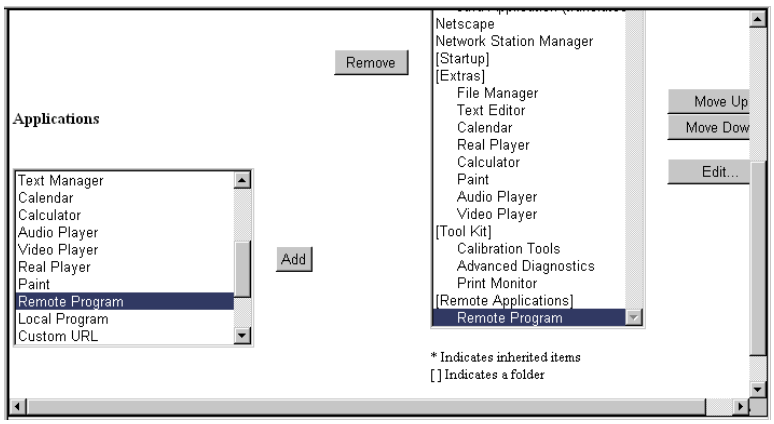

Figure 37. Configuring a remote program for all users - part one

The **Remote Program** edit window appears (see Figure 38 on page 51).

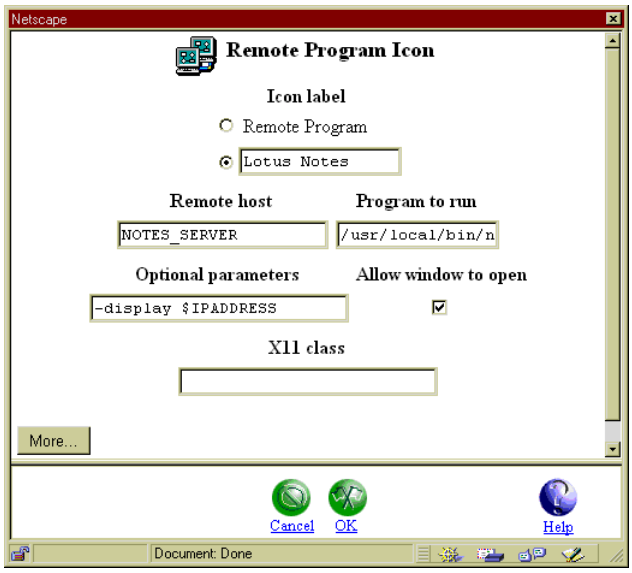

Figure 38. Configuring a remote program for all users - part two

__ 8. Type `Lotus Notes` in the **Icon label** field.

__ 9. Type `NOTES_SERVER` in the **Remote host** field.

__ 10. Type `/usr/local/bin/notes45` in the **Program to run** field.

The **Program to run** field points to the location of the program on the remote host.

__ 11. Type `-display $IPADDRESS` in the **Optional parameters** field.

The `-display` parameter instructs the remote host to open the Lotus Notes program on the Network Station from which the program was called.

__ 12. Enter the X11 class for the program into the **X11 class** field.

This enables the active icon features that indicate that the program is running on the desktop.

__ 13. Click **More** to specify the following program attributes:

- Minimum memory needed to start application.
- Application priority when memory is low.
- Restrict application to a single window.
- Save window size.
- Save window position.

__ 14. Click **OK—>OK—>Save** to apply and save the configuration information.

The next time you log on to your Network Station you can locate the **Remote Application** folder on the Network Station launch bar. The Lotus Notes application will be in the Remote Application folder.

Setting up an AIX session icon on the desktop launch bar

If you are interested in how to set up an AIX session icon to display on the desktop launch bar, using the Network Station Manager program, the procedure is maintained on the IBM website. To locate the procedure for Setting up an AIX session icon, follow these steps:

1. Go to the following URL: http://www.ibm.com/nc
2. Select your country from the pull-down menu, and then click **Go**.
3. Click **Support**.
4. Type `V2R1 AIX session icon` in the search bar, and then click **Go**.

5. Select the link, **NSM V2R1 - Setting up an AIX session icon**, from the search results.

Configuring an ICA connection to a PC server

Note: Independent Computing Architecture (ICA) is a general-purpose presentation services protocol. You can use ICA to access Microsoft Windows-based applications from Network Station thin clients.

The ICA Remote Application Manager uses ICA connection entries to create the list of PC servers from which the user may select. To start the ICA Remote Application Manager, select the **ICA Remote Application Manager** from the **Host Access** folder on the Network Station desktop. To create ICA connection entries, complete the following steps:

__ 1. From the main screen of the IBM Network Station Manager program, make your preference selection **System**.

__ 2. From the **Setup Tasks** menu, click **Applications—>ICA Remote Application Manager**.

The **ICA Remote Application Manager settings** screen appears.

__ 3. Click **Add**.

The **ICA Connection Entry Settings** screen appears (see Figure 39).

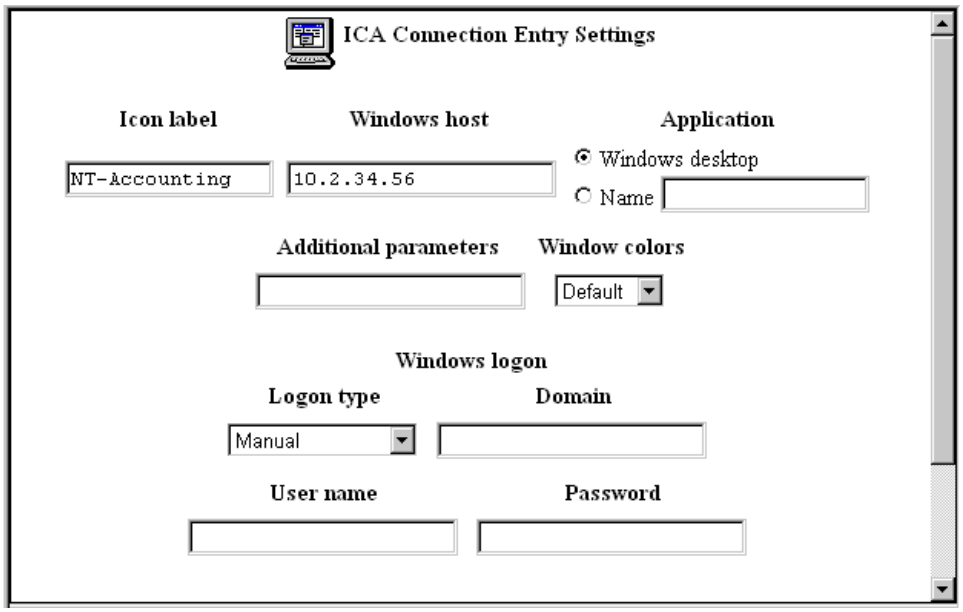

Figure 39. Configuring an ICA connection entry - part one

__ 4. Type the information in the fields of the **ICA Connection Entry Settings** screen. See Figure 39.

Icon label
This label identifies this ICA connection on the Network Station desktop launch bar (**Host Access—>Icon label**).

Windows host
Type either the IP address or the host name of the PC server you want to launch the Windows-based application.

Application

The Application field determines which application runs when the user logs onto the PC server. The possible values are:

Windows desktop

The Windows desktop is the application that runs when the user logs onto the PC server.

Name Identifies a specific application that is run when the user logs onto the PC server.

Note: If any backslash (\) characters are used in the name field you need to use two (2). If your program needs to use 2 backslashes (\\), you must enter 4 backslashes. For example, to use an application that is located in the Program Files directory, you would specify `\\Program Files\\Application.exe` to identify the application. For more information regarding special characters in optional parameter fields, see Chapter 8 of the *IBM Network Station Advanced Information* at the following website: `http://www.ibm.com/nc/pubs`

Windows logon

Select the Logon type you want to use. This example uses **Manual**.

The **Manual** logon type indicates that the ICA connection launches at the Network Station, and prompts the user for a User ID and password.

__ 5. Click **OK** to apply the change.

The **ICA Remote Application Manager Settings** screen appears (see Figure 40).

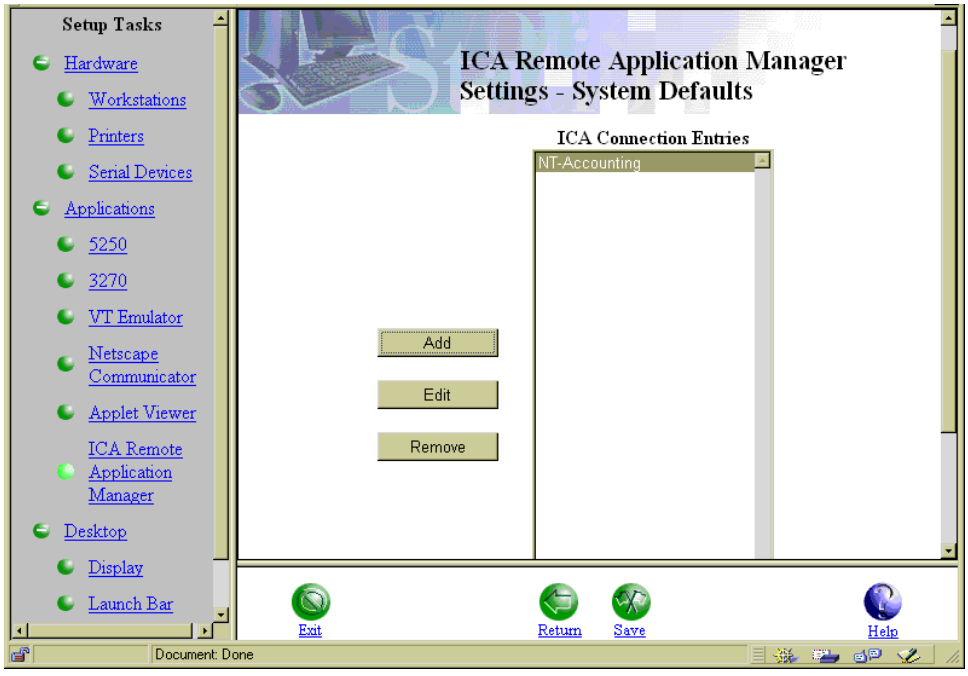

Figure 40. Configuring an ICA connection entry - part two

Notice that the ICA session you configured (NT-Accounting) is present in the **ICA Remote Application Manager Settings** window.

__ 6. Click **Save** to apply the change.

Defining an ICA connection entry

Perform the following steps to define a currently existing ICA connection entry:

1. From the ICA Remote Application Manager window, click **Entry—>New**.

   The **Properties** dialog box displays.
2. Edit the **Description** text field to describe the connection definition.
3. Select either a connection to a **Server**, or to a **Published Application**.
4. Select a server or published application from the drop-down list.
5. To log in as a specific user, complete the **Username**, **Domain**, and **Password** text fields.
6. Click **OK** to complete a connection definition with the properties that you have specified.

   The ICA Remote Application Manager window displays the connection definition that you created.

Connecting to local printers with the ICA Client

With the ICA Client you can print to any spooled printer available from your IBM Network Station. Such printers might be connected to the parallel port or the serial port. Printers can be connected automatically or manually.

Automatic connection: Using the IBM Network Station Manager program (NSM), local printers need only be set up once to enable automatic connection to ICA sessions.

In order to automatically connect printers during the ICA logon, two things need to happen. First, the ICA client needs to be able to provide the ICA server with the Windows NT Server 4.0, Terminal Server Edition (Windows NT TSE) printer driver name for each of the Network Station printers. And second, the Windows NT TSE printer driver must be installed on the ICA server.

You can use the Printer Wizard on the ICA server to find the correct printer driver name. The Network Station ICA client takes the Windows NT TSE printer driver name from the NSM description field of the printer. The printer driver name is entered into the description field via the NSM printer configuration screens.

Note: This is the server printer driver name that you want to use. Write this name down. This exact name will be entered via NSM into the description field of the printer that you are configuring.

Once the printer driver name has been added via NSM and the Network Station in question has been rebooted, users can log in to the ICA server and bring up the **Control Panel—>Printers** window to see the automatically created printers. If users cannot see the printers, they should bring up the **Programs—>MetaFrame Tools—>Client Printer Configuration** screen and ensure that the data they entered was correct and available to the ICA server.

Steps for determining the correct Windows NT TSE printer driver name:

1. On the ICA server computer, click **Start**, click **Settings**, and then click **Printers**.
2. Double-click the **Add Printer** icon, select **My Computer**, and then click **Next**.
3. In the **Available Ports** list box, select **LPT1**, and then click **Next**.

4. In the left pane, select the **Manufacturer** of the printer you have installed on your Network Station.
5. In the right pane, scroll to the model of the **Printer** you want the terminal server to load as the printer driver.

Manual connection: Manual connections to local printers must be done each time an ICA session is established.

To print to a local printer in WinFrame:

1. In the Main program group double-click the **Print Manager** icon.

   In the **Printer Manager** window you should see an icon, or open dialog box, for a network printer with a name similar to `workstation#printer` where `workstation` is the IBM Network Station name, and `printer` is the IBM Network Station name for the printer.
2. If no client printer is available, select **Connect to Printer?** from the **Printer** menu.
3. Double-click the **Client Network** icon in the **Shared Printer** list.
4. Double-click the **Client** icon.
5. Select the client printer icon, which will have a name similar to `workstation#printer`, and click **OK**.
6. If you want this printer to be your default printer select it in the **Default** menu at the top of the **Printers** window.

To print to a local printer in MetaFrame:

1. Click **Start** on the taskbar, point to **Settings**, then click **Printers** on the submenu.

   In the **Printers** window you should see an icon for a network printer with a name similar to `workstation#printer`, where `workstation` is the IBM Network Station name, and `printer` is the IBM Network Station name for the printer.
2. If no client printer is available, double-click the **Add Printer** icon in the **Printers** window to run the **Add Printer Wizard**.
3. Click the **Network** printer server then click **Next**.
4. Double-click **Client Network**, and double-click **Client**.
5. Select the printer from the list displayed, and click **OK**.

   Spooled printers available on the IBM Network Station have a name similar to `workstation#printer`.
6. If you want this printer to be your default printer, click **Yes** then click **Next**.
7. Click **Finish** to complete the process.

Note: The ICA Client printer support is not bi-directional; printers cannot answer or originate messages.

Carrying out ICA load balancing

You can accomplish load balancing by specifying the `-lb` parameter in the **Additional parameters** field of the Local (ICA) Client Session configuration.

Configure this parameter by clicking **Setup Tasks—>Applications—>ICA Remote Application Manager** from the IBM Network Station Manager program.

Load balancing provides the client access to a quantity or ″farm″ of PC servers in a PC server network. The load balancing function determines which PC server is

doing the least amount of work. When the ICA client that requests an application is served, the client receives the request from the PC server that is performing the least amount of work.

Allowing private user updates of ICA connection entries

You can use the IBM Network Station Manager program to allow users to configure their own ICA connection entries.

This example shows the steps you must perform using the IBM Network Station Manager program and the steps the user must perform on the Network Station.

__ 1. From the main screen of the IBM Network Station Manager program, make your preference selection **System**.

__ 2. From the **Setup Tasks** menu, click **Desktop—>Launch Bar**.

__ 3. Locate the **ICA Remote Application Manager** application.

Look in the **Launch Bar Content** list. It appears as an entry under the **Host Access** folder.

You can add the **ICA Remote Application Manager** to the **Host Access** folder if it is not in the **Launch Bar Contents** list.

__ 4. Select **Launch Bar Content—>ICA Remote Application Manager**, and click **Edit**.

__ 5. Complete the **ICA Remote Application Manager Icon** screen (see Figure 41).

Note: For information regarding special characters in optional parameter fields, see Chapter 8 of the *IBM Network Station Advanced Information* at the following website: `http://www.ibm.com/nc/pubs`

You can allow private user updates by clicking the option on the **ICA Remote Application Manager Icon** screen.

Figure 41. Updating the ICA Remote Application Manager Icon screen

__ 6. Click **OK—>Save** to apply and save the change.

You have completed the steps necessary to allow users to update or create their own ICA connections.

__ 7. Continue with this example. The Network Station performs the remainder of the steps.

__ 8. From the Network Station launch bar, click the **Host Access** folder.

__ 9. Select the **ICA Remote Application Manager** application.

The **ICA Client** window displays (see Figure 42).

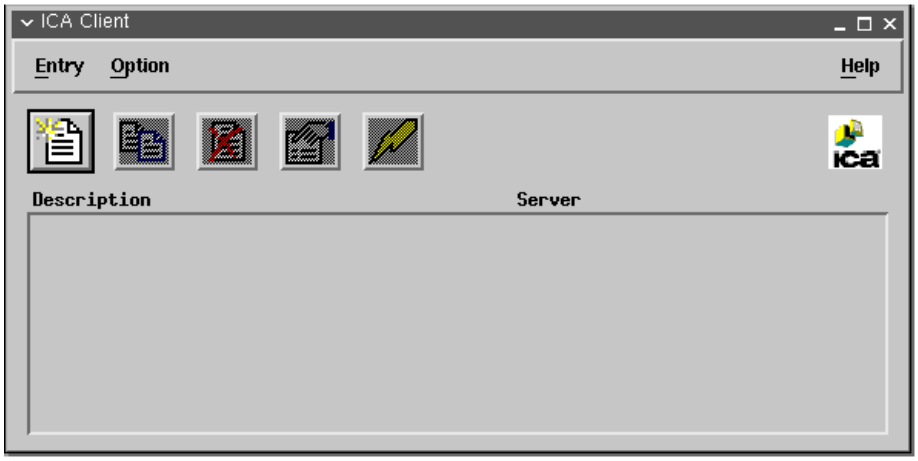

Figure 42. Updating the ICA Client

__ 10. From the **ICA Client** window, click **Entry—>New**.

The **Properties** dialog box displays. Use the **Properties** dialog box to configure a new ICA connection (see Figure 43 on page 58).

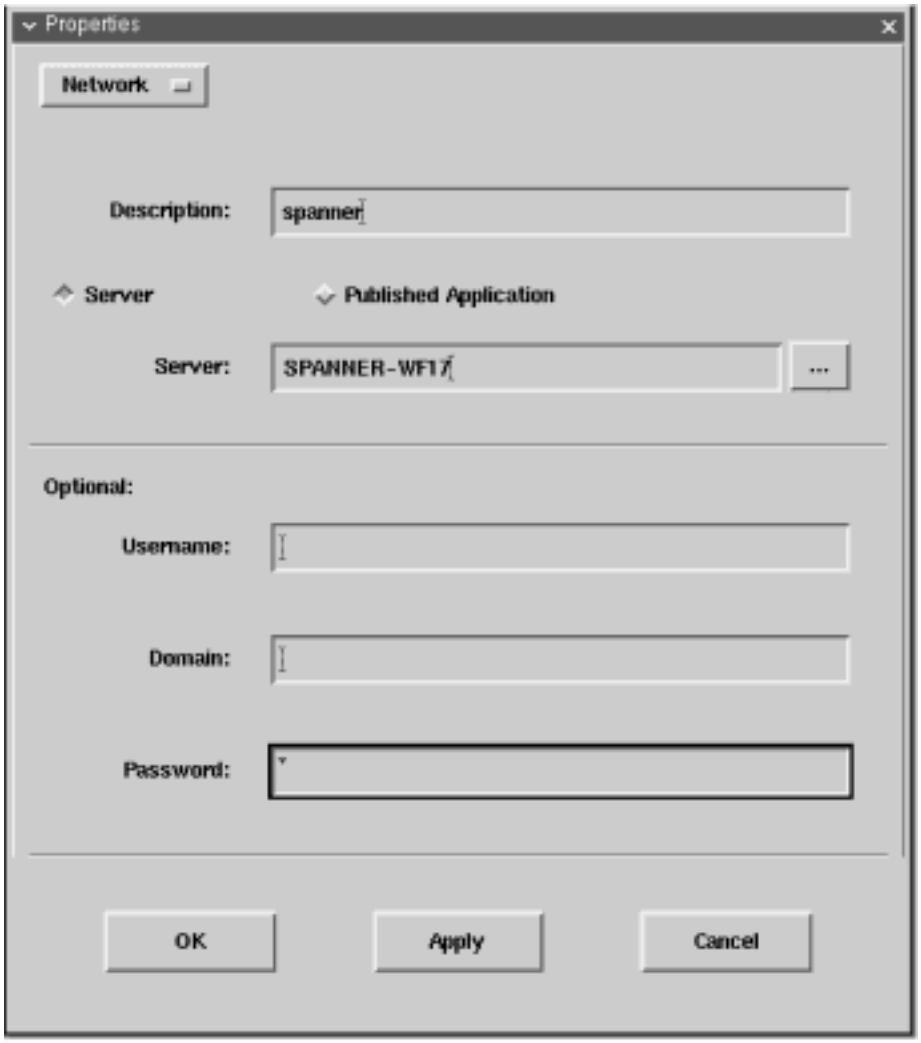

Figure 43. Configuring the ICA Client Properties window

__ 11. Complete the **Description** field. This example uses Spanner as the description name.

__ 12. Complete the **Server** field. This example uses Spanner-WF17 to identify the server name.

__ 13. Complete the **Username**, **Domain**, and **Password** fields if you do not want to be prompted for this information every time you launch this session. This is an optional step.

Note: You must have a user ID and password on the server for which you want to create an ICA connection.

__ 14. Click **OK** to create an ICA connection definition that contains the properties you have specified.

__ 15. From the Network Station desktop launch bar, click the **Host Access** folder.

__ 16. Click the **ICA Remote Application Manager** application.

The **ICA Client** window displays with the connection you previously created (see Figure 44 on page 59).

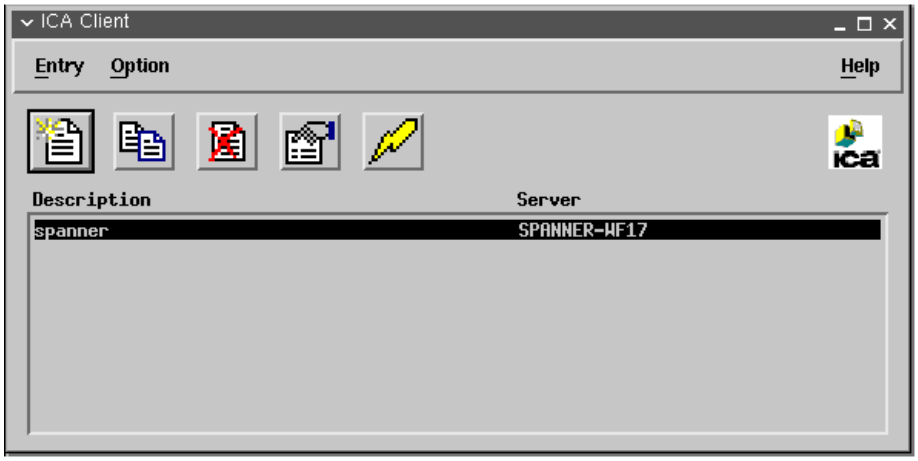

Figure 44. Updated ICA Client window

__ 17. Open the connection. There are several ways to open the ICA connection:

- You can double click the ICA connection description.
- You can select the name of the connection definition and then choose **Connect** from the **Entry** menu.
- You can select the name of the connection definition, and click **Connect** (see Figure 45).

Figure 45. ICA Client Connect button

Configuring Java for the Network Station

For information about configuring Java applications and applets, see *IBM Network Station Advanced Information* at the following website: `http://www.ibm.com/nc/pubs`

Including system, group, or user preferences in a kiosk profile

PTF6 of the V2R1 IBM Network Station Manager program allows you to create kiosk profiles that include system, group, or user preferences. For more information, see *IBM Network Station Advanced Information* at the following website: `http://www.ibm.com/nc/pubs`

Using the IBM Network Station Manager program to enable the touchscreen daemon

You can use the IBM Network Station Manager program to enable the touchscreen daemon for workstations with touchscreen devices attached. This example assumes that you have already connected a touchscreen monitor to a workstation.

1. From the main screen of the IBM Network Station Manager program, make your preference selection **Workstation**.
2. From the **Setup Tasks** menu, click **Hardware**—>**Workstations**—>**Monitor Settings**.
3. Specify the touchscreen device for your workstation.
4. Click **Save and return**.

You can also start the touch daemon from the command line utility. For more information, see *IBM Network Station Advanced Information* at the following website: `http://www.ibm.com/nc/pubs`

Configuring a local area network-attached printer

Local Area Network (LAN)-attached printers are printers not necessarily attached to a Network Station or other devices. They typically have their own host name or IP address and have their own (direct) LAN connection.

__ 1. From the main screen of the IBM Network Station Manager program, make your preference selection **System**.

__ 2. From the **Setup Tasks** menu, click **Hardware—>Printers**.

__ 3. Scroll to **Printer List**. You must define LAN-attached printers as remote printers. Therefore, scroll to the **Remote Printer Server** section. Fill out the **Remote Printer Server** section with the following information:

Server name
The Host name or IP address of the LAN-attached printer.

Queue Name
The name of the queue associated with the LAN-attached printer.

Some LAN-attached printers require queues for their configuration, and some LAN-attached printers do not. If the LAN-attached printer has a queue name associated with it, place that name in the Queue Name field. Leave the Queue Name field blank if you do not have a queue associated with the LAN-attached printer.

When you make print requests, the Print Selector List displays the queue name. The Print Selector List displays the @ sign that is followed by either the host name or the IP address. If you did not use a queue name the Print Selector List displays a @ sign followed by the IP address. For example, in the queue name field you could see `@ 10.1.12.34`.

Stream Type
The type of printer data stream the LAN-attached printer supports.

Description
You can type anything in this field. Important information to put in the Description field could be the physical location of the printer (see Figure 46 on page 61).

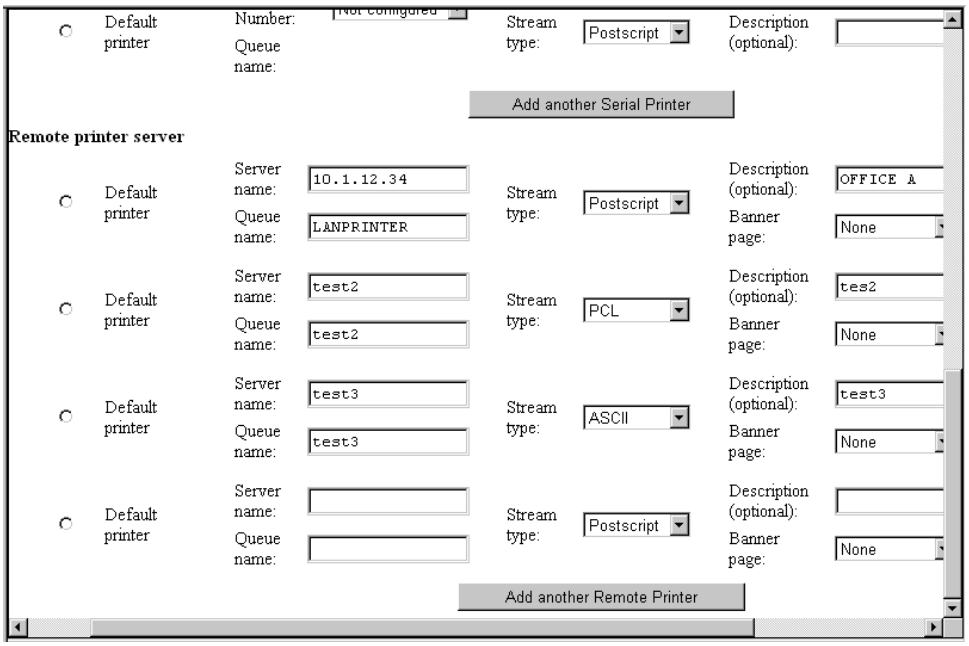

Figure 46. Configuring a LAN-attached printer

__ 4. Click **Save** to apply the change.

When you type information in the Remote Print Server section, that information constructs fields in the Print Selector List. The Print Selector List appears when users request a print action. The Queue Name and Description fields are the most useful fields. You can use the Queue Name to identify the print queue and the IP address. Description can be anything you typed in when configuring the printer. The physical location of the printer may be something users need to know.

Configuring a Network Station-attached printer for other users

Complete the following steps to configure a Network Station-attached printer:

__ 1. From the main screen of the IBM Network Station Manager program, make your preference selection **System**.

__ 2. From the **Setup Tasks** menu, click **Hardware—>Printers**.

__ 3. Scroll to **Printer List**. Your Network Station-attached printer is considered a remote printer for all users that are not working on the Network Station the printer is attached to. Therefore, scroll to the **Remote Print Server** section, and fill out the following information:

Server name
Type the Host name or IP address of the Network Station to which the printer is attached.

Queue Name
Type the name of the queue that is associated with the Network Station-attached printer.

Stream Type
Type the type of printer data stream the Network Station-attached printer supports.

Description
You can type anything in this field. Important information to put in the Description field could be the physical location of the printer.

You can configure a Network Station-attached printer. See Figure 47.

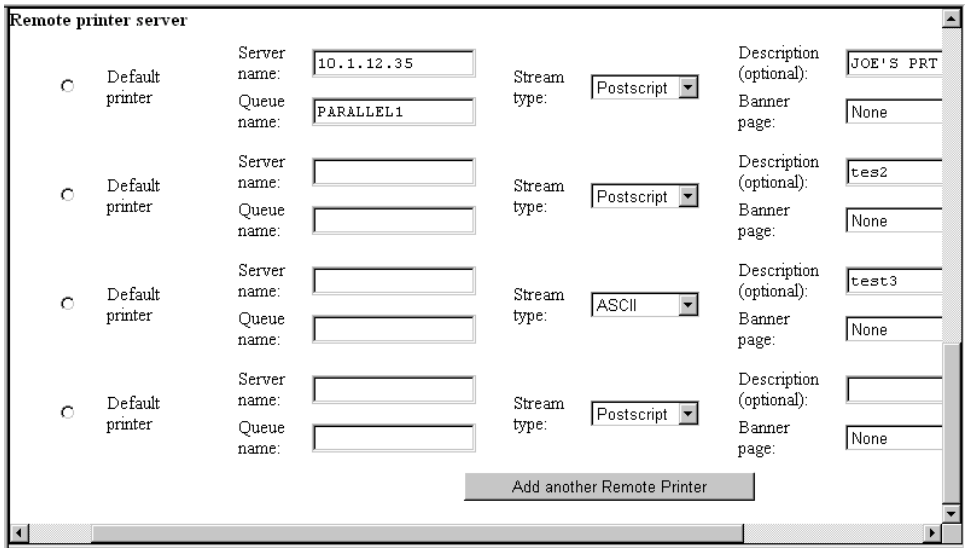

Figure 47. Configuring a Network Station-attached printer as a remote printer for other users

In the example where a locally-attached printer is configured as a remote printer for other users, you must pay close attention to the following:

Queue name field
On locally attached printers the **Queue name** is, by default, either PARALLEL1, or SERIAL1. When you configure a locally attached printer for others use, the **Print Selector** list contains a queue name of either PARALLEL1 or SERIAL1 for that printer. The resulting **Print Selector** lists for a user could then contain two **Queue name** entries, each reading PARALLEL1.

Description field
In this example, where a user **Print Selector** list could have two identical queue name entries, the **Description** field can determine which printer to choose.

__ 4. Click **Save** to apply the change.

Setting the Time Zone (TZ) Environment Variable

Setting the TZ environment variable is important when working across multiple time zones. It is particularly important if you use Java applications.

Note the following requirements:

- Be sure to notice the upper and lower case characters when setting the TZ environment variable (this application is case-sensitive).
- You must set the time zone value on your server correctly.
- You must use standard time variables, not daylight savings variables (for example, Central Standard Time (CST) not Central Daylight Time (CDT).

Complete the following steps to set the TZ environment variable:

__ 1. From the main screen of the IBM Network Station Manager program, make your preference selection **System**.

__ 2. From the **Setup Tasks** menu, click **Environment—>General**.

__ 3. The **Environment Variables** screen appears (see Figure 48).

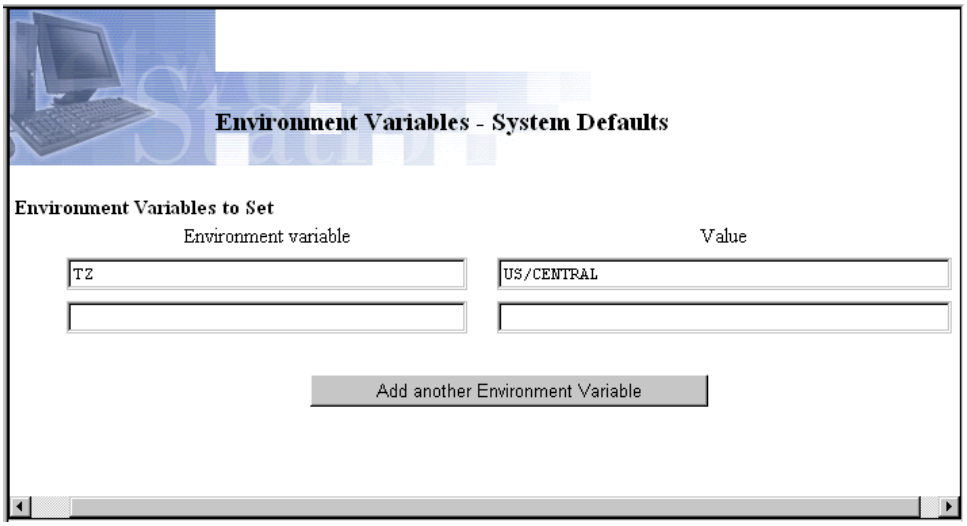

Figure 48. Setting the time zone (TZ) environment variable

__ 4. Complete the following fields:

Environment variable
Type **TZ**. TZ means time zone.

Value
Type **US/Central**. This indicates Central Standard Time. Following are other possible values for the TZ environment variable:

Value	Hours from Greenwich Mean Time (GMT)
GMT	0
Europe / Paris	+1
Europe / Helsinki	+2
Europe / Warsaw	+3
Europe / Moscow	+4
Asia / Karachi	+5
Asia / Dacca	+6
Asia / Jakarta	+7
Hongkong	+8
Japan	+9
Australia / Victoria	+0
etc / GMT+11	+11
NZ	+12
US / Aleutian	-11
US / Alaska	-10
Canada / Pacific	-9
US / Pacific	-8
US / Mountain	-7

Value	Hours from Greenwich Mean Time (GMT)
US / Central	-6
US / Eastern	-5
Canada / Atlantic	-4
Canada / Newfoundland	-3.5
Brazil / West	-3
etc / GMT-2	-2
etc / GMT-1	-1

__ 5. Click **Save** to apply the change.

Accessing and using How To Help

The IBM Network Station Manager program contains a **How To** help category.

The **How To** category is organized by the tasks you can perform while using the IBM Network Station Manager program. For example, it contains instructions about how to create 5250 sessions, change the content of your Network Station desktop launch bar, and configure Netscape Communicator sessions.

You can access **How To** help by clicking **Help** at any time.

Chapter 3. Working With the IBM Network Station Setup Utility and the NS Boot Utility

Type 8361 (Series 300) and Type 8362 (Series 1000) 65
Accessing the IBM Network Station setup utility 65
IBM Network Station setup utility tasks 66
Setting monitor resolution 67
Working with the blanking pedestal 67
Selecting the startup language 68
Selecting a keyboard language 68
Using verbose diagnostic messages 68
Working with MAC addresses 69
Resetting an IBM Network Station to the factory defaults 70
Viewing the boot PROM version of an IBM Network Station 71
Configuring an IBM Network Station to boot from the network setting 71
Configuring an IBM Network Station to boot from the NVRAM setting 71
The NS Boot utility for Series 2200 and Series 2800 thin clients 75
Identifying the NS Boot version 75
Updating the NS Boot utility version on a Series 2200 or 2800 thin client 76
Updating the NS Boot utility version of several thin clients 76
Using the NS Boot utility 77
NS Boot utility tasks 78
Changing the language setting of the NS Boot utility 78
Selecting a keyboard language 78
Setting the display resolution 78
Configuring a thin client to boot from Local (NVRAM) settings 79
Displaying hardware information 79
Displaying the boot log 80
Enabling verbose diagnostic messages . . . 80
Working with Service Aids 80

The type of Network Station hardware you have determines the setup utility that you have:

- IBM Network Station Machine Type 8361, models 110 and 210 (Series 300); and Machine Type 8362 (Series 1000) both have the IBM Network Station Setup Utility. See "Type 8361 (Series 300) and Type 8362 (Series 1000)" for more information regarding this utility.
- Network Station Machine Types 8363 (Series 2200) and 8364 (Series 2800) have the IBM Network Station NS Boot utility. See "The NS Boot utility for Series 2200 and Series 2800 thin clients" on page 75 for more information regarding this utility.

Type 8361 (Series 300) and Type 8362 (Series 1000)

This section contains information about using the Setup Utility of the IBM Network Station. The Setup Utility menu allows you to **View** or **Set** (change) configuration settings that relate to a particular Network Station. The Setup Utility is primarily a tool for administrators to find and correct problems on the network. You can use the IBM Network Station Manager program to restrict a user's privileges in the Setup Utility. See "Setting the administrator password" on page 31 for more information.

Accessing the IBM Network Station setup utility

Access the Setup Utility by carrying out the following steps:

1. Power on the Network Station.
2. When the NS0500 *Search for Host System* message appears on the black screen, press the Escape key.
3. If password control is active, you must enter the case-sensitive administrator password.

Note: You can specify the administrator password through the IBM Network Station Manager program in the Hardware setup tasks under *Miscellaneous Settings.*

The following screen appears:

```
SCRN02                IBM Network Station
                          Setup Utility

F2 = View Hardware Configuration
F3 = Set Network Parameters
F4 = Set Boot Parameters
F5 = Set Configuration Parameters
F6 = Set Monitor Parameters
F7 = Set Language Parameters


F10 = Set Verbose Diagnostic Messages Disabled









Enter=Reboot
```

Notes:

1. If the administrator has not set the password in the IBM Network Station Manager program, any user can access the configuration settings in the IBM Setup Utility.
2. If you attempt the password three times without success, you can only view the hardware configuration.
3. If you changed the administrator password by using IBM Network Station Manager program, you must start the Network Station to the Login window. This enables the new administrator password at the system unit.

Users who are granted limited access by the administrator in IBM Network Station Manager do not see the complete screen shown above. They see only the first option, which only allows viewing the hardware configuration.

IBM Network Station setup utility tasks

You can find information about Setup Utility tasks in Table 3 and Table 4 on page 67, in the instructions which follow, or in both sources.

Table 3 and Table 4 on page 67 divide Setup Utility tasks into two categories: Tasks that deal with configuration settings and tasks that deal with appearances. The tables point you to the steps you need to take to perform each task. You can reach many of the required screens simply by pressing one key, and many of the tasks consist of a single keystroke. When the task is more complicated or bears explanation, the tables direct you to the text-based instructions in the remainder of the chapter.

Note: For specific instructions about configuring a Network Station to start from NVRAM settings, refer to “Configuring an IBM Network Station to boot from the NVRAM setting” on page 71.

Table 3. Common Configuration Tasks in Setup Utility

Configuration Item	To View	To Set
Network Station IP Address	F3, select NVRAM.	F3, select NVRAM.

Table 3. Common Configuration Tasks in Setup Utility (continued)

Configuration Item	To View	To Set
Subnet Mask	F3, select NVRAM.	F3, select NVRAM.
Default MAC Address	See "Finding the Default MAC Address" on page 69.	N/A.
User-configurable MAC Address	See "Viewing the user-configurable MAC address" on page 70.	See "Specifying a user-configurable MAC address" on page 70.
Gateway IP Address	F3, select NVRAM.	F3, select NVRAM.
IP Addressed From (Is NVRAM or a Network setting being used to boot?)	F3.	F3.

Table 4. Common Appearance Tasks in Setup Utility

Appearance Item	To View	To Set
Keyboard Language	F7.	F7. See "Selecting a keyboard language" on page 68.
Monitor Resolution	F6.	F6. See "Setting monitor resolution".
Verbose Diagnostic Messages (activity and messages displayed during boot)	F10.	F10. See "Using verbose diagnostic messages" on page 68.
Blanking Pedestal	F6.	See "Working with the blanking pedestal".

Setting monitor resolution

You can change the resolution of the monitor that is attached to a Network Station to improve a screen image that is not clear.

Attention: Setting a resolution that is not supported by your monitor can permanently damage the monitor.

Note: For the best video image, you should power on the monitor before you start the logic unit.

__ 1. Enter the Setup Utility by powering on the Network Station and pressing the Escape key after the NS0500 *Search for Host System* message displays during system startup.
__ 2. Press the F6 key.
__ 3. Press the F2 key.
__ 4. Select a new monitor resolution by using the Up and Down arrow keys.
__ 5. After selecting your resolution, press Enter.
__ 6. Test the resolution by pressing Enter again. A properly resolved monitor clearly displays the resolution setting in the center of a full-screen grid.

Working with the blanking pedestal

The Blanking Pedestal allows you to increase the contrast between black and white on your monitor. To activate the Blanking Pedestal, carry out the following instructions:

__ 1. Enter the Setup Utility by pressing the Escape key after the NS0500 *Search for Host System* message displays during system startup.
__ 2. Press F6.

__ 3. Press the F9 key to enable or disable the Blanking Pedestal. The F9 key acts as a toggle switch.

Once you have enabled the Blanking Pedestal, your display changes immediately.

Selecting the startup language

The first time you start a Network Station, a screen prompts you to select a Startup Language. The Startup Language is the language that the Network Station uses in its own interface. For example, the screens that you see in the Setup Utility appear in the language that you select. The Startup Language is not the same as the keyboard language or the language that the IBM Network Station Manager interface uses. For information about setting the keyboard language for a Network Station, see "Selecting a keyboard language".

To change the Startup Language after the first time the Network Station is started, complete the following steps:

__ 1. Enter the Setup Utility by pressing the Escape key after the NS0500 *Search for Host System* message displays during system startup.
__ 2. Press F7, *Set Language Parameters*.
__ 3. Press F3, *Select Startup Language*.
__ 4. Select the language of your choice.
__ 5. Press Enter. The language that you see on screen changes immediately.

Selecting a keyboard language

Warning: You should use the IBM Network Station Manager program to change keyboard languages. If you change the language in the Setup Utility, you might specify a different language than what is in the IBM Network Station Manager. The value in the IBM Network Station Manager overrides any value in the Setup Utility.

You can select a keyboard language to use with this Network Station. Selecting a different language changes the mapping of keys. You can cause a different character to display when a certain key is pressed, when you change the mapping of the keys on a keyboard.

To select a keyboard language, carry out the following steps:

__ 1. Enter the Setup Utility by powering on the Network Station and pressing the Escape key after the NS0500 *Search for Host System* message displays during the startup process.
__ 2. In the main Setup Utility screen, press the F7 key.
__ 3. Press the F2 key to select a keyboard language.
__ 4. Use the Up and Down arrow keys to select a language from the options displayed.
__ 5. Press Enter to save your selection.

Using verbose diagnostic messages

You have the choice of whether or not to monitor boot activity from the boot host on an individual Network Station. When you enable Verbose Diagnostic Messages in the Setup Utility, messages appear on the monitor during the boot process as files that are loaded.

__ 1. Enter the Setup Utility by powering on the Network Station and pressing the Escape key after the NS0500 *Search for Host System* message displays during the startup process.

__ 2. Press the F10 key to change the status of Verbose Diagnostic Messages. The F10 key acts as a toggle switch. Verbose Diagnostic Messages are currently disabled when the display reads ″F10 = Set Verbose Diagnostic Messages Disabled.″ When the display reads, ″F10 = Set Verbose Diagnostic Messages Enabled, Verbose Diagnostic Messages are currently enabled.

Working with MAC addresses

You use a MAC address (which is an alpha-numeric value) to identify a computer.

Network Stations can have two kinds of MAC addresses: Default MAC addresses, and user-configurable MAC addresses.

Default MAC addresses: The default MAC address is a unique identifier that corresponds permanently to a particular Network Station. The Network Station receives its default MAC address in the factory where the machine is manufactured. The default MAC address does not change, even when you specify a user-configurable MAC address.

Finding the Default MAC Address: On a new Network Station which has no user-configurable MAC address, you can view the default MAC address in the Setup Utility. To do so, carry out the following steps:

__ 1. Enter the Setup Utility by pressing the Escape key after the *Search for Host System* message displays during the startup process.

__ 2. Press the F2 key to view the MAC address.

Note: Remember, that the default MAC address will only appear here if no user-configurable MAC address is active. See “Recovering the default MAC address” for information about recovering the default MAC address once you have specified a user-configurable MAC address.

Recovering the default MAC address: Once you have entered a user-configurable MAC address, you can reset the MAC address to the default by carrying out the following steps:

__ 1. Enter the Setup Utility by restarting the Network Station and pressing the Escape key after the *Search for Host System* message displays during system startup.

__ 2. In the Setup Utility, press **Control+Alt+Shift+F1**.

__ 3. On the command line, type the following command: `ma default`.

__ 4. To return to the Setup Utility, type `SE` and press the Enter key or type `RS` to restart the Network Station.

User-Configurable MAC addresses: You may wish to configure your own MAC addresses for Network Stations. You can create a sequence of identifiers that has meaning to you as an administrator by configuring your own MAC addresses. Your own MAC addresses will be more memorable than the randomly produced default MAC addresses that reside in the Network Stations.

You do not permanently delete or overwrite the default MAC address when you configure a MAC address. You can retrieve it from the memory of the Network Station at any time. For instructions about how to reset the default MAC address, see “Recovering the default MAC address”.

If you are using DHCP in your network to dynamically allocate IP addresses, you should not configure your own MAC addresses. User-configurable MAC addresses

are most useful for the kind of tracking and close administrative scrutiny that are usually associated with small, static, stable networks.

The user-configurable MAC address must follow the conventions of the default MAC address. It must consist of 12 digits, in pairs that are sectioned off by colons. When you create a user-configurable address, you can use the numbers 0 through 9 and the letters A through F.

The first digit in the MAC address must always be 4, 5, 6, 7, 8, C, D, E, or F.

After the first digit, you may enter any values you wish, as long as they follow these conventions.

Specifying a user-configurable MAC address:

__ 1. Enter the Setup Utility by restarting the Network Station and pressing the Escape key after the *Search for Host System* message displays during system startup.

__ 2. In the Setup Utility, press **Control+Alt+Shift+F1**.

__ 3. On a Network Station command line, type the following command: `ma XX:XX:XX:XX:XX:XX`, where `XX:XX:XX:XX:XX:XX` is your user-configurable MAC address.

__ 4. To return to the Setup Utility, type `SE` and press the Enter key or type `RS` to restart the Network Station.

Viewing the user-configurable MAC address: You can view the active MAC address on an IBM Network Station by carrying out the following steps:

__ 1. Enter the Setup Utility by restarting the Network Station and pressing the **Escape** key after the *Search for Host System* message displays during system startup.

__ 2. In the Setup Utility, press **Control+Alt+Shift+F1**.

__ 3. On a Network Station command line, type the following command: `ma`.

__ 4. Press Enter.

__ 5. To return to the Setup Utility, type `se` and press Enter.

Resetting an IBM Network Station to the factory defaults

Even if you have already configured your Network Station, you may wish to clear all of the settings and restore the factory defaults. To do this, carry out the following steps:

__ 1. Enter the Setup Utility by restarting the Network Station and pressing the Escape key after the *Search for Host System* message displays.

__ 2. In the Setup Utility, press **Ctrl+Alt+Shift+F1**.

__ 3. Type `nv` to enter the NVRAM utility. Press Enter.

__ 4. Type `l` to load the default values. Press Enter.

__ 5. Type `s` to save the new values. Press Enter.

__ 6. Type `y` to verify that you want to save the values. Press Enter.

__ 7. Type `q` to quit the NVRAM utility.

__ 8. To return to the Setup Utility, type `se` and press Enter.

Viewing the boot PROM version of an IBM Network Station

You may want to ensure that you have a certain version of boot PROM (that is also called the boot monitor) loaded on your Network Station. You can learn what version you have currently installed on your Network Station by carrying out the following steps:

__ 1. Enter the Setup Utility by powering on the Network Station and pressing the Escape key after the *Search for Host System* message displays.

__ 2. Press F2, *View Hardware Configuration*.

The Boot Monitor version appears as the third categorized item. The Boot Monitor version is the same thing as the boot PROM version.

Configuring an IBM Network Station to boot from the network setting

For your Network Stations to boot using BOOTP or DHCP, you must set each logic unit to *Network* in the Setup Utility. *Network* is the factory default setting. You can also set this value in the IBM Network Station Manager. For more information about setting boot preferences in the IBM Network Station Manager, see "Overriding the Network Station boot setting" on page 45. To change or verify the Network Station's boot setting, carry out the following steps:

__ 1. Enter the Setup Utility by powering on the Network Station and pressing the Escape key after the *Search for Host System* message displays during the startup process.

__ 2. Press F3, *Set Network Parameters*.

__ 3. On the line *IP Addressed from*, use the right and left arrow keys to highlight *Network*.

__ 4. Once you have highlighted *Network* on the *IP Addressed from* line, you must configure the following parameters:

- DHCP IP Addressing Order
- BOOTP IP Addressing Order

Choose whether you want DHCP or BOOTP to be the primary boot method of this Network Station. If you want to use both DHCP and BOOTP, type 1 next to your first choice and 2 next to your second choice. If you want to use only one boot method, type 1 beside your selection. Type D for "Disabled" beside the method that you do not want to use.

__ 5. If you have an Ethernet Network Station, choose the appropriate Ethernet standard for your network.

__ 6. Press Enter to save your changes.

__ 7. Your individual Network Station is now ready to boot using the Network setting. However, you must make sure that you have configured your server to process boot requests from BOOTP or DHCP clients. To configure your server to use BOOTP or DHCP, refer to your platform-specific installation chapter of this book.

Configuring an IBM Network Station to boot from the NVRAM setting

This section contains information about setting up a Network Station to boot from the NVRAM setting.

Note: If you make an error during the following procedure, recover the default information that you have overwritten by pressing F11.

__ 1. Enter the Setup Utility by powering on the Network Station and pressing the Escape key after the *Search for Host System* message displays during the startup process.

__ 2. Press F3, *Set Network Parameters*.

__ 3. On the line *IP Addressed from*, use the right and left arrow keys to highlight NVRAM.

__ 4. On the lines beneath *IP Addressed from*, fill in the requested information concerning your network's topology. Refer to your network topology diagram for your network's configuration information.

Notes:

a. To replace existing text, you must backspace to delete the text and then type your values. You cannot type over existing values.

b. Do not press Enter at the end of a line. Instead, use the arrow keys to move from one line to the next. Press Enter only when you are finished with the whole screen.

Table 5. Boot and Configuration Parameters for NVRAM Booting

Configuration Item	Description	Example
Network Station IP Address	The IP address for this individual IBM Network Station.	192.168.1.2
First Boot Host IP Address	The IP address of the primary server that you will use to boot this Network Station.	192.168.1.4
Second Boot Host IP Address	The server that you will use to boot this IBM Network Station should the first boot host fail. If you have no backup server, you may enter the value 0.0.0.0 or the same IP address as that of the first boot host.	0.0.0.0
Third Boot Host IP Address	The server that you will use to boot this individual Network Station should the first and second boot hosts fail. If you have no third boot host, you may enter 0.0.0.0 or the same IP address as that of your first or second boot host.	0.0.0.0
First Configuration Host IP Address	The IP address of the server from which the Network Station downloads its workstation configuration information. This may or may not be the same server as the boot host. If you do not want to specify a separate configuration host, you may enter 0.0.0.0 or the IP address of the boot host.	0.0.0.0
Second Configuration Host IP Address	The IP address of the configuration host that you want the Network Station to use should the first configuration host fail. If you do not want to specify a second configuration host, you may enter 0.0.0.0 or the IP address of the first configuration host.	0.0.0.0

Table 5. Boot and Configuration Parameters for NVRAM Booting (continued)

Configuration Item	Description	Example
Gateway IP Address	The IP address of the principle router of the Network Station's network.	192.168.1.1
Subnet Mask		255.255.255.0
Broadcast IP Address	The broadcast IP address is the address that is used to communicate with every host on the network. For Class C networks whose subnet mask is 255.255.255.0, the broadcast address is the first three portions of the network address with 255 in the final portion.	192.168.1.255

__ 5. Press Enter to save your changes.

__ 6. You must now specify the proper paths for the Network Station to follow to reach its boot and configuration files. From the Setup Utility main screen, press F4, *Set Boot Parameters*. Go to the next step for information about what parameters to enter.

__ 7. Specify the boot parameters that are explained in Table 6. Make sure that you use forward slashes, as indicated in the table. If you use backslashes, the Network Station may not boot. Type in the values that are specified for your platform.

Notes

- Directory, file, and protocol values are case-sensitive.
- You can access the default values for the AS/400 platform by deleting the ones that appear on the screen and then pressing Enter. The proper values take effect even though they do not appear on screen.

Table 6. Boot Parameters for NVRAM Booting

Boot Parameter	Description	Platform	Type this value
Boot File	The file that contains the operating system for the Network Station.	OS/400	kernel.300 (for Series 300 type-models 8361-110 and 8361-210)
		AIX	kernel.1000 (for Series 1000 types 8362)
		Windows NT	
Boot Directory	The path that the Network Station uses to access the Boot File in the base code server.	OS/400	/QIBM/ProdData/NetworkStationV2/ppc/
		AIX	/usr/NetworkStationV2/prodbase/ppc/
		Windows NT	/NetworkStationV2/prodbase/ppc/

__ 8. Specify the Boot Host Protocol

In the *Set Boot Parameters* display, you can specify the order of the boot protocols for the Network Station. The supported protocols are:

- TFTP
- NFS
- Local

Use the numbers 1 through 3 for the boot host protocol order or use a D to disable the protocol. The Local boot host protocol is for booting from a

flash card only. The Network Station will attempt to use the first protocol, and if unsuccessful, it will attempt to use the next if specified.

__ 9. Press Enter to save your changes.

Note: If you have made a mistake and you want to recover the default boot parameter values, backspace over the current values and restart the Network Station.

__ 10. Press F5, *Set Configuration Parameters.*

__ 11. Enter your network's configuration information by using Table 7.

Table 7. Configuration Parameters for NVRAM Booting

Configuration Parameter	**Description**	**Platform**	**Type this value**
Configuration file	The name of the file that contains the Network Station's configuration information.	OS/400	If this field is empty, the Network Station searches for a configuration file based on its TCP/IP host name, IP address or MAC address. If you do not plan to configure a Network Station individually then you should enter **allusers.nsm**. This causes the Network Station to read the standard configuration file without taking extra time to search for its individual file.
		AIX	
		NT	
First Configuration Directory	The path name that the configuration host uses to locate the configuration file of the Network Station.	OS/400	/QIBM/UserData/NetworkStationV2/profiles/
		AIX	/usr/NetworkStationV2/userbase/profiles/
		Windows NT	/NetworkStationV2/userbase/profiles/
Second Configuration Directory	The path name that the second configuration host uses to locate the configuration file of the Network Station. If you have not configured a second configuration host, you may leave this line blank.	OS/400	/QIBM/UserData/NetworkStationV2/profiles/
		AIX	/usr/NetworkStationV2/userbase/profiles/
		Windows NT	/NetworkStationV2/userbase/profiles/
Configuration Host Protocol	The protocol that the Network Station uses to access its configuration files from the configuration host. Use the left and right arrow keys to change the host protocols. The available protocols are NFS, RFS/400, Local, Default, and TFTP. **Note:** You can also specify a second Configuration Host Protocol. The Network Station will use the second host protocol if the first host protocol fails.	OS/400	First: TFTP
		AIX	First: NFS
		Windows NT	First: NFS

__ 12. Press **Enter** to save your changes.

__ 13. If you have not yet done so, you must install the IBM Network Station Manager software on the servers in your network. Refer to your platform's installation chapter of this book for instructions.

End of Procedure.

The NS Boot utility for Series 2200 and Series 2800 thin clients

This section contains information about using the NS Boot utility of the IBM Network Station thin client (hereafter referred to as thin client). The NS Boot utility enables you to **View** or **Set** client-side configuration settings at the thin client. The NS Boot utility communicates with network servers, and downloads the IBM Network Station Manager program.

You can use the NS Boot utility to find and correct thin client configuration issues that affect the way a thin client accesses the network. You can restrict thin client user privileges in the NS Boot utility by using the IBM Network Station Manager program. See "Setting the administrator password" on page 31 for more information.

Updating to the latest NS Boot version ensures that you are able to use the latest functions in the NS Boot utility. See "Identifying the NS Boot version" to find out what version your workstation is currently at.

Note: PTF6 of the V2R1 IBM Network Station Manager program offers a major update to the NS Boot utility which separates functions into simple and advanced menus.

Identifying the NS Boot version

You can distinguish the NS Boot version of your thin client the following two ways:

- Power on the thin client, and look for the **Bxxxxxxx (MM/DD/YY)** or **Hxxxxxxx (MM/DD/YY)** version that is indicated during the startup sequence of the thin client. If you have a Series 2200 thin client, you will see the **Bxxxxxxx (MM/DD/YY)** version. If you have a Series 2800 thin client, you will see the **Hxxxxxxx (MM/DD/YY)** version.

  Note: Verbose diagnostic mode must be enabled to see this display (see "Enabling verbose diagnostic messages" on page 80).

- Enter the NS Boot utility and select the **Display hardware information** option from the menu:

  1. Power on the thin client.
  2. Enter the NS Boot utility by pressing **Esc** during the startup sequence.

     Note: If a system administrator has enabled the password control from the IBM Network Station Manager program, you must enter the case-sensitive administrator password. You can specify the administrator password through the IBM Network Station Manager program in the **Setup Tasks** menu, by clicking **Hardware—>Miscellaneous Settings**.

Update your thin client to the latest NS Boot version by performing one of the following procedures:

To update the NS Boot version of thin clients with NS Boot version **H2033190 (03/31/99)**, see "Appendix D. Updating the NS Boot version H2033190 (03/31/99)" on page 93.

To update the NS Boot version of thin clients that are at any other NS Boot version, see "Updating the NS Boot utility version on a Series 2200 or 2800 thin client".

Updating the NS Boot utility version on a Series 2200 or 2800 thin client

You can use this procedure to update the NS Boot version from an IBM Network Station Manager server. This procedure requires you to perform steps from the thin client location.

Note: This procedure does **not** apply to thin clients that have NS Boot version H2033190 (03/31/99). You must follow a different update procedure for thin clients that have NS Boot version H2033190 (03/31/99). See "Appendix D. Updating the NS Boot version H2033190 (03/31/99)" on page 93 for more information.

1. Select **Configure network settings** from the **NS Boot Main Menu**, and press **Enter**.
2. Type the IP address of the boot file server in the appropriate field.
3. Cycle through the **Boot file server directory and file name**, until you have selected the empty field.
4. Refer to the following table and type the correct path for your server platform in the empty **Boot file server directory and file name** field:

For this platform:	**Type this path:**
AS/400	/QIBM/ProdData/NetworkStationV2/x86/proms/<bflash.xxxx>
Windows NT	/NetworkStationV2/prodbase/x86/proms/<bflash.xxxx>
RS/6000	/usr/NetworkStationV2/prodbase/x86/proms/<bflash.xxxx>
Where <bflash.xxxx> = bflash.2200 for Series 2200 (Machine Type 8363), and bflash.2800 for Series 2800 (Machine Type 8364).	

5. If you are not sure what protocol your server is configured for, select **TFTP** as your primary **Boot file server protocol**.
6. Press **F3** to save your changes.
7. Restart the thin client to complete the NS Boot version update.

Updating the NS Boot utility version of several thin clients

You can use this procedure to update the NS Boot version of more than one thin client from an IBM Network Station Manager server. This procedure requires you to perform steps from the IBM Network Station Manager program. To update the NS Boot version of a single thin client, see "Updating the NS Boot utility version on a Series 2200 or 2800 thin client".

Note: This procedure does **not** apply to thin clients that have NS Boot version H2033190 (03/31/99). You must follow a different update procedure for thin clients that have NS Boot version H2033190 (03/31/99). See "Appendix D. Updating the NS Boot version H2033190 (03/31/99)" on page 93 for more information.

Using the NS Boot utility

This information does not apply to thin clients that have a NS Boot utility version earlier than **B3041900 (MM/DD/YY)** or **H3041900 (MM/DD/YY)** version that is indicated during the startup sequence of the thin client (see "Identifying the NS Boot version" on page 75). If you have a Series 2200 thin client, you will see the **B3041900 (MM/DD/YY)** version. If you have a Series 2800 thin client, you will see the **H3041900 (MM/DD/YY)** version.

To access the NS Boot utility, perform the following steps:

1. Power on the thin client.
2. Enter the NS Boot utility by pressing **Esc** during the startup sequence.

   Note: If a system administrator has enabled the password control from the IBM Network Station Manager program, you must enter the case-sensitive administrator password. You can specify the administrator password through the IBM Network Station Manager program in the **Setup Tasks** menu, by clicking **Hardware—>Miscellaneous Settings**.

A screen similar to the following appears:

```
MENU03                        IBM Network Station
                               NS Boot Main Menu


      Change language setting
      Change keyboard setting
      Change display settings

      Configure network settings
        Change boot file server settings
        Change workstation configuration server settings
        Change authentication server settings

      Display hardware information
      Display boot log

      Change verbose diagnostic setting

      Service aids




Enter=Continue  F10=Reboot IBM Network Station
```

Notes:

1. If a system administrator has not set the password in the IBM Network Station Manager program, any user can access the configuration settings in the NS Boot utility.
2. If a user fails to enter the correct password three times, they can view the NS Boot utility, but they cannot make any configuration changes.
3. If a system administrator changed the administrator password by using IBM Network Station Manager program, a user must power on the thin client and wait for the **Login** window to appear. This enables the new administrator password at the thin client.

System administrators can limit user access from the IBM Network Station Manager program. If this occurs, users may not see the complete menu shown above. They may only be able to view the hardware information and boot log.

NS Boot utility tasks

You can perform the following tasks from both the **simple** menu, and the **advanced** menu in the NS Boot utility:

- "Selecting a keyboard language" on page 78.
- "Setting the display resolution" on page 78.
- "Configuring a thin client to boot from Local (NVRAM) settings" on page 79.
- "Displaying hardware information" on page 79.
- "Displaying the boot log" on page 80.

You can only perform the following tasks from the **advanced** menu in the NS Boot utility:

- "Changing the language setting of the NS Boot utility" on page 78.
- "Enabling verbose diagnostic messages" on page 80.
- "Changing the local MAC address" on page 80.
- "Loading the factory defaults" on page 81.

Changing the language setting of the NS Boot utility

__ 1. Enter the NS Boot utility by powering on the thin client and pressing **Esc** during the startup sequence.
__ 2. Press **F5** to enter the advanced configuration mode.
__ 3. Select **Change language setting**.
__ 4. Press **Enter**.
__ 5. Select a language.
__ 6. Press **Enter** to save your changes, and exit the menu.

Notes:

1. The thin client stays in the advanced configuration mode until you switch back to the simple configuration mode.
2. When you choose the simple configuration option from the advanced configuration menu, you lose any advanced configurations that you have made.

Selecting a keyboard language

__ 1. Enter the NS Boot utility by powering on the thin client and pressing **Esc** during the startup sequence.
__ 2. Select **Change keyboard setting**, and press **Enter**.
__ 3. Select your keyboard language.
__ 4. Press **Enter** to save your changes, and exit the menu.

Setting the display resolution

You can change the resolution of the monitor that is attached to a thin client to improve a screen image that is not clear.

Attention: Setting a resolution that is not supported by your monitor can permanently damage the monitor.

Note: For the best video image, power on the monitor before you start the logic unit.

__ 1. Enter the NS Boot utility by powering on the thin client and pressing **Esc** during the startup sequence.
__ 2. Select **Change display settings** and press **Enter**
__ 3. Select **Color palette**.

__ 4. Select your setting.
__ 5. Select **Resolution and frequency**.
__ 6. Select your setting.
__ 7. Press **Enter** to begin a screen test.
   a. If the test screen displayed correctly, press **Enter** to save your settings.
   b. If the test screen did not display correctly, press **F12** to restore the previous settings.

Configuring a thin client to boot from Local (NVRAM) settings

1. Enter the NS Boot utility by powering on the thin client and pressing **Esc** during the startup sequence.
2. Select the **Configure network settings** menu and press **Enter**.

Configure the following NS Boot utility fields correctly for a successful NVRAM boot:

- Set **Local (NVRAM)** to First in the **Network priority** field. You can select a boot method priority (first, second, and third) for the thin client to follow during startup.

  Note: Only one boot option can be set to First at a time. Disable **DHCP** and **BOOTP** if you do not want them to be prioritized.

  Depending on your selections in the **Network priority** field of the menu, you can have up to four menus of parameters to configure. Some configuration parameters are optional and do not require configuration.
- Enter the thin client IP Address in the appropriate field on menu 1 of 4.
- Enter the Gateway IP Address in the appropriate field on menu 1 of 4.
- Enter the Subnet mask in the appropriate field on menu 1 of 4.
- Enter at least one boot file server IP address in the appropriate fields on menu 2 of 4.
- Refer to the following table when selecting the correct boot file server directory and file name on menu 2 of 4:

For this platform:	Select this choice:
AS/400	/QIBM/ProdData/NetworkStationV2/x86/<kernel.xxxx>
Windows NT	/NetworkStationV2/prodbase/x86/<kernel.xxxx>
RS/6000	/usr/NetworkStationV2/prodbase/x86/<kernel.xxxx>
Where <kernel.xxxx> = kernel.2200 for Series 2200 (Type 8363) and kernel.2800 for Series 2800 (machine 8364).	

- Press **F3** to save your Local (NVRAM) configurations, and return to the **NS Boot Main Menu**.

Displaying hardware information

To display the hardware information for your thin client, perform the following procedure:

__ 1. Enter the NS Boot utility by powering on the thin client and pressing **Esc** during the startup sequence.
__ 2. Select **Display hardware information**, and press **Enter**.

Displaying the boot log

The boot log is a collection of all information and error messages that are generated by the NS Boot utility during the current thin client startup sequence. Displaying the boot log allows you to identify and resolve configuration issues and network issues. To display the boot log, perform the following procedure:

__ 1. Enter the NS Boot utility by powering on the thin client and pressing **Esc** during the startup sequence.

__ 2. Select **Display boot log**, and press **Enter**.

You can page through the boot log by pressing **Enter**.

Enabling verbose diagnostic messages

You can enable and disable the display of verbose diagnostic messages on your thin client display. The default setting is **Disabled**. When the verbose diagnostic messages are disabled, an image representing the communication between the thin client and a server displays during the thin client startup sequence.

When you change the verbose diagnostic setting to **Enabled**, informational and error messages display during the thin client startup sequence.

Note: The verbose diagnostic messages save to the boot log, regardless of the verbose diagnostic setting.

__ 1. Enter the NS Boot utility by powering on the thin client and pressing **Esc** during the startup sequence.

__ 2. Press **F5** to enter the advanced configuration mode.

__ 3. Select **Change verbose diagnostic setting**, and press **Enter**.

__ 4. Enable the verbose diagnostic mode.

__ 5. Press **Enter** to save your changes, and exit the menu.

Notes:

1. The thin client stays in the advanced configuration mode until you switch back to the simple configuration mode.
2. When you choose the simple configuration option from the advanced configuration menu, you lose any advanced configurations that you have made.

Working with Service Aids

You can perform the following procedures from the **Service Aids** menu:

- Change firmware support (Series 2800 only).
- Change local MAC address (see “Changing the local MAC address”).
- Change the fast boot setting.
- Change the retry settings.
- Change the NS Boot themes setting.
- Load the factory defaults (see “Loading the factory defaults” on page 81).

Note: You need to enter the advanced configuration mode of the NS Boot utility, if you want to work with the **Service Aids** menu. Press **Esc** during the startup sequence, and then press F5 to enter the advanced configuration mode.

Changing the local MAC address: You can configure this option from the **Service Aids** menu. To change the local MAC address, perform the following procedure:

__ 1. Enter the NS Boot utility by powering on the thin client and pressing **Esc** during the startup sequence.

__ 2. Press F5 to enter the advanced configuration mode.

__ 3. Select **Service aids**, and press **Enter**.

__ 4. Select **Change local MAC address**, and press **Enter**.

__ 5. Under **Enable local MAC address**, select **Enabled**.

__ 6. Under **Local MAC address**, type the local MAC address in the form of `00:00:00:00:00:00`, and press **Enter**.

Notes:

1. The thin client stays in the advanced configuration mode until you switch back to the simple configuration mode.
2. When you choose the simple configuration option from the advanced configuration menu, you lose any advanced configurations that you have made.

Loading the factory defaults:

Note: This procedure removes any configuration settings that exist on the thin client, and resets the hardware to factory settings.

__ 1. Enter the NS Boot utility by powering on the thin client and pressing **Esc** during the startup sequence.

__ 2. Press **F5** to enter the advanced configuration mode.

__ 3. Select **Service aids**.

__ 4. Press **Enter**.

__ 5. Select **Load factory defaults**, and press **Enter**.

Appendix A. Problem resolution

The following information presents some symptoms that you may encounter with the IBM Network Station Manager program, and the NS Boot utility. Look for the symptoms that you are experiencing in the following table, and perform the suggested actions.

You can also refer to the information that ships with the Network Station hardware for information about resolving Network Station hardware problems.

Go to the following website for the most recent updates to this, and other Network Station information: `http://www.ibm.com/nc/pubs`

Symptom	What you should do
Display is blank or screen image is unreadable.	Check the monitor resolution setting in the Setup Utility or NS Boot utility.
The Network Station appears to stop responding after displaying the **IBM Loading** wallpaper.	Try selecting a lower screen resolution.
You see no icons on your Network Station desktop.	Verify that the user preferences exist, and are correctly specified on the user configuration server.
The workstation preferences that you set for a particular Network Station are not taking effect.	There are three possible identities for each Network Station that you can set preferences for: • The Host Name. • The IP Address. • The MAC Address. If you set preferences for more than one identity for a particular Network Station, the preference settings can conflict and appear not to take effect. Verify that you have only set preferences for one Network Station identity (the IP Address, for example).
Text arguments do not appear as you type them, when you are defining additional parameters for applications in the IBM Network Station Manager program. For example, a multiple word argument is broken into several arguments, even after you have placed the argument inside quotation marks.	Ensure that you escape special characters that you include in text arguments by typing a backwards slash (\ ) before them. Special characters to escape with a backwards slash include : \ ; &) (| > < * ? [ ] ~ + - @ ! ' (space) \ indicates that the character immediately after it has no special meaning.
You cannot disable the screen saver on a Network Station.	See “Disabling the Network Station screen saver” on page 41.
Error codes	

Symptom	What you should do
You receive an **NCS3001** or **NCS3008** error code while trying to log in.	Verify that the login service is started on your authentication server.
You receive the **NCW3502** error code, indicating that a process was terminated because of low memory.	Perform the following procedure to verify that your Network Stations have enough memory to run your applications: 1. Go to `http://www.ibm.com/nc/` 2. In the left pane, click **Support**. 3. In the **Search** field, type `Memory Requirements`. You can also configure your application priorities: 1. From the IBM Network Station Manager program, click **Desktop—>Launch Bar**. 2. Select the application that you want to configure and click **Edit**. 3. Click **More** and configure the application priority settings.
You receive the **NSB80509** error code while trying to boot from the server.	Verify that NFS is enabled in the NS Boot utility, and that the NFS service is started on the server.
You receive the **NSB83509** error code while trying to boot from the server.	Verify that TFTP is enabled in the NS Boot utility, and that the TFTP and NFS services are started on the server.
You receive the **NSB83589** error code while trying to boot from the server.	Verify that the BOOTP boot option is enabled and configured correctly in the NS Boot utility, and that the BOOTP and DNS services are started on the server.
You receive the **NSB71000** error code while trying to boot from the server.	Verify that the DHCP boot option is enabled and configured correctly in the NS Boot utility, and that the DHCP service is started on the server.
Messages	
You receive an NFS or RFS message indicating a failure.	Verify that the following statements are true: • The IP address and path are correct in your NVRAM, DHCP, or BOOTP configuration. • The server is up and ready (on an AS/400, this means that the `QSERVER` subsystem is up, the `QPWFSERVSD` job is in `SELW`, and the `STRTCPSVR *TFTP` (TFTP server) us up. • On RS/6000 servers and Windows NT servers, ensure that the NFS server is running with the proper exports.
You receive a message indicating **No file system for ne0**.	Verify that your base code server is running by performing the following tasks: • Try to contact the server by using the ping command. • Check your DHCP, BOOTP, or NVRAM configuration in the NS Boot utility.

Symptom	What you should do
You receive the **Failed to boot** error message.	Verify that the DHCP or BOOTP server is started.
You receive the **ICMP destination unreachable** error message.	Verify that the TFTP or NFS server is started. If you are using NVRAM, verify that TFTP and NFS are set correctly in the NS Boot utility.
You receive the **ERROR_PARSE_RESULTS** or **ERROR_BAD_CLIENT**error message while updating the flash image in the IBM Network Station Manager program.	Increase the timeout on the HTTP server. From a 5250 session (AS/400 example): 1. Type **CFGTCPHTTP** at the command line and press **Enter**. 2. Select option 2 from the menu and press **Enter**. 3. Press **Enter** to select the default configuration name (CONFIG); or, select a different configuration name if you know the name of a specific HTTP server configuration being used. 4. Scroll down the file and remove any HTTP directives beginning with the words InputTimeout, OutputTimeout, and ScriptTimeout. 5. Insert the following directives by typing 13 on any line: • InputTimeout 20 mins • OutputTimeout 20 mins • ScriptTimeout 20 mins 6. Press **F3** to exit the utility. 7. If this does not solve the problem, increase the timeout values.

Appendix B. Using special characters in the Optional Parameters field

When you are working with the **Optional Parameters** field in the IBM Network Station Manager program, it is important to be aware of special characters and how they can be interpreted by the program during processing.

For example, spaces between words in an optional parameter entry that is not enclosed in quotation marks (single quotes, double quotes, or backslashes) are considered by the IBM Network Station Manager program to be parameter separator fields during processing. There are other special characters that you should also enclose in quotation marks when you use them in **Optional Parameter** entries. They can include the following:

Operators

There are two types of operators:

Control operators:	&	&&	(	)	;	;;	|	||	<newline>
Redirection operators:	<	>	>|	<<	>>	<&	>&	<<-	<>

Notes:

1. If you use a backslash character in any input fields, you need to use two backslashes (\\ ). If you need to use two backslashes (\\ ) in your parameter, then you must type four backslashes (\\\\ ) in order for the parameter to process correctly. The extra backslash is required because one backslash is removed during the processing of the command. A backslash preserves the literal meaning of the following character, with the exception of <newline>. A backslash preceding a <newline> is treated as a line continuation.
2. Enclosing characters in single quotes preserves the literal meaning of all the enclosed characters — with the exception of single quotes. Therefore, it is not possible to put single-quotes in a single-quoted string and expect the parameter to process correctly.
3. Enclosing characters within double quotes preserves the literal meaning of all enclosed characters except dollarsign ($), backquote (’), and backslash (\ ). If you put a backslash inside double quotation marks, it only quotes the dollar sign ($), single quote (’), double quote (″), backslash (\ ), and <newline>.

Reserved words

Reserved words are words that have special meaning in the IBM Network Station Manager program, and are recognized both at the beginning of a line, and after a control operator. The following reserved words can have special meaning in the IBM Network Station program:

!	elif	fi	while	case
else	for	then	{	}
do	done	until	if	esac

Appendix C. Using TN3270E display support and printer support

TN3270E support provides:

- Persistent 3270 logical unit (LU) session names.
- General printer support that is not connected to specific application programs.
- Application-dependent printer support.

Configuring persistent 3270 LU session names

You can specify the virtual LU display name for 3270 sessions from the IBM Network Station Manager program.

The -DISPLAY_NAME parameter options:

- Allow user access to the 3270 applications that are authorized for the user display LU name.
- Limit application access to specifically named Network Stations.
- Provide enhanced 3270 application security.
- Control the number of 3270 sessions that can be started on the target System/390.
- Associate a 3270 application printer with a specific 3270 session.

Complete the following steps to configure persistent 3270 LU session names:

__ 1. Start the IBM Network Station Manager program.
__ 2. From the **Setup Tasks** menu, click **Desktop—>Launch Bar**.
__ 3. Select the **Startup** folder from the **Launch Bar Content** list.
__ 4. Highlight the 3270 Emulator in the **Applications** menu, and click **Add**.
__ 5. Highlight the 3270 Emulator in the **Launch Bar Content** menu, and click **Move Up**, until the 3270 Emulator appears in the **Startup** folder.
__ 6. Click **Edit** to configure the 3270 Emulator application.
__ 7. Type the label you want to appear on the icon in the **Icon Label** field (the default label is 3270 Emulator).
__ 8. Type the name or IP address of the host in the **System/390** field.
__ 9. Type the following parameters and values in the **Other Parameters** field:

-DISPLAY_NAME

See "Valid types of -DISPLAY_NAME parameters" to view possible values you can use with the -DISPLAY_NAME parameter.

-DISPLAY_NAME and the parameter value are case sensitive. You must type them in upper-case.

Valid types of -DISPLAY_NAME parameters

Following are valid types of -DISPLAY_NAME parameters:

Note: The first five -DISPLAY_NAME parameter types associate the user with the IBM Network Station in use.

The last two -DISPLAY_NAME parameter types depend on the IBM Network Station hardware.

″**XXXXXX**″

Where XXXXXX is a 2 through 8 upper-case character name of the 3270 session. You must use quotes with the parameter. The user only has a single session.

″**XXXXXXX+n**″

″XXXXXXX+n″ allows the user to start n 3270 sessions, where n is a number from 1 through 9. The LU session name is the 2 through 7 character name XXXXXXX followed by a number.

For example:

```
-DISPLAY_NAME "DCLNEA+5"
```

"DCLNEA+5" allows the user to have up to five 3270 sessions with session names of DCLNEA1, DCLNEA2, DCLNEA3, DCLNEA4, and DCLNEA5.

″**XXXXXX YYYYYY ZZZZZZ** ″

″XXXXXX YYYYYY ZZZZZZ ″ allows an attempt to launch one of multiple 3270 sessions (three for this example) with the specified names. You must use the quotes. A single space separates names. The maximum number of names is limited by the size of the **Other parameters** field (256 characters).

TN3270E support attempts to provide a 3270 session that is based on the first parameter value (XXXXXX in this example). If that 3270 session is not available, the next parameter value is tried (YYYYYY in this example). Only one 3270 session defined as a -DISPLAY_NAME parameter value starts.

USE_USER_ID

USE_USER_ID allows the user to start a single 3270 session where the LU session name is the same as the user's User ID (2 through 8 characters).

USE_USER_ID+n

USE_USER_ID+n allows the user to start n 3270 sessions. N is a number from 1 through 9. The LU session name is the same as the user's Network Station User ID (7 characters maximum) with the number 'n' that is added to the end. For example: USE_USER_ID+4 and a User ID of JUAN would have session names of JUAN1, JUAN2, JUAN3, and JUAN4.

TN3270E support does not automatically start each session as represented by the value that is assigned to n. You can click the 3270 Menu bar button on the Network Station four times to start each of the four 3270 sessions.

USE_MAC_ADDRESS

USE_MAC_ADDRESS allows the user to start a single 3270 session where the session name is created starting with an alpha character. The alpha character indicates the type of communication card. T for token ring; X for Twinax; and E for Ethernet — followed by the lower three bytes of the media access control (MAC) address. You can see the MAC address from the IBM Network Station ″View Hardware Configuration″ (boot monitor) screen. For example: USE_MAC_ADDRESS with a token ring Network Station and MAC address of 00.00.E5.68.D5.99 would result in a session name of T68D599.

USE_MAC_ADDRESS+n

USE_MAC_ADDRESS+n allows the user to start n 3270 sessions where the session name is created as above but with n appended to the end. For

example: USE_MAC_ADDRESS+3 with a token ring Network Station and MAC address of 00.00.E5.68.D5.99 would result in session names of T68D5991, T68D5992, and T68D5993.

Configuring printers with the IBM Network Station Manager program

You must use the IBM Network Station Manager program to configure printers for use with the TN3270E print support. For printers that are locally attached to a Network Station, the configuration is already done. Queues named PARALLEL1 and SERIAL1 already exist. You can configure remotely attached printers by completing the following steps to access the printer configuration support:

__ 1. Start the IBM Network Station Manager program.

__ 2. From the **Setup Tasks** menu, click **Hardware—>Printers**.

__ 3. Scroll down to **Remote printer server**.

__ 4. Type in the name or IP address of the remote printer server.

__ 5. Type in the queue name that is associated with the printer you want to use.

Note: You will use the queue name when configuring printer support for TN3270E support. You also need to remember which type case (upper-case or lower-case) you used.

After you have completed the IBM Network Station Manager program printer configuration, you can continue with the following configurations:

- Configuring TN3270E General Printer Support.
- Configuring TN3270E Application-Specific Printer Support.

Configuring TN3270E general printer support

TN3270E general printer support allows you to configure an association of specific printers with specific 3270 sessions. The following procedure assumes that you are updating an existing 3270 launch bar entry:

__ 1. Start the IBM Network Station Manager program.

__ 2. From the **Setup Tasks** menu, click **Desktop—>Launch Bar**.

__ 3. Highlight the 3270 Emulator application in the **Launch Bar Content** click **Edit**.

__ 4. Enter the appropriate parameters in the **Other parameters** field:

-PRINTER_GENERAL XXXXXX

Where XXXXXX is the parameter value and is the queue name of the printer as defined in the IBM Network Station Manager program. The queue name must be typed in the same case (upper or lower) that you used in the IBM Network Station Manager program.

You must type -PRINTER_GENERAL in upper-case. No quotation marks are necessary when there is only one parameter value.

-PRINTER_NAME YYYYYY

Where YYYYY is the value for this parameter and is the name of one or more printer LU names that you want to make available to this 3270 session.

You must type -PRINTER_NAME and the parameter value in upper-case.

See “Valid types of -DISPLAY_NAME parameters” on page 89 for a list of values that are used with the -PRINTER_NAME parameter.

The following example shows a correct entry in the **Other parameters** field:

```
-PRINTER_GENERAL hpqueue -PRINTER_NAME POSTSCRIPT1
```

These parameter values make the following results possible:

- The printer associated with hpqueue.
- The printer that is named POSTSCRIPT1.
- The 3270 display session.

Configuring TN3270E application-specific printer support

TN3270E application-specific printer support allows you to configure an association of specific applications, printers, and 3270 sessions. The applications themselves must have built in programming support to point to specific printers and 3270 sessions. The following procedure assumes that you are updating an existing 3270 launch bar entry:

__ 1. Start the IBM Network Station Manager program.

__ 2. From the **Setup Tasks** menu, click **Desktop—>Launch Bar**.

__ 3. Highlight the 3270 Emulator application in the **Launch Bar Content** click **Edit**.

__ 4. Enter the appropriate parameters in the **Other parameters** field:

-PRINTER_APP

You must type this paramter -PRINTER_APP in upper-case letters.

The parameter value is the queue name of the printer as defined in the IBM Network Station Manager program. The queue name must be typed in the same case (upper or lower) that you used in the IBM Network Station Manager program.

-DISPLAY_NAME

The value for this parameter is the name of one or more display LU names on which you want to allow certain applications to run.

You must type -DISPLAY_NAME and the parameter value in upper-case..

-DISPLAY_NAME is an optional parameter. However, you probably want to use this parameter most of the time to identify the 3270 display to the application program.

You can get the names of these displays from your System/390 administrator.

See “Valid types of -DISPLAY_NAME parameters” on page 89 for a list of values that you can use with the -DISPLAY_NAME parameter.

The following example shows an optional entry in **Other parameters** field:

```
-PRINTER_APP hpqueue -DISPLAY_NAME "D3270PJL D3270MAP"
```

The user gets either display D3270PJL or display D3270MAP.

If the display LU session D3270PJL is available when the command runs, the user gets a display session to D3270PJL. The physical printer hpqueue is associated with D3270PJL.

If D3270PJL is not available, display session D3270MAP is used, and the physical printer hpqueue is associated with D3270MAP.

Appendix D. Updating the NS Boot version H2033190 (03/31/99)

Important

You can find the latest updates to this procedure by reading **Running V2R1 on Series 2800** in the latest V2R1 information on the web:

1. Go to `http://www.ibm.com/nc/`
2. In the left frame, click **Support**.
3. In the **Search** field, type **Running V2R1 on Series 2800**.

For Windows NT, you can also refer to **Running V2R1 on Series 2800** in the `readme.txt` file on the IBM Network Station Manager CD.

For RS/6000, you can also refer to **Running V2R1 on Series 2800** in the `README` file on the IBM Network Station Manager CD.

You can update the H2033190 (03/31/99) NS Boot version by booting the Series 2800 (Type 8364) Network Station (hereafter referred to as the Series 2800 Network Station) from a DHCP server that has been properly configured for the IBM Network Station, or manually by configuring the NVRAM settings.

Both of these update methods may require you to select the operating system for the Network Station. Once you have selected the operating system for the Network Station, you can update the NS Boot version.

Selecting the operating system for the Network Station

1. The Network Station may display the **Select Operating System** menu the first time you power on the Network Station:

```
Select Operating System

 1. WSOD

 2. Other

 3. Auto
```

   Select the **Other** option by pressing **2** immediately after the **Select Operating System** screen displays.

   Notes:

   a. If you selected the **WSOD** option by mistake, perform the procedure in "Appendix E. Resetting the Series 2800 (Type 8364) Network Station to the NS Boot utility" on page 97.

b. If you selected the **Auto** option by mistake, restart the Network Station and continue with step 1 on page 93.

2. If you do not see the **Select Operating System** screen, restart the Network Station and wait for the IBM logo to display:
   - If the IBM logo displays in the upper **left** corner of the screen, press **Esc** during the startup sequence and continue with step 3.
   - If the IBM logo displays in the upper **right** corner of the screen, press **F1** during the startup sequence.

     A password prompt displays if you press **F1** before the Network Station completes the power-on sequence. If no password prompt displays, restart the Network Station and repeat this step.

     Once the password prompt displays, continue with step 3 of the procedure "Appendix E. Resetting the Series 2800 (Type 8364) Network Station to the NS Boot utility" on page 97.
3. If you are using NVRAM settings to boot your Network Station, continue with the procedure, "Updating the H2033190 (03/31/99) NS Boot version from NVRAM settings".

   If you are booting from a DHCP server, continue with the procedure, "Updating the H2033190 (03/31/99) NS Boot version from a DHCP server" on page 95.

Updating the H2033190 (03/31/99) NS Boot version from NVRAM settings

1. From the **Network Computer Setup Utility** screen, press **F3** to select the **Set Network Parameters** option:

```
SCRN02                          Network Computer
                                 Setup Utility



F2  = View Hardware Configuration
F3  = Set Network Parameters
F4  = Set Boot Parameters









Return=Reboot
```

2. Highlight **NVRAM** and enter the following configuration values in the appropriate fields:
   - The IBM Network Station IP Address.
   - The Boot Host IP address.
   - The Gateway IP Address.
   - The Subnet mask.
3. Press **Enter** to save your configuration.
4. Press **F4** to select the **Set Boot Parameters** option.
5. Type `bflash.2800` in the **Boot File** field.
6. Refer to the following table, and type the correct path for your server platform in the **Boot Directory** field:

For this platform:	Type this path:
AS/400	/QIBM/ProdData/NetworkStationV2/x86/proms/
Windows NT	/NetworkStationV2/prodbase/x86/proms/
RS/6000	/usr/NetworkStationV2/prodbase/x86/proms/

7. If you configured your server for the TFTP protocol, select **TFTP** as your primary **Boot file server protocol**.
8. If you configured your server for the NFS protocol, select **NFS** as your primary **Boot file server protocol**.

   If you are using the NFS protocol, do not add a forward slash (/) at the beginning of the option 67 path. For example, type usr/NetworkStationV2/prodbase/x86/proms/ for an RS/6000 server.
9. Press **Enter** to save your configuration.

   The Network Station returns to the **Network Computer Setup Utility** menu.
10. Press **Enter**.

    The Network Station restarts and prompts you to change the language setting.

    You have completed the update of the H2033190 (03/31/99) NS Boot version, using NVRAM settings. See "Using the NS Boot utility" on page 77.

Updating the H2033190 (03/31/99) NS Boot version from a DHCP server

This procedure updates the H2033190 (03/31/99) NS Boot version on Series 2800 Network Stations from a DHCP server. You need to perform these steps in addition to the normal DHCP configurations that are required for the Series 2800 Network Station to boot from your DHCP server.

Note: If you do not have Series 2800 Network Stations at the H2033190 (03/31/99) NS Boot version that boot from your DHCP server, you should not perform this procedure.

1. Add the following class to your DHCP configuration: IBM Network Station

   This class applies to, and can only be recognized by Series 2800 Network Stations with the H2033190 (03/31/99) NS Boot version.
2. Include options 66, 67, and 211 within the **IBM Network Station** class, with the following values:

For this option:	On this platform:	Type this value:
66	All platforms	The IP address of the server that the IBM Network Station Manager program is installed on, in string format: d.d.d.d
67	AS/400	/QIBM/ProdData/NetworkStationV2/x86/proms/bflash.2800
	Windows NT	/NetworkStationV2/prodbase/x86/proms/bflash.2800
	RS/6000	/usr/NetworkStationV2/prodbase/x86/proms/bflash.2800
211	All platforms	If you configured your server for the TFTP protocol, type tftp for this option. If you configured your server for the NFS protocol, type nfs for this option, and do not add a forward slash (/) at the beginning of the option 67 path. For example: usr/NetworkStationV2/prodbase/x86/proms/bflash.2800

Notes:

a. Ensure that other class settings do not override your class settings. For example, setting option 67 at the client level overrides an option 67 setting at the global level.

b. You may need to add other DHCP options to your DHCP configuration. For example, you may need to add the gateway and subnet mask options, if they have not been added at the global or subnet level.

3. Once you have updated all of the Series 2800 Network Stations from the H2033190 (03/31/99) NS Boot version, you can remove the **IBM Network Station** class and the included options from your DHCP server. Updated Network Stations do not recognize the **IBM Network Station** class.

   You have completed the update of the H2033190 (03/31/99) NS Boot version, using a DHCP server. See "Using the NS Boot utility" on page 77.

Appendix E. Resetting the Series 2800 (Type 8364) Network Station to the NS Boot utility

This procedure explains how to return to the NS Boot code after you have selected **WSOD** for your Network Station operating system. To return to the **Select Operating System** menu after you have chosen the **WSOD** selection, perform the following procedure:

1. Restart the Network Station.
2. Press **F1** during the startup sequence.
3. When you see the prompt for the administrator password, enter **IBMNCD**.
4. Select the **Start Options** menu from the **Configuration/Setup Utility** menu and press **Enter**.
5. Scroll down to the **Firmware Selection** field.
6. Using the left arrow keys and the right arrow keys, select the **Other Operating Systems** option.
7. Press **Esc** to exit the **Start Options** menu.
8. Press **Esc** to exit the **Configuration/Setup Utility** menu.
9. Highlight the **Yes, save and exit the Setup Utility** option, and press **Enter** to save and exit the Setup Utility.

   The Network Station automatically restarts.
10. Press **Esc**, and continue with step 3 on page 94.

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Index

Numerics

3270
  emulator 5
  LU session names, Configuring persistent 89
  printer datastreams 19
5250
  configuring emulator for use on the Network Station 39
  emulator 3
  printer datastreams 19
8361
  (Series 300) and Type 8362 (Series 1000), Type 65
8362
  (Series 1000), Type 8361 (Series 300) and Type 65
8363
  (Series 2200) and Type 8364 (Series 2800), Type 75
8364
  (Series 2800), Type 8363 (Series 2200) and Type 75

A

accessing and using How To Help 64
accessing the IBM Network Station setup utility 65
adding the Calibration Tools application to a folder 34
additive preference selections 28
address, changing the local MAC 80
addresses, default MAC 69
addresses, user-configurable MAC 69
addresses, working with MAC 69
administrator password, setting the 31
administrators, system 26
advanced diagnostics 16
AIX session icon on the desktop launch bar, Setting up an 51
allowing private user updates of ICA connection entries 56
application
  adding the calibration tools application to a folder 34
  for use on the Network Station, configuring the 5250 emulator 39
  moving to a different folder 35
  printer datastreams 19
  to a folder, adding an 33
application, multimedia java 15
application manager, ICA remote 7
application-specific printer support, configuring TN3270E 92
applications
  automatically starting on your Network Station desktop 37
  managing your desktop 19
applications *(continued)*
  Netscape Communicator supported commands and helper 11
applications, initial desktop folders and 2
audio player 15
automatic connection 54
automatically starting applications on your Network Station desktop 37
automatically updating the boot code 44

B

background setting
  in the Workstations function of the Hardware Setup Task 43
boot
  from NVRAM 71
  from the network 71
  PROM
    viewing the version 71
boot code
  automatically updating the 44
boot log, displaying the 80
boot setting, overriding the Network Station 45
Boot version, Identifying the NS 75
browse function, using the workstation 29
browser
  configuring the Netscape Communicator for Java 40

C

calculator 14
calendar 14
calibration tools 16
  adding the application to a folder 34
carrying out ICA load balancing 55
changing the language setting of the NS Boot utility 78
changing the local MAC address 80
color on your Network Station desktop, controlling 41
commands and helper applications, Netscape Communicator supported 11
comments, how to send your vi
Communicator, Netscape 9
configuration on the Network Station, updating the Domain Name Server (DNS) 47
configuring
  a custom folder 32
  a local area network-attached printer 60
  a local program for all users 48
  a Network Station-attached printer for other users 61
configuring *(continued)*
  a Network Station for light pen or touch screen devices 39
  a remote program for all users 50
  an IBM Network Station to boot from Local (NVRAM) settings 79
  an IBM Network Station to boot from the network setting 71
  an IBM Network Station to boot from the NVRAM setting 71
  an ICA connection to a PC server 52
  Java for the Network Station 59
  persistent 3270 LU session names 89
  printers with the IBM Network Station Manager program 91
  the 5250 emulator application for use on the Network Station 39
  TN3270E application-specific printer support 92
  TN3270E general printer support 91
connection
  automatic 54
  manual 55
connection entry, defining an ICA 54
custom folder, configuring a 32

D

datastreams, understanding printer 19
default MAC addresses 69
defaults
  loading the factory 81
desktop
  applications, managing your 19
  automatically starting applications on your Network Station 37
  background setting 43
  controlling color on your Network Station 41
  logoff, help, and lock screen functions 18
  using the pop-up menu accessible from your Network Station 42
desktop folders and applications, initial 2
desktop launch bar
  setting up an AIX session icon on the 51
desktop theme function of the desktop display setup task, using the 42
devices
  configuring a Network Station for light pen or touch screen 39
DHCP server
  updating the H2033190 (03/31/99) NS Boot version from a 95
diagnostic messages
  enabling verbose 80
diagnostics, advanced 16
disabling the Network Station screen saver 41

display resolution, setting the 78
display support and printer support, using TN3270E 89
displaying hardware information 79
displaying the boot log 80
DNS
  updating the configuration on the Network Station 47
Domain Name Server (DNS)
  configuration on the Network Station, updating the 47

E

editor
  text 13
emulator
  3270 5
  5250 3
  VT 7
enabling verbose diagnostic messages 80
entry
  defining an ICA connection 54
Examples
  of working with the IBM Network Station Manager program Setup Tasks 30
extras folder 12

F

factory defaults, loading the 81
factory defaults, resetting a Network Station to the 70
file manager 13
folder
  adding an application to a 33
  adding the calibration tools application to a 34
  configuring a custom 32
  extras 12
  host access 3
  moving an application to a different 35
folders
  applications and initial desktop 2
function
  using the workstation browse 29
functions
  desktop logoff, help, and lock screen 18

G

Gateway IP address
  setting in Setup Utility 67
  viewing in Setup Utility 67
getting started 1

H

hardware information, displaying 79
Hardware Setup Task
  using the Desktop background setting in the Workstations function of the 43
help, accessing and using how to 64
helper applications, Netscape Communicator supported commands and 11
host access folder 3
how to
  configure a Network Station to boot from the Network setting 71
  configure a Network Station to boot from the NVRAM setting 71
  recover the default MAC address 69
  reset a Network Station to the factory defaults 70
  select a keyboard language 68
  select a startup language 68
  set the Gateway IP address in Setup Utility 67
  set the monitor resolution 67
  set the Network Station IP address 66
  set the subnet mask in Setup Utility 67
  specify a user-configurable MAC address 70
  use verbose diagnostic messages 68
  view a user-configurable MAC address 70
  view the Boot PROM version of a Network Station 71
  view the default MAC address 69
  view the Gateway IP address in Setup Utility 67
  view the Network Station's IP address 66
  view the subnet mask in Setup Utility 67
  work with the blanking pedestal 67
  work with the NS Boot utility 75
How To Help
  accessing and using 64

I

IBM Network Station
  NS Boot tasks 78
  setup utility, accessing the 65
IBM Network Station Manager
  configuring printers with the program 91
  program, starting the 29
  program preference selections, working with 27
  program Setup Tasks, Examples of working with the 30
IBM Network Station Manager program
  Who can use the 25
IBM Network Station Manager program flow 24
IBM Network Station setup utility tasks 66
ICA
  connection entry, defining an 54
  remote application manager 7
ICA Client
  connecting to local printers with the 54
ICA connection entries, allowing private user updates of 56
ICA connection to a PC server, configuring an 52
ICA load balancing, carrying out 55
icon
  on the desktop launch bar, Setting up an AIX session 51
identifying or referring to your Network Station, tips on 28
identifying the NS Boot version 75
iInformation available on the World Wide Web v
individual users 27
information
  related v
information, displaying hardware 79

J

Java
  configuring the Netscape Communicator browser for 40
Java for the Network Station
  configuring 59
Java Media Framework 1.1 15
JMF 1.1 15
  enable the Netscape browser to support 40

K

keyboard language, selecting 68
keyboard language, selecting a 78
kiosk profile
  including system, group, or user preferences in a 59
kit, tool 16

L

language
  keyboard, setting 68
  startup, selecting 68
language, selecting a keyboard 78
language setting of the NS Boot utility, changing the 78
launch bar
  setting up an AIX session icon on the desktop 51
light pen
  configuring a Network Station for 39
light pen or touch screen devices
  configuring a Network Station for 39
load balancing, carrying out ICA 55
loading the factory defaults 81
Local (NVRAM) settings
  configuring an IBM Network Station to boot from 79
local MAC address, changing the 80
local printers
  with the ICA Client, connecting to 54

lock screen functions, desktop logoff, help, and 18
logging in to your IBM Network Station 1
logoff, help, and lock screen functions, desktop 18
LU session names, configuring persistent 3270 89

M

MAC address
  changing the local 80
  recovering the default MAC address 69
  specifying a user-configurable MAC address 70
  viewing a user-configurable MAC address 70
  viewing the default MAC address 69
MAC addresses, default 69
MAC addresses, user-configurable 69
MAC addresses, working with 69
manager
  file 13
  ICA remote application 7
Manager
  Network Station 11
managing your desktop applications 19
manual connection 55
manually updating the NS Boot code 76
messages
  enabling verbose diagnostic 80
monitor
  setting resolution 67
  working with the blanking pedestal 67
monitor, print 18
moving an application to a different folder 35
multimedia java application 15

N

names, configuring persistent 3270 LU session 89
Netscape Communicator 9
  printer datastreams 19
  supported commands and helper applications 11
  supported URL types 10
Netscape Communicator browser
  configuring for Java 40
network-attached printer, configuring a local area 60
Network Station
  boot setting, overriding the 45
  configuring Java for the 59
  desktop, using the pop-up menu accessible from your 42
  IP address, setting 66
  IP address, viewing 66
  logging in to your IBM 1
  NS Boot tasks 78
  selecting the operating system for the 93
Network Station *(continued)*
  setup utility tasks, IBM 66
  tips on identifying or referring to your 28
  updating the Domain Name Server (DNS) configuration on the 47
Network Station desktop
  controlling color 41
Network Station Manager 11
  program, starting the IBM 29
  program flow 24
  program preference selections, working with IBM 27
  program Setup Tasks, Examples of working with the IBM 30
Network Station Manager program, using the 21
NS Boot
  changing the language setting of the utility 78
  identifying the version 75
  manually updating the boot version 76
  tasks, IBM Network Station 78
  using the utility 77
  utility, resetting the Series 2800 (Type 8364) Network Station to the 97
  version from a DHCP server, Updating the H2033190 (03/31/99) 95
  version from NVRAM settings, updating the H2033190 (03/31/99) 94
  version H2033190 (03/31/99), updating the 93
NS Boot utility
  working with 75
NS Boot Utility
  working with the 65
NVRAM
  how to boot from 71

O

operating system for the Network Station, selecting the 93
overriding the Network Station boot setting 45
overview
  IBM Network Station Manager program 21

P

paint 13
parameters
  valid types of -DISPLAY_NAME 89
password
  setting the administrator 31
PC server
  configuring an ICA connection to a 52
PCL datastream 19
persistent 3270 LU session names, configuring 89
player
  audio 15
  video 14
PostScript datastream 19
preference selections
  additive 28
  working with IBM Network Station Manager program 27
  working with workstation 28
print monitor 18
printer
  configuring a local area network-attached 60
  datastreams 19
  for other users, configuring a Network Station-attached 61
  support, configuring TN3270E application-specific 92
  support, configuring TN3270E general 91
printer support
  using TN3270E display support and 89
printers
  with the IBM Network Station Manager program, configuring 91
  with the ICA Client, connecting to local 54
private user updates of ICA connection entries, allowing 56
problem resolution 83
program
  configuring printers with the IBM Network Station Manager 91
  starting the IBM Network Station Manager 29
  who can use the IBM Network Station Manager 25
program flow, IBM Network Station Manager 24
program preference selections
  working with IBM Network Station Manager 27

R

RealPlayer 15
referring to your Network Station, tips on identifying or 28
related information v
remote application manager, ICA 7
resetting the Series 2800 (Type 8364) Network Station to the NS Boot utility 97
resolution, problem 83
resolution, setting the display 78
roam function
  using the 1

S

screen devices
  configuring a Network Station for light pen or touch 39
screen saver
  disabling the Network Station 41

Screen saver setting in the Workstations function of the Hardware Setup Task, Using the 43
selecting a keyboard language 78
selecting the operating system for the Network Station 93
selections
  additive preference 28
  working with IBM Network Station Manager program preference 27
  working with workstation preference 28
server
  configuring an ICA connection to a PC 52
  updating the H2033190 (03/31/99) NS Boot version from a DHCP 95
service aids, working with 80
session icon on the desktop launch bar, Setting up an AIX 51
session names, configuring persistent 3270 LU 89
setting the administrator password 31
setting the display resolution 78
setting the Time Zone (TZ) environment variable 62
setup task
  using the desktop theme function of the desktop display 42
Setup Task
  using the desktop background setting in the Workstations function of the Hardware 43
  using the Screen saver setting in the Workstations function of the Hardware 43
Setup Tasks
  Examples of working with the IBM Network Station Manager program 30
setup utility
  accessing the IBM Network Station 65
Setup Utility
  working with the IBM Network Station 65
setup utility tasks, IBM Network Station 66
software combinations, understanding 9
solving problems 83
starting applications on your Network Station desktop, automatically 37
starting the IBM Network Station Manager program 29
startup language, selecting 68
subnet mask
  setting in Setup Utility 67
  viewing in Setup Utility 67
support
  configuring TN3270E application-specific printer 92
  configuring TN3270E general printer 91
supported commands and helper applications, Netscape Communicator 11
supported URL types, Netscape Communicator 10
system
  administrators 26

T

Task
  using the Screen saver setting in the Workstations function of the Hardware Setup 43
tasks
  Examples of working with the IBM Network Station Manager program setup 30
  IBM Network Station NS Boot 78
  IBM Network Station setup utility 66
text editor 13
the Desktop background setting in the Workstations function of the Hardware Setup Task, Using 43
Time Zone (TZ) environment variable, Setting the 62
tips
  on identifying or referring to your Network Station 28
TN3270E application-specific printer support, configuring 92
TN3270E display support and printer support, using 89
TN3270E general printer support, configuring 91
tool kit 16
tools
  calibration 16
touch screen devices
  configuring a Network Station for light pen or 39
troubleshooting 83
Type 8361
  (Series 300) and Type 8362 (Series 1000) 65
Type 8362
  (Series 1000), Type 8361 (Series 300) and 65
Type 8363
  (Series 2200) and Type 8364 (Series 2800) 75
Type 8364
  (Series 2800), Type 8363 (Series 2200) and 75
  Network Station to the NS Boot utility, resetting the Series 2800 97

U

understanding
  software combinations 9
updating
  the boot code, automatically 44
  the Domain Name Server (DNS) configuration on the Network Station 47
  the H2033190 (03/31/99) NS Boot version from a DHCP server 95
updating *(continued)*
  the H2033190 (03/31/99) NS Boot version from NVRAM settings 94
  the NS Boot code, manually 76
  the NS Boot version H2033190 (03/31/99) 93
URL types, Netscape Communicator supported 10
user-configurable MAC addresses 69
users
  configuring a local program for all 48
  configuring a Network Station-attached printer for other 61
  configuring a remote program for all 50
  individual 27
using
  the desktop theme function of the desktop display setup task 42
  the IBM Network Station Manager program 21
  the pop-up menu accessible from your Network Station desktop 42
  the Roam function 1
  the workstation browse function 29
Using the Desktop background setting in the Workstations function of the Hardware Setup Task 43
utility
  accessing the IBM Network Station setup 65

V

variable
  setting the Time Zone (TZ) environment 62
verbose diagnostic messages, enabling 80
verbose diagnostic messages, using 68
version, Identifying the NS Boot 75
video player 14
VT emulator 7

W

Web
  information available on the World Wide v
who should read this book v
workstation browse function, using the 29
workstation preference selections, working with 28
Workstations function of the Hardware Setup Task
  using the Screen saver setting in the 43
World Wide Web
  information available on the v

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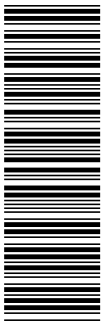

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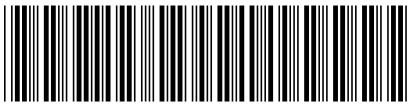

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