

IBM Network Station Runtime Environment for RS/6000 User's Guide

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<http://www.as400.ibm.com/networkstation/rs6000>

Note

Before using this information and the product it supports, be sure to read the general information under Appendix E, "Notices" on page 69.

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About This Book

The *IBM Network Station Runtime Environment for RS/6000 User's Guide* provides instructions for users of IBM Network Stations in the RS/6000 environment.

How To Use This Book

These chapters and appendixes are included:

- Chapter 1, "Introduction" on page 1 introduces the network computing model, Common Desktop Environment (CDE), and X Display Manager (XDM).
- Chapter 2, "Sessions" on page 3 describes powering on the IBM Network Station, choosing a host, logging in, and logging out. The chapter also offers problem determination information.
- Chapter 3, "Using the IBM Network Station Manager Program" on page 7 describes the setup and management tasks associated with one or all of your IBM Network Stations and IBM Network Station users. It gives an overview of Network Station Manager and explains how to start the program, work with the program, and view the error messages.
- Chapter 4, "Running Applications on Network Station in the CDE/XDM Environment" on page 29 provides information about local clients and utilities on the IBM Network Station running in the CDE/XDM environment.
- Chapter 5, "Running Applications on Network Station in the Common Login Environment" on page 33 provides information about local clients and utilities on the IBM Network Station running in the Common Login Environment.
- Appendix A, "Advanced CDE/XDM Session Configuration" on page 55 discusses configuring your CDE desktop to open a local client when you select its icon.
- Appendix B, "Running Java Applets and Applications under CDE/XDM Environment" on page 59 describes procedures for launching Java applets and applications.
- Appendix C, "More about CDE" on page 63 offers additional information about CDE.
- Appendix D, "CDE Action" on page 65 lists CDE Actions (information needed if you want to create an icon to launch applications from the CDE desktop).

Highlighting Conventions

These highlighting conventions are used in this book.

Bold	Identifies commands, subroutines, files, structures, directories, and other items whose names are predefined by the system. Also identifies graphical objects such as buttons, labels, and icons that the user selects.
<i>Italics</i>	Identifies parameters whose actual names or values are to be supplied by the user.
Monospace	Identifies examples of specific data values, examples of text similar to what you might see displayed, examples of portions of program code similar to what you might write as a programmer, messages from the system, or information you should actually type.

ISO 9000

ISO 9000 registered quality systems were used in the development and manufacturing of this product.

Related Publications

The *IBM Network Station Runtime Environment for RS/6000 User's Guide* is provided in PostScript and HTML format. We recommend that if you want to print the *User's Guide*, print the `/usr/netstation/doc/UserGuide.ps` file. If you want to read the documentation online, view the `/usr/netstation/doc/UserGuide.html` file. The documentation for IBM Network Station Runtime Environment for RS/6000 also includes the *IBM Network Station Runtime Environment for RS/6000 System Administrator's Guide*.

The IBM Network Station Runtime Environment for RS/6000 documentation is available only on the installation media and from the following World Wide Web page :

<http://www.as400.ibm.com/networkstation/rs6000>

The documentation is not separately orderable.

You may also find these books useful:

For additional information about the IBM Network Station:

- *IBM Network Station Use* (SA41-0036). Information about the IBM Network Station hardware, valid for all platforms.
- IBM Network Station documentation for the AS/400 platform:
 - *IBM Network Station Manager for AS/400* (SC41-0632)
- IBM Network Station documentation for the S/900 platform:
 - *IBM Network Station Manager for S/390* (SC31-8546)
 - *IBM Network Station—Getting Started* (SG24-4954). While this book was written for IBM Network Station in the S/390 environment, much of the information applies to all platforms.

For information about installing and managing the AIX operating system and TCP/IP:

- *AIX Version 4.2 Installation Guide* (SC23-1924)

- *AIX Version 4 System Management Guide: Operating System and Devices* (SC23-2525)
- *AIX Version 4 System Management Guide: Communications and Networks* (SC23-2526)

For information about printing in the AIX environment:

- *AIX Version 4 Guide to Printers and Printing* (SC23-2783)
- *Adapters, Device, and Cable Information for Micro Channel Bus Systems* (SC23-2764)

For information about X Windows:

- *AIXWindows Desktop Advanced User's and System Administrator's Guide* (SC23-2671)
- *Volume 8: X Window System Administrator's Guide* (Sebastopol, CA: O'Reilly & Associates, Inc.)

For information about the CDE:

- *AIX V4.1 CDE: User's Guide* (SC23-2793)
- *AIX V4.1 CDE: Advanced User's and System Administrator's Guide* (SC23-2795)
- *AIX V4.1 CDE: Application Builder User's Guide.* (SC23-2785)
- *AIX V4.1 CDE: Desktop Kornshell User's Guide* (SC23-2786)
- *AIX V4.1 CDE: Help System Author's and Programmer's Guide* (SC23-2787)
- *AIX V4.1 CDE: Programmer's Overview* (SC23-2789)
- *AIX V4.1 CDE: Programmer's Guide* (SC23-2790)
- *AIX V4.1 CDE: Style Guide & Certification Checklist* (SC23-2791)
- *AIX V4.1 CDE: Internationalization Programmer's Guide* (SC23-2788)
- *AIX V4.1 CDE: ToolTalk Messaging Overview* (SC23-2792)
- *AIX V4.X CDE: ToolTalk and Open Protocols* (SR23-7352)

For information about the ICS Webserver (Domino GO):

- *Webmaster's Guide* (GC31-8287)

Books identified with an order number (for example, SC23-2526) may be ordered as described below.

Ordering Publications

You can order publications from your sales representative or from your point of sale.

Use *AIX and Related Products Documentation Overview* for information on related publications and how to obtain them. The *AIX and Related Products Documentation Overview* is available:

- On the World Wide Web. Using your web browser, go to the IBM Home Page by opening the following URL:

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

On the IBM Home page, search on "AIX and Related Products Documentation Overview" to access the publication.

- In the Hypertext Information Base Library Version 1 for AIX. This online documentation is designed for use with the InfoExplorer hypertext retrieval system.
- As a hardcopy publication; use order number SC23-2456.

Chapter 1. Introduction

Network Computing Overview

Until recently, there have been two computing alternatives available at the desktop—a nonprogrammable terminal connected to a multi-user computer, or a personal computer. Nonprogrammable terminals are simple, low-cost and reliable, but limited in what they can do. Personal computers offer tremendous flexibility, but are more complex and expensive to set up, connect, and manage.

Now there's a real alternative—the IBM Network Station, IBM's first network computer, which combines the simplicity and low cost of nonprogrammable terminals with leading-edge application technologies.

IBM Network Stations are nonprogrammable workstations with PowerPC microprocessors that allow the network computers to connect to an RS/6000 server. The server downloads information needed to let the IBM Network Stations select a host machine and log in to that machine.

Once connected, IBM Network Station users have access to all kinds of applications running on one server or many servers, to the worldwide resources of the Internet (or a private intranet), and to the fast-emerging world of Java applets and applications downloaded on demand from Internet or intranet servers.

Environments Overview

When you're working on an IBM Network Station in an RS/6000 environment, your system will be configured so that you're working in either the Common Login Environment, Common Desktop environment (CDE), or in an X Display Manager (XDM) environment.

Common Desktop Environment (CDE)

The CDE is a user-friendly graphical interface to the AIX operating system. By making selections from the Front Panel (toolbar) at the bottom of the CDE desktop, you can run applications (for example, the calendar, text editor, and mail programs), manipulate files, and start LAN applications. Appendix C, "More about CDE" on page 63 describes CDE in more detail.

CDE includes extensive Help; select the Help icon from the CDE Front Panel to access the help system.

These resources are available to introduce CDE:

- *AIX V4.1 CDE: User's Guide (SC23-2793)*
- *AIX V4.1 CDE: Advanced User's and System Administrator's Guide (SC23-2795)*

Additional resources are listed in "Related Publications" on page vi.

You can also link to the CDE web page for information and instructions, FAQs, and other hints and tips. The URL is:

X Windows Display (XDM)

XDM is an X Window System session manager that by default, uses the Motif Window Manager (MWM) to manage its windows. MWM lets you control elements of window state, for example placement, size, icon/normal display, and input-focus ownership. MWM also allows you to perform session management functions, such as stopping a client.

In the X environment, the system administrator usually sets up pull-down menus that allow you to perform tasks like starting applications and opening terminal emulation sessions.

More information on configuring Motif Window Manager and login via XDM is available in InfoExplorer; search on `xdm` and `mwm`.

Common Login Environment

The Common Login Environment is a desktop that is supported by all server platforms that serve the IBM Network Station. This environment is the strategic login environment for running, supporting, and managing client applications on the IBM Network Station. The Network Station Manager and the Common Login Environment are designed and integrated together to provide a standard runtime environment and management interface for the Network Station.

The Common Login Environment uses the Network Station local window manager, which is a light-weight window manager based on the Motif Window Manager (MWM).

A menu bar will be available for starting applications, locking the screen, logging out, and so on. This menu bar and the rest of the desktop environment are managed by the Network Station Manager. Users can customize their desktop environment by using the Network Station Manager. Please refer to Chapter 3, "Using the IBM Network Station Manager Program" on page 7 and Chapter 5, "Running Applications on Network Station in the Common Login Environment" on page 33 for more detail.

Chapter 2. Sessions

Getting Started

Getting up and running on your IBM Network Station requires two steps:

1. Powering on your IBM Network Station.
2. Logging in to the host server.

Powering on your IBM Network Station

You start up your IBM Network Station by setting the power switch to On. The unit performs a self check, connects to the server, and downloads information needed to receive a login from a network host machine.

During the power-on sequence, you'll see on the display the IBM logo, boot monitor version, video memory check, DRAM memory check, MAC address, boot monitor display resolution, and server display resolution. You'll see the IBM Network Station search for its host server system; once it's located the host AIX server system, the kernel file is downloaded. A graphical progress indicator tracks the download.

After the kernel is downloaded, the screen refreshes, then you'll see the copyright, followed by a line of periods, indicating that the configuration and font files are being read.

When the IBM Network Station has finished its boot process, a login window appears on the display.

Logging in to the host

The login window is specific to the host where the Network Station is booted from and is either a CDE login window, XDM login window, or a Common Login window. Each presents its own specialized environment, composed of specialized configuration files, initialization files, environment variables, and its own user interface.

CDE

A login chooser window will be on the display. If you choose a host from the login chooser menu and select the **OK** button, the login chooser disappears and a new login window appears.

The CDE login window has one text area for input in its initial window and four buttons, labeled **OK**, **Start Over**, **Options**, and **Help**.

XDM

A login chooser window will be on the display. If you choose a host from the login chooser menu and select the **OK** button, the login chooser disappears and a new login window appears.

The XDM login window has two text areas in the initial screen (for inputting name and password) and two buttons, labeled **Use system default login** and **Cancel Session**.

Common Login Environment

The Network Station login window has one text area for input in its initial window and four buttons, labeled **OK**, **Start Over**, **Roam**, and **Help**.

Figure 1 shows the initial IBM Network Station login screen.

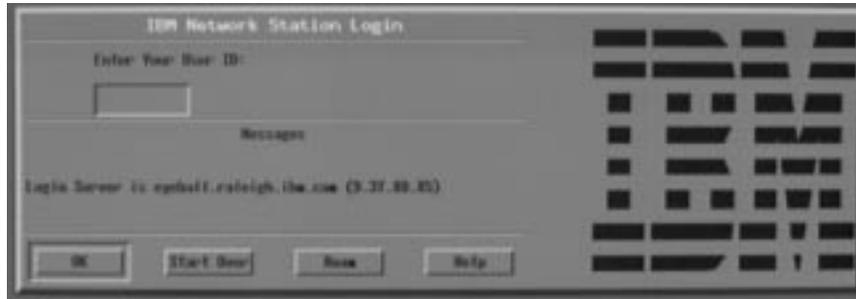


Figure 1. IBM Network Station Login Screen

At the initial IBM Network Station login screen, type your user name and press Enter. Type your password and press Enter.

The buttons within the menu bar are:

- Ok
Clicking Ok sends request to server for processing.
- Start Over
Clicking Start Over prompts for userid and password.
- Roam
Clicking Roam allows you to specify the network server to log into.
- Help
Clicking Help allows you to access Help for the IBM Network Station Manager program.

Note: The mouse must be inside the window to make the window active.

Figure 2 shows the IBM Network Station menu bar, which contains the available applications to select. If any applications were specified to autostart by the IBM Network Station Manager, they will appear on your screen. If no applications were set to autostart, select any applications that appear in your menu bar. Additional available application buttons are: 5250, the IBM Browser, the Navio NC Browser, and NSterm.



Figure 2. IBM Network Station Menu Bar

The buttons within the menu bar are:

- Log Out

Clicking Logout logs you off the IBM Network Station.

- Hide

Clicking Hide makes the menu bar float out of view when you move the mouse pointer off the menu bar. To retrieve the menu bar, move your mouse pointer to the very bottom of your screen (If you clicked the **Move to Top** button, go to the very top of the screen instead). This is useful if the menu bar covers part of an application window. Clicking the **Hide** button changes the button to Show and keeps the menu bar displayed on the screen

- Move to Top

Clicking **Move to Top** moves the menu bar to the top of the screen. The button will read **Move to Bottom** after the menu bar moves to the top. Clicking the **Move to Bottom** button, once the menu bar is located at the top, moves the menu bar back to the bottom.

- Other buttons

Other buttons on the menu bar will be applications available to select and use.

- Lock Screen

The **Lock Screen** button allows you to lock the screen when you leave the Network Station. You will be prompted for a lock screen password.

Whichever login window is displayed, enter your user ID and password as prompted, and press the **OK** button to complete the login process.

When the login process is successfully done, a dialog box will be displayed with a **DONE** button. Click on the **DONE** button to proceed with the Common Login Environment.

Logging out

Logout procedures depend on how your system administrator has set up your IBM Network Station.

CDE

If you're working in the CDE environment, logout is initiated when you select the **EXIT** icon from the Front Panel. Depending on how your system has been configured and on the preferences you've set, you may be prompted to confirm that you want to log out.

XDM

If your initial login was via the XDM login window, you can log out from your root menu. Press the right mouse button while the cursor is in the root window (background of your display), then select **End session -> Quit** from the root menu.

Common Login Environment

If your initial login was via the Common Login window, select Log Out from the menu bar to log off the IBM Network Station.

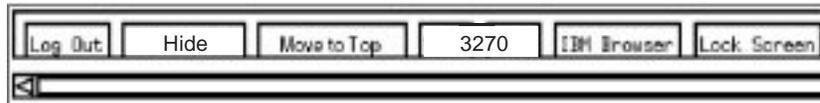


Figure 3. IBM Network Station Menu Bar

Problem determination

Both CDE and XDM have built-in problem determination tools.

For example, if for some reason you're unable to log in to CDE, you can select the **Options** button from the main login screen, then select **Session**, then **Failsafe**. Log in as usual; you'll be in a very minimal environment, with one aixterm session and a window manager. You can view your **\$HOME/.dt/startlog** and **\$HOME/.dt/errorlog** files to look for login errors and configuration problems.

If you have similar login problems with XDM, select **Use system default login** from the XDM login window. This will give you a minimal environment with one aixterm session and a window manager. You can access your **\$HOME/.xerrors** file, which contains login error messages.

If you have similar login problems in the Common Login Environment, check if the NSLD server is running on the AIX server by typing on the command line:

```
ps -fe | grep nsld
```

and contact your System Administrator.

Chapter 3. Using the IBM Network Station Manager Program

The IBM Network Station Manager program is a browser-based application program. This application program allows you to perform the setup and management tasks that are associated with one or all of your IBM Network Stations and IBM Network Station users. Setup Tasks are:

- Hardware configuration:

Examples of configurable Hardware settings are: specifying primary mouse buttons (left or right-handed), mouse pointer speeds, screen savers, desktop background, and more.

- Startup application and program selection

- Programs and menus

Examples of configurable Startup settings are 5250 sessions, 3270 sessions, remote program sessions, Java application or applets, and IBM Network Station Browser sessions.

- Environment variables

Environment variable settings are also configured under Startup. Environment variables can be used with Startup programs, menus, or any applications that are running on the IBM Network Station.

- Desktop Management

Examples of configurable Desktop settings are screen colors for window frames, Icon placement, Font selection, and specifying how windows on the Network Station are made active.

- 3270 Session configuration

Examples of configurable settings for 3270 sessions are screen size, key remapping capability, color customization, and 3270 sessions with graphics support.

- 5250 Session configuration

Examples of configurable settings for 5250 sessions are screen size, key remapping capability, color customization (basic and advanced), record/playback, and edit/copy/paste functions.

- Internet configuration

- Network

Examples of configurable Network settings are E-Mail address, default home page, proxy settings, and encrypted or non-encrypted version of the IBM Network Station Browser.

- IBM Browser

Examples of configurable IBM Browser settings are disk caching, auto loading of images, print headers and footers, and print margins.

- Navio NC Browser

Examples of configurable Navio NC Browser settings are caching, auto loading of images, and network buffer size.

- Java Applet Viewer

Examples of configurable Java applet viewer settings are message style, heap and stack size settings, and defining properties.

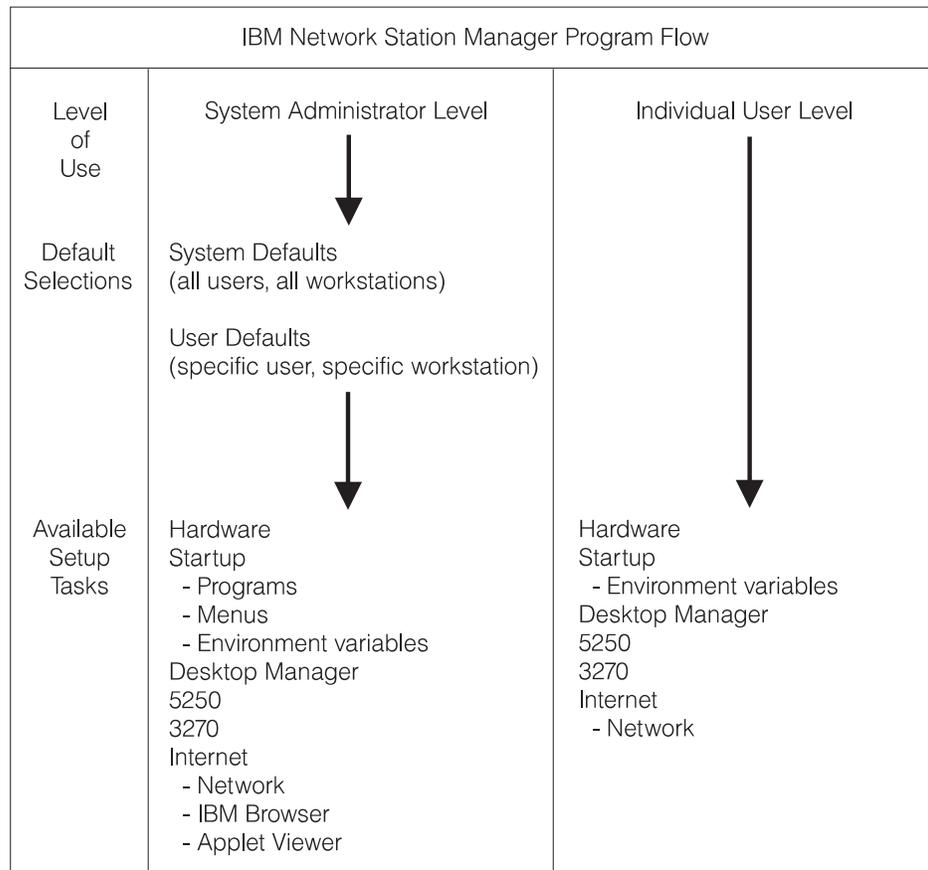
This application also allows you to view the error messages generated by the Network Station Manager program. This facility is limited to the Network Station Manager administrator only.

This chapter discusses the following IBM Network Station Manager program topics:

- IBM Network Station Manager program overview
 - Who can use the IBM Network Station Manager program
 - Working with IBM Network Station Manager defaults
 - Working with settings
- Starting the IBM Network Station Manager program. This section discusses:
 - Starting the IBM Network Station Manager program from a web browser
 - Signing onto the IBM Network Station Manager program
- Working with the IBM Network Station Manager program - Examples
- Viewing Network Station Manager Error Messages

IBM Network Station Manager Program - an Overview

Figure 4 on page 9 provides a graphical view of how the IBM Network Station Manager program flows. Take a moment to study Figure 4 on page 9; it highlights the differences between the defaults and setup tasks that a system administrator and end user can work with.



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Figure 4. IBM Network Station Manager Program Flow

Who can use the IBM Network Station Manager Program?

As shown in Figure 4, both system administrators and individual end users can access and use the program.

System Administrators

System administrators are users having root authority and can work at a level that is either system-wide or specifically for one user or one Network Station. For example, an administrator could specify that all IBM Network Station users will have one 3270 emulation session available and that one particular user could have an additional 3270 emulation session.

For information on how to sign on to the IBM Network Station Manager program, see “Starting the IBM Network Station Manager Program using a Browser” on page 14.

Figure 5 on page 10 shows the screen a system administrator sees after signing onto the IBM Network Station Manager program. Notice the range of functions presented in the Setup Tasks frame.

Note: This screen can vary in how it appears depending on the web browser you are using.



Figure 5. System Administrator Level

Compare these functions to the range of functions that are available to individual end users as shown in Figure 6 on page 11.

Individual End Users

End users also have access to the IBM Network Station Manager program. However, the functions that an end user can work with are limited to settings that pertain only to themselves.

The following diagram shows the screen that an end user would see after signing onto the IBM Network Station Manager program. Notice the range of functions presented in the Setup Tasks frame.

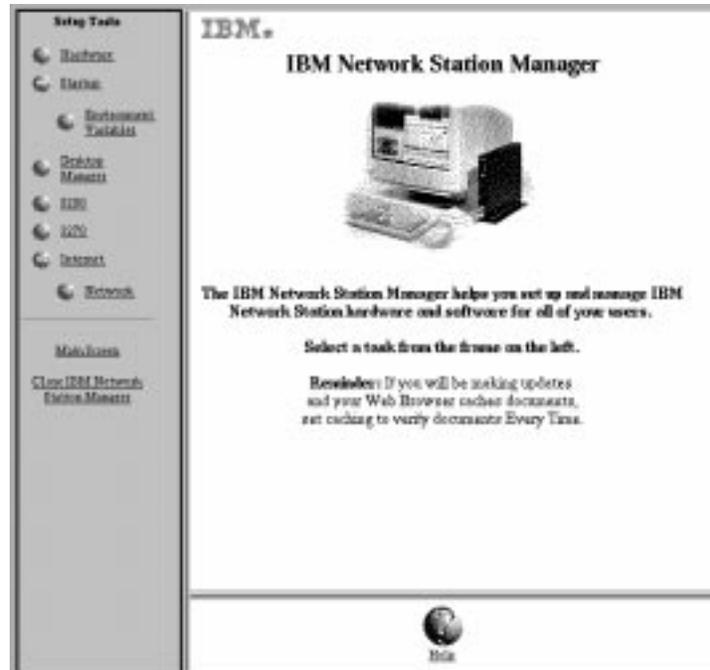


Figure 6. End-user Level

As you can see, the program's flexibility allows broad system-wide settings management by the administrator and individual settings management by the end user.

Working with IBM Network Station Manager Program Defaults

There are three levels of defaults. They are:

- IBM-supplied defaults

IBM-supplied defaults are provided for all settings that are supported by the IBM Network Station Manager program.

The IBM-supplied defaults cannot be changed. They can be overridden by using the IBM Network Station Manager program feature of System defaults or User level defaults.

- System defaults

System defaults are used to change settings for all users or all Network Stations.

System defaults take precedence over IBM-supplied defaults.

- User defaults

User defaults are used to change settings for an individual user or individual Network Station.

User defaults take precedence over IBM-supplied defaults and system defaults.

Note: Settings work differently in the Startup function of Setup Tasks. For Programs, Menus, and Environment Variables, the IBM-supplied, System-specified, and User-specified, are additive. However, 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. (That is, the values for a given environment variable are not additive.) Any settings that are specified

at the system or user level are added to those that are specified in the IBM-supplied default settings.

IBM Network Station Manager Program Defaults - Example

This example uses the Desktop background setting that is in the Hardware function of Setup Tasks.

The IBM-supplied setting for Desktop background is the IBM bitmap.

At this point, the administrator determines that all Desktop backgrounds will be set to dark red. Using the IBM Network Station Manager program, the administrator applies the change by working through the System Defaults level. This change, to the color dark red, overrides the IBM-supplied value of the IBM bitmap for Desktop background.

After viewing the new desktop background color of dark red, a user determines it is too difficult to look at for long periods of time and requests his Desktop background color be changed to green. The user can either change the Desktop background color or request the administrator to do it.

The administrator can make the change by selecting the Hardware Setup Task, User defaults and specify the user name of the person who is requesting the change. Scroll to the Desktop background field and specify green. Click Finish to apply the change. This change, to a User default setting, overrides the IBM-supplied default and the administrator-set System Default value of dark red.

Notes:

1. If the user changed the Desktop setting, they would go directly to the Hardware settings panel, bypassing the Default selection panel.
2. To view this change in Desktop settings you would have to log off and then log on to the Network Station.

Working with System-Wide Defaults

Figure 7 on page 13 is representative of the panel that appears when a selection is made from the Setup Tasks frame. In this example, the Hardware Defaults panel is used.

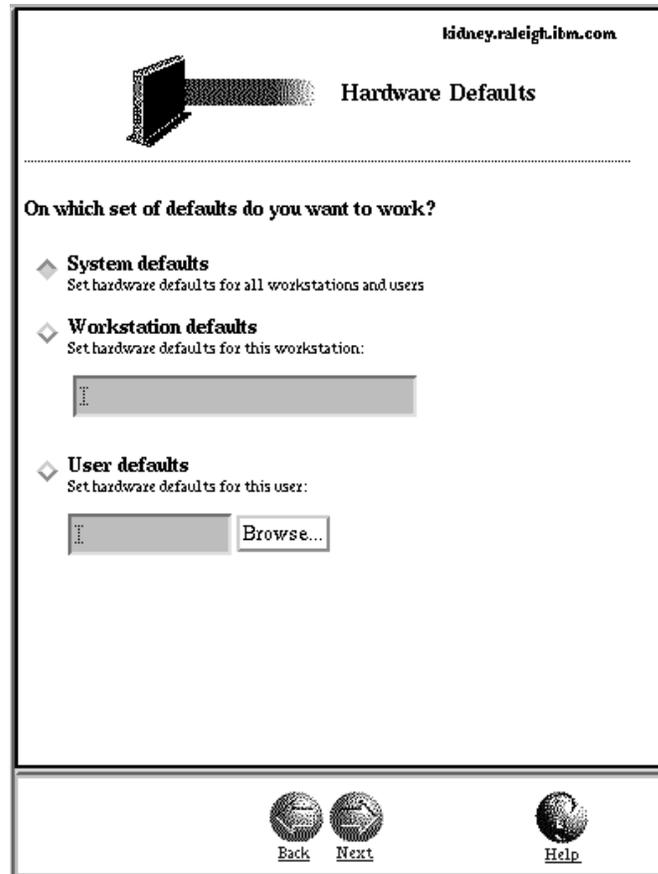


Figure 7. Hardware Defaults

As you can see, the Hardware Defaults panel allows you to work with System defaults for all Network Stations and users, Network Station defaults for a particular Network Station, or User defaults for a particular user. The Hardware Defaults panel is unique in that it allows you to specify settings for Network Stations in addition to specific users. If you want to specify defaults for a particular user, you can click the Browse button and get a list of users on the system.

System defaults have settings that are not available when working with an individual user or Network Station.

Working with Individual User Defaults

User defaults are designed to change settings on a user-by-user basis, one user at a time. This gives you flexibility in custom tailoring individual sessions.

From any of the Default panels, select User defaults, enter the user name and press the Next button.

Working with Settings

Settings are fields that you see after you have selected which defaults (System or User) you want to work with. For example, Figure 8 on page 14 shows the Desktop Manager Settings fields for Screen colors, Icon preferences, Fonts, and Window focus.



Figure 8. Desktop Manager Settings Fields

In this example, Figure 8 represents Desktop settings that are being worked with from the System Defaults level. That means that any changes to the settings would be applied to **ALL** users.

Note: Settings in the Startup function of Setup Tasks work differently than the settings in other Setup Tasks. The difference is that any changes that are made at the system default level and user default level are added to the settings that are shipped with the IBM-supplied default settings.

For example, the IBM-supplied default is that all users have one 5250 session. Then, in Setup Tasks, the administrator selects Startup, Menus, System defaults, 5250 and applies this setting. The result is that all users would now have two 5250 sessions available to them.

Starting the IBM Network Station Manager Program using a Browser

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

To start working with the IBM Network Station Manager program, power-on your IBM Network Station, login, and click **IBM Browser** from the Menu bar on your IBM Network Station as shown in Figure 9.



Figure 9. IBM Network Station Menu Bar

Note: If you do not have, or have not installed, the IBM Network Station Browser licensed program, you can use the following web browsers to sign on to the IBM Network Station Manager program:

- Navio NC Navigator
- Netscape** 3.01
- Microsoft Internet Explorer** 3.01

The IBM Network Station Browser appears as shown in Figure 10:



Figure 10. IBM Network Station Browser Sign on Screen

Click the Edit pulldown and select IBM Network Station Manager Preferences as shown in Figure 11 on page 16:

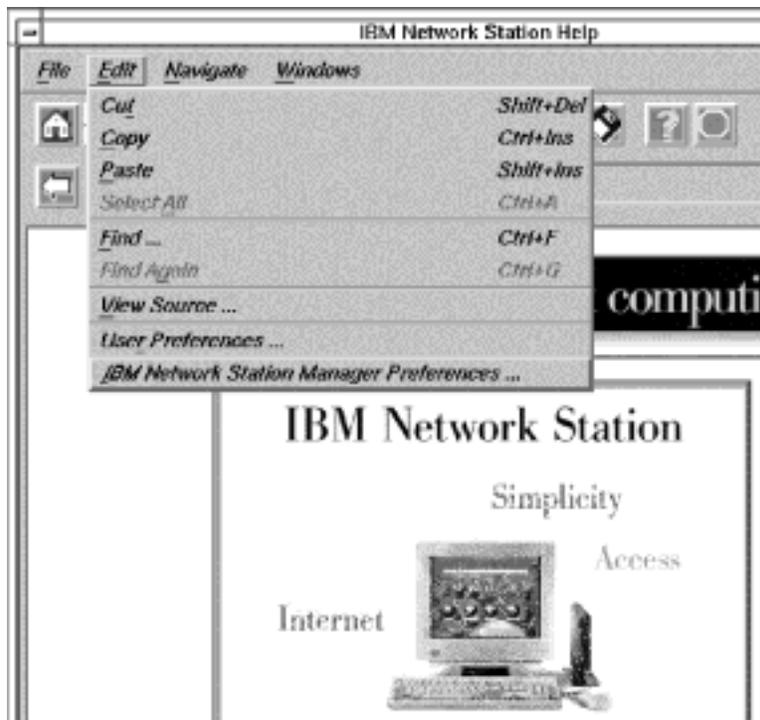


Figure 11. IBM Network Station Browser Sign on Screen with Edit Pulldown

The IBM Network Station Manager program sign-on screen appears:

Figure 12. Sign on Screen

Note: An alternative way to reach the IBM Network Station Manager program sign-on screen is to enter the following case-sensitive URL in the IBM Browser's URL field:

http://yourservername:portnumber/NetworkStation/Admin

where:

- ***yourservername*** is the host name or TCP/IP address.
- ***portnumber*** is the port that is configured for use with the IBM Network Station program.

Notes:

1. When going through the examples, the Main panel and the Default selection panel will not be presented in this document every time.
2. See “Additional IBM Network Station Manager Program Examples” on page 25 for information on working with remote programs such as AIX sessions and WinCenter Pro for PC applications.

Hardware Settings - User Example

From the Setup Tasks frame, click Hardware.

Select User defaults, and type in your user name (user001 in this example) as shown in Figure 14.

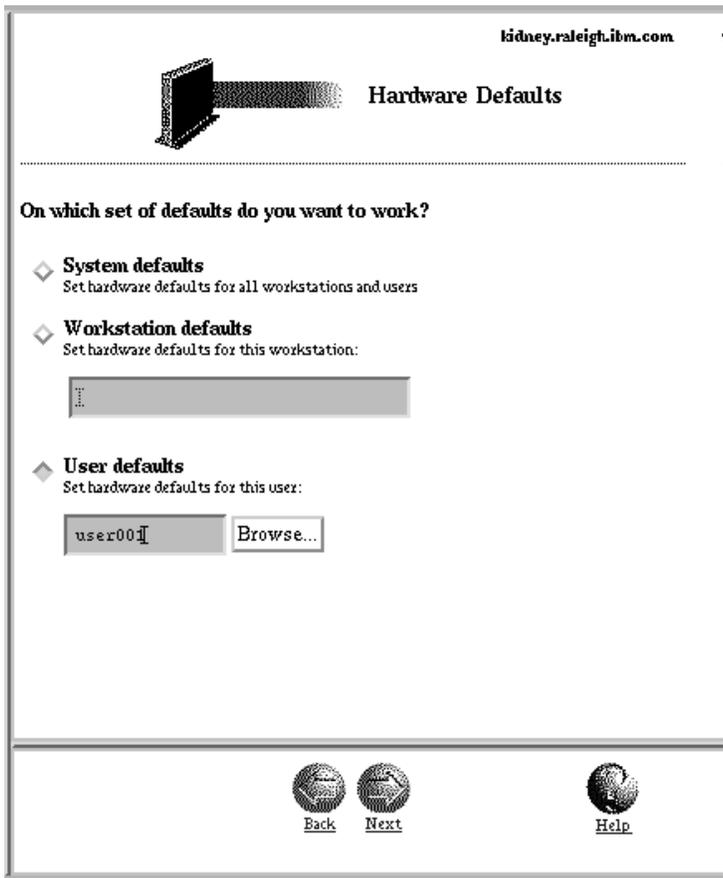


Figure 14. Hardware Defaults Panel with User Defaults Specified

In the bottom frame, click Next to continue.

The Hardware Settings frame appears as shown (scrolled-down) in Figure 15 on page 19.



Figure 15. Hardware Settings User Example

Scroll to Desktop background and select the Tiles bitmap.

Click Finish to apply the change. Go to the next example.

Startup Settings Example

From the Setup Tasks frame, click Startup, click Programs, and select User defaults. In the bottom frame, click Next to continue.

The Programs Settings frame appears as shown in Figure 16 on page 20.

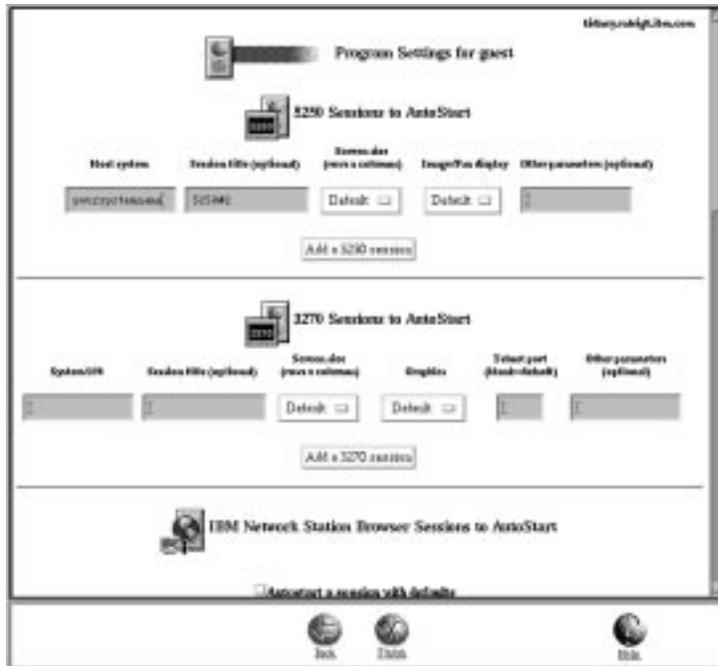


Figure 16. Startup Settings Example

Scroll to 3270 Sessions to Autostart. This setting, when completed, will automatically start a 3270 session for you when you sign on to your Network Station. Complete the following fields:

- S/390 system - Type the name or TCP/IP address of the S/390 your 3270 session will be established with.
- Session title - Type in a text string that represents your 3270 session. For example, 3270#2. This text string will appear in the Title bar of your 3270 session. This field is optional and you do not need a value. However, in this example you might want to try a name (3270#2) so you can see it when we verify the examples.
- For the other settings fields, use the defaults.

Click Finish to apply the change. Go to the next example.

Desktop Manager Example

From the Setup Tasks frame, click Desktop Manager and select User defaults. In the bottom frame, click Next to continue.

The Desktop Manager Settings frame appears as shown in Figure 17 on page 21.



Figure 17. Desktop Manager Settings Example

Scroll to Icon preferences. In the Icon location field, select Top left.

Click Finish to apply the change. Go to the next example.

5250 Example

From the Setup Tasks frame, click 5250 and select User defaults. In the bottom frame, click Next to continue.

The 5250 Settings appear as shown in Figure 18 on page 22.

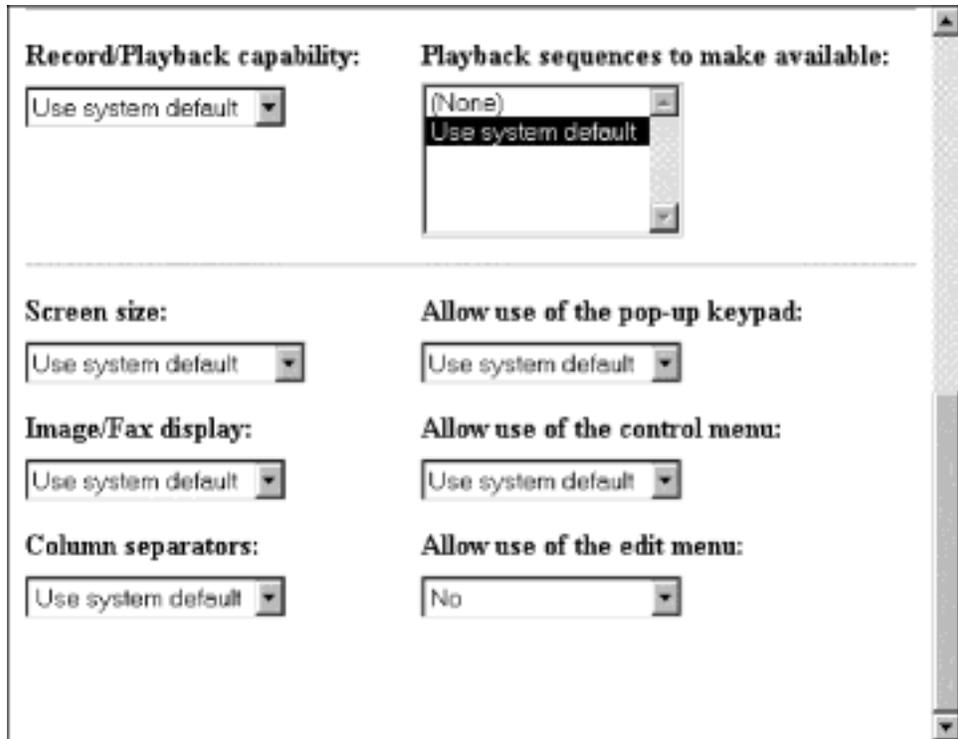


Figure 18. 5250 Setting Example

Scroll to the Allow use of the edit menu field and select No to disable the edit menu. (The default is Yes, meaning that you can use the edit menu).

By disabling Allow use of the edit menu, your 5250 sessions will not have the Edit pulldown displayed for use.

Click Finish to apply the change. Go to the next example.

3270 Example

From the Setup Tasks frame, click 3270 and select User defaults. In the bottom frame, click Next to continue.

The 3270 Settings panel appears as shown in Figure 19 on page 23.

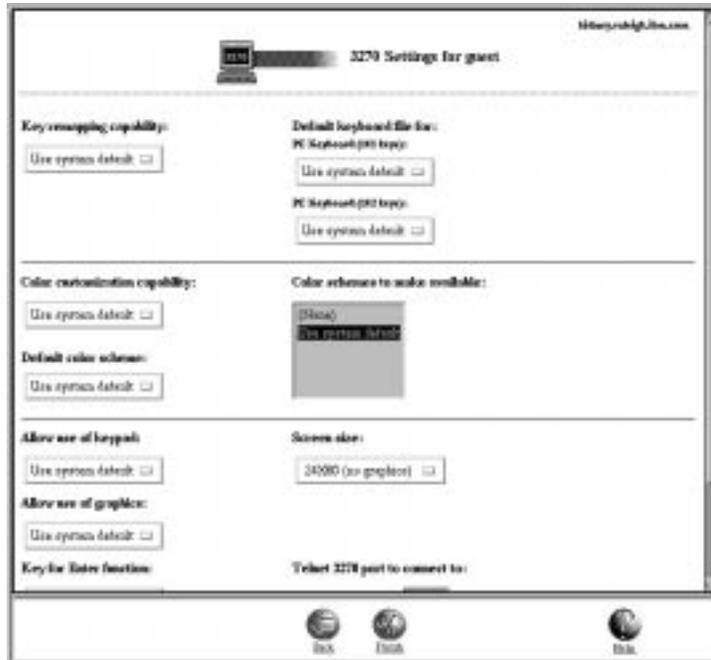


Figure 19. 3270 Settings Example

Scroll to the Screen size field. Select 24 x 80.

This will change your 3270 session screen size from 32 x 80 (the default) to 24 x 80.

Click Finish to apply the change. Go to the next example.

Internet

Changing the IBM Network Station Default Port Number

The default ICS Webserver number is port 80. This port number is also the default port number used by the IBM Network Station browsers to access the IBM Network Station Manager program. If the ICS Webserver configured for use with IBM Network Station Manager program does not use the default port 80, do the following steps to configure the IBM Network Station browsers to select the appropriate port.

1. Invoke the IBM Network Station Manager program

```
http://yourservername:portnumber/NetworkStation/Admin
```

where:

- *yourservername* is the host name or TCP/IP address of the ICS Webserver
- *portnumber* is the port that is configured for use with the IBM Network Station Manager program

If you have not changed the default port number for the ICS Webserver (80), you do not need to specify *portnumber*

Enter the URL and log as a system administrator.

2. Access the Internet Network System default panel. The Internet Network System panel appears as shown in Figure 20 on page 24.

From the 'Setup Tasks' frame on the left, click Internet, click Network, and select System defaults. In the bottom frame, click Next to continue.

3. Update the port number.

Scroll to the 'Proxy Section'. At the end of this section, see the following:

Web server port on the boot host:

To the right is a box that indicates 'Use default' or key in the new port number.

Enter the new port number (for example 8080).

Select Finish.

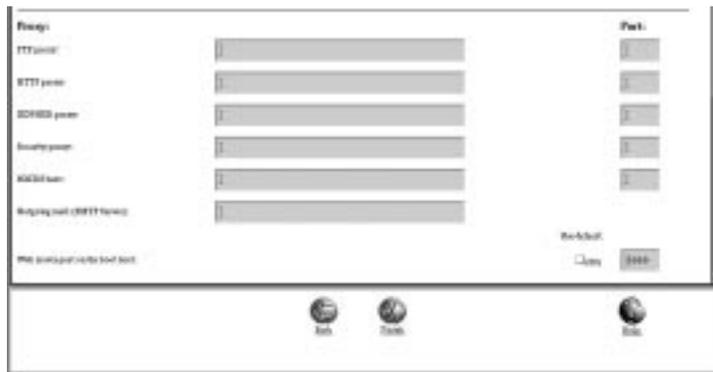


Figure 20. IBM Network Station Manager program Internet Network System Defaults

Reboot the IBM Network Station. Do the following to verify the change.

1. Select Edit
2. Select Network Station Manager Program Preferences.

The updated port number appears in the URL.

Changing Other Internet Settings

From the Setup Tasks frame on the left, click Internet, click Network, and select System defaults. In the bottom frame, click Next to continue.

The IBM Network Station Browser Settings frame appears as shown in Figure 21 on page 25.



Figure 21. IBM Network Station Browser Settings Example

Scroll to the Proxy Section heading and select No in the Auto load images field.

Note: Remember that if you apply this change, no images will display when you are using a browser. After a page loads the text, you can use the browser's Navigate pulldown menu to load the images. Select the Navigate pulldown, and then select Load Missing Images.

Click Finish to apply the change. Click Main Screen in the Setup Tasks frame.

Verifying your Setting Changes

After completing the examples, you can verify the settings you specified. You will need to log off and then log on for the settings to be applied.

Do not forget: If you do not want any of the settings specified in the example exercises to remain, you will have to use the IBM Network Station Manager program to return them to the original settings or some other settings of your choice.

Additional IBM Network Station Manager Program Examples

Following is a list of additional examples that use the IBM Network Station Manager program:

- Setting up an AIX session on your IBM Network Station by using Remote Program support
- Setting up a Windows NT session on your IBM Network Station by using Remote Program support

Setting up an AIX Session using the IBM Network Station Manager Program

Complete the following steps to setup an AIX session by using the IBM Network Station Manager program:

1. Verify that the user name and password on the host system match the user name and password on the AIX server.
2. You must create a **.rhosts** file on the AIX server. This file must contain the IBM Network Station's name and the name that the user logs into AIX with. This file resides on the AIX server under the user's directory. An example for a userid of user001:

Contents of File

```
Directory Structure:      /home/user001
File name:                .rhosts
IBM Network Station name  MYNWS.mycompany.ABC.com
Name user signs on with:  user001
```

This file can contain multiple lines. Each line should have one IBM Network Station name and one user name on it. If a user will be working from more than one IBM Network Station, create an entry for each IBM Network Station.

3. Sign on to the IBM Network Station Manager program.
4. From Setup Tasks, click Startup.
5. Under Startup, click Menu.
6. From Program Defaults, click User defaults.
If you are setting this up for someone else, type their user name or click Browse to select their user name if you do not know it.
7. Click Next to continue.
8. Scroll ahead to Remote Programs. Type in the information as shown in Figure 22.

Menu item label	Remote host	Program to run	Optional parameters	Allow window to open
AddSession	95.35.23	aixterm	display \$(P)0 -lang C	<input checked="" type="checkbox"/>
				<input type="checkbox"/>

Add a Remote Program

Figure 22. Remote Program Example for AIX

Where:

Menu item label

This text string will appear in the Menu bar on the IBM Network Station.

Remote host

The name or IP address of the AIX server.

Program to run

This identifies the program to run on the AIX server.

Optional parameters

-display is an AIX requirement that causes the program to display on the IBM Network Station rather than on the remote host. \${IP} is an IBM-supplied environment variable that gets replaced with the IP address of the IBM Network Station. -lang C is an AIX requirement that is used by programs such as Netscape on AIX.

The required parameters for AIX-Session are: -display and \${IP}:0.

9. Click Finish to apply the AIX remote program setting.
10. Log off and then log on your IBM Network Station. In the Menu bar there will be a button that is labeled AIX-Session, as shown in Figure 23.



Figure 23. Menu Button for Remote Program Example for AIX

11. Click AIX-Session and a window will open with your X-station session.
From the Aixterm window, you can run additional programs.

Setting up a Windows NT Session using the IBM Network Station Manager Program

Complete the following steps to setup a Windows NT session by using the IBM Network Station Manager program:

1. Verify that you have a Windows NT machine in your network that has the WinCenter Pro** application loaded on it.
2. Verify that the user has a valid user name and password on the Windows NT server. When the session from the Windows NT server is requested on the IBM Network Station, the user will have to sign on.
3. Sign on to the IBM Network Station Manager program.
4. From Setup Tasks, click Startup.
5. Under Startup, click Menu.
6. From Program Defaults, click User defaults.
If you are setting this up for someone else, type their user name or click Browse to select their user name if you do not know it.
7. Click Next to continue.
8. Scroll ahead to Remote Programs. Type in the information as shown in Figure 24 on page 28.



Figure 24. Remote Program Example for Windows NT

Where:

Menu item label

This text string will appear in the Menu bar on the IBM Network Station.

Remote host

The name or IP address of the Windows NT server.

Program to run

This identifies the program to run on the Windows NT server.

Optional parameters

-display is a WinCenter Pro requirement that causes the program to display on the IBM Network Station rather than on the remote host. \${IP} is an IBM-supplied environment variable that gets replaced with the IP address of the IBM Network Station.

The required parameters for WinCenter Pro are: -display and \${IP}:0.

9. Click Finish to apply the WinCenter Pro remote program setting.
10. Log off and then log on your IBM Network Station. In the Menu bar there will be a button that is labeled WinCenter Pro, as shown in Figure 25.

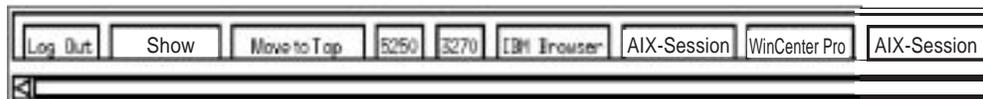


Figure 25. Menu Button for Remote Program Example for NT - EDBAR

11. Click WinCenter Pro and a window will open with your WinCenter session.

Chapter 4. Running Applications on Network Station in the CDE/XDM Environment

Local clients (or local commands) are X programs that run on your own IBM Network Station's processor, not on the RS/6000 server.

Available Local Clients

The following table lists the local clients currently available on IBM Network Station for AIX, and the corresponding command name to use when running the command from a remote shell, starting the client at boot time, or integrating the CDE desktop to start the local client. (See "Starting Local Clients and Utilities" on page 30 for instructions.)

Local Client	Command
Window Manager	wm
Telnet	term -ctype telnet [<i>host</i>]
5250 terminal emulator	ns5250 [-port <i>portnumber</i>] [<i>host</i>]
3270 terminal emulator	ns3270 [-port <i>portnumber</i>] <i>host</i>
Java applications	java -classpath <i>path</i> <i>java_application</i>
Java applets	appletviewer <i>html</i>

Window manager

See "CDE login and local window manager" on page 55 for a description of the IBM Network Station local window manager.

Telnet

The Telnet client gives you VT100 terminal access to UNIX hosts.

5250 terminal emulation

The 5250 client provides access to an AS/400 system.

3270 terminal emulation

The 3270 client provides access to a System/390.

Java applications

Java applications are portable, machine-independent programs that can be downloaded from the Internet to run on your IBM Network Station. :0. See Appendix B, "Running Java Applets and Applications under CDE/XDM Environment" on page 59 for additional information about running Java applications.

Additional information about Java is also available at these web sites:

- JavaSoft home page—<http://www.javasoft.com>

- IBM Java home page—<http://www.hursley.ibm.com/java>

Java applets

Java applets are small, reusable components that are imbedded within an HTML file. Applets utilize a browser on the client system to provide windows and graphical layout for the applet.

See Appendix B, “Running Java Applets and Applications under CDE/XDM Environment” on page 59 for additional information about running Java applets.

Additional information about Java is also available at these web sites:

- JavaSoft home page—<http://www.javasoft.com>
- IBM Java home page—<http://www.hursley.ibm.com/java>

Available Local Utilities

The following table lists the local utilities currently available on IBM Network Station for AIX, and the corresponding command name to use when running the utility from a remote shell, starting the utility at boot time, or integrating the CDE desktop to start the utility. (See “Starting Local Clients and Utilities” for instructions.)

<i>Table 2. Local Utilities</i>	
Local Utility	Command
Console	console
Terminal Host Chooser	term
Statistics	stats
IBM Login (AS/400, MVS, NT)	actlogin
Memory	show memory
Version	show version
Connections	show connections
Logout	logout

Starting Local Clients and Utilities

You can start the local clients and utilities available on your system by one or more of these methods, depending on how your system administrator has configured your IBM Network Station:

- by remote shell (rsh)
- at boot time
- from the CDE desktop

By remote shell (rsh)

You can start local clients and utilities by using local client command names in remote shell commands. Remote shell command syntax is:

```
rsh hostname command
```

where *hostname* is the IBM Network Station where the local client is to run and *command* is the local client command.

At boot time

Your system administrator can set the **exec-startup-command** so that when you boot your IBM Network Station, some or all locally available clients and utilities are automatically started.

From the CDE desktop

Your CDE desktop can be configured to open a local client when you select its icon from the **Application Manager** window. See Appendix A, “Advanced CDE/XDM Session Configuration” on page 55 for instructions.

Chapter 5. Running Applications on Network Station in the Common Login Environment

In the Common Login Environment, applications are started by selecting buttons on the menu bar. By default, there are five buttons for applications to start with. They are 5250, 3270, NSterm, IBM Browser, and Navio Browser. Before you use any of these applications, please make sure that it is installed on the server that your Network Station is booted from. If it is not, clicking on the button will have no effect.

Working with the NSterm Application

The NSterm application provides access to RS/6000 via telnet sessions. NSterm basically is a VT320-style terminal emulator that allows Network Station users to logon to any RS/6000 remotely. After you click the **NSterm** button within the IBM Network Station menu bar, a new NSterm Host Chooser window appears and prompts for "Service:" Enter the host name of the RS/6000 that you intended to access, making sure that the "Net:" field has "Telnet" specified.

Note: You can use the name of the system or the IP address of the system to log on. To use a system name, you must set up name translation information in your TCP/IP configuration.

Depending on the volume of network traffic, you can expect it to take from several seconds up to a minute to see the Host Login Session screen appear.

Click the **OK** button to invoke the telnet session. When the telnet session is established, the NSterm Host Chooser disappears, the terminal emulator window appears, and a host login prompt appears.

Working with the 3270 Application

The 3270 application provides access to a System/390. How a 3270 session is presented on the IBM Network Station depends on how you configured the session using the IBM Network Station Manager program.

If you used the Menu feature of the Startup function (within the IBM Network Station Manager program) and you added a New 3270 session labeled MY3270, that Menu button (labeled MY3270) will appear within the menu bar as shown in Figure 26.

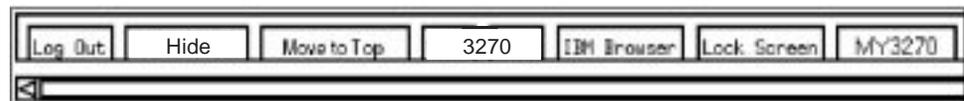


Figure 26. IBM Network Station Menu Bar with NEW3270 Button

If the 3270 session was set to autostart, a 3270 session will appear on the screen of your IBM Network Station as shown in Figure 27 on page 34.

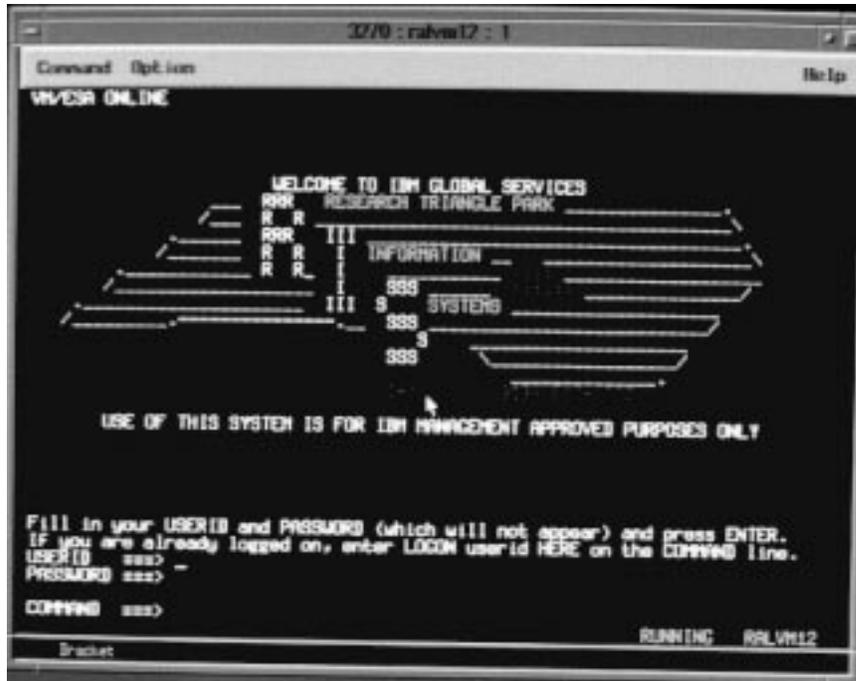


Figure 27. 3270 Session Display

If autostart was not specified and you click the 3270 button within the IBM Network Station menu bar, a New 3270 Session window appears as shown in Figure 28.

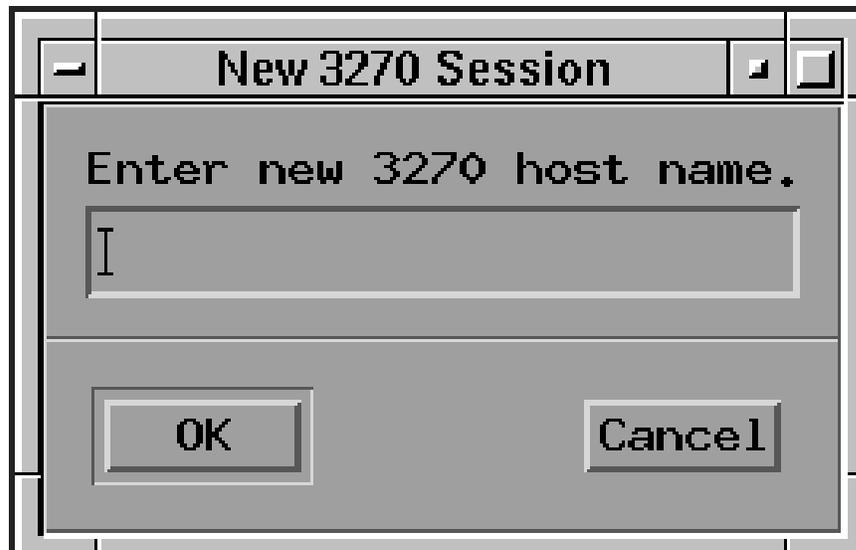


Figure 28. New 3270 Session Dialog Box

Note: You can use the name of the system or the IP address of the system to log on. To use a system name, you must set up name translation information in your TCP/IP configuration.

Depending on the volume of network traffic, you can expect it to take from several seconds up to a minute to see the Host Login Session screen appear.

Learning About the 3270 Emulation Function

3270 emulation provides system users with greater function than they normally receive if they just use a 3270 nonprogrammable work station (NWS) to access a System/390. This additional function is available by clicking various pulldown options from the 3270 menu bar as shown in Figure 29:

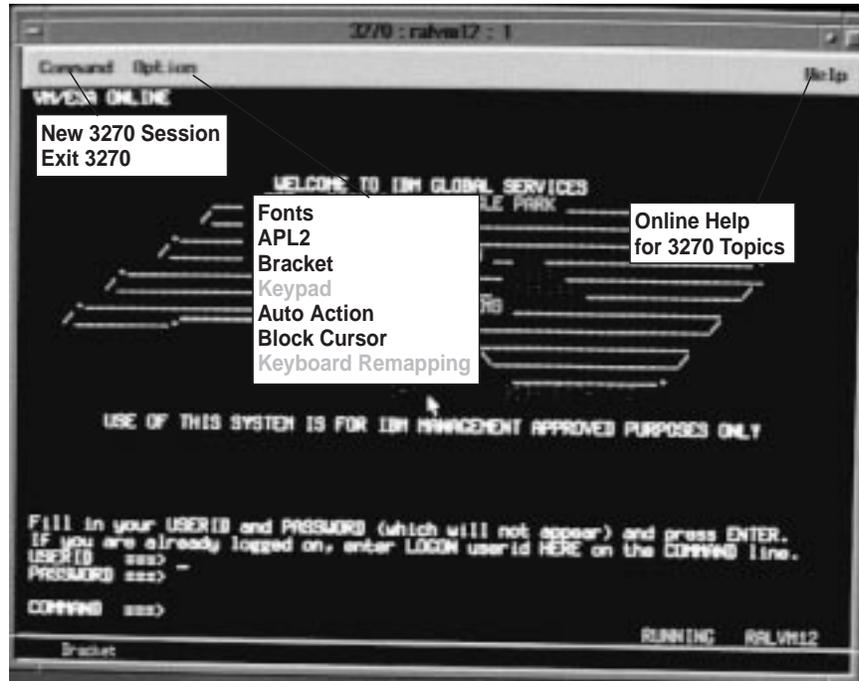


Figure 29. 3270 Emulation Session with Expanded Pulldowns

As shown in Figure 29, pulldowns are available to allow you to quickly access 3270 emulation functions such as font selection by session (Option pulldown) and online help (Help).

The following list contains some of the 3270 emulation support:

- Keyboard remapping¹
- Graphics support¹
- Choosing an Enter key location¹
- Screen size support (for example: 24 x 80, 32 x 80, 43 x 80, and 27 x 132)¹
- APL character mode support
- Pop-up keypad support¹
- Copy and paste functions
- Auto action¹
- Cursor style options (for example: underscore, block)
- Customizable window title¹

All the 3270 emulation functions have shipped defaults. Those functions that are managed by the IBM Network Station Manager program also have IBM-supplied defaults.

¹ The IBM Network Station Manager program controls these 3270 emulation functions. The online help in the IBM Network Station Manager program provides more information along with all 3270 emulation default settings.

Accessing the 3270 emulation Help (clicking the Help button) will provide more information on how to make each of these 3270 emulation functions work.

Accessing Help

You can access help for the 3270 Emulator or your Host session.

For the 3270 emulator, place your mouse pointer in the emulator's menu bar and click Help. In general, to access help for the 3270 application, place your mouse pointer inside the Host session window and press F1.

Working with the 5250 Emulation Application

The 5250 application provides access to a host system. How each 5250 session is presented on the IBM Network Station depends on how you configured the session using the IBM Network Station Manager program.

If you used the Menu feature of the Startup function (within the IBM Network Station Manager program) and you added a new 5250 session labeled MY5250, that menu button (labeled MY5250) will appear within the menu bar as shown in Figure 30.



Figure 30. Menu Bar with New 5250 Button - menu5250

If, in the IBM Network Station Manager program, the 5250 session was set to autostart, a 5250 session will appear running on the screen of your IBM Network Station as shown in Figure 31.

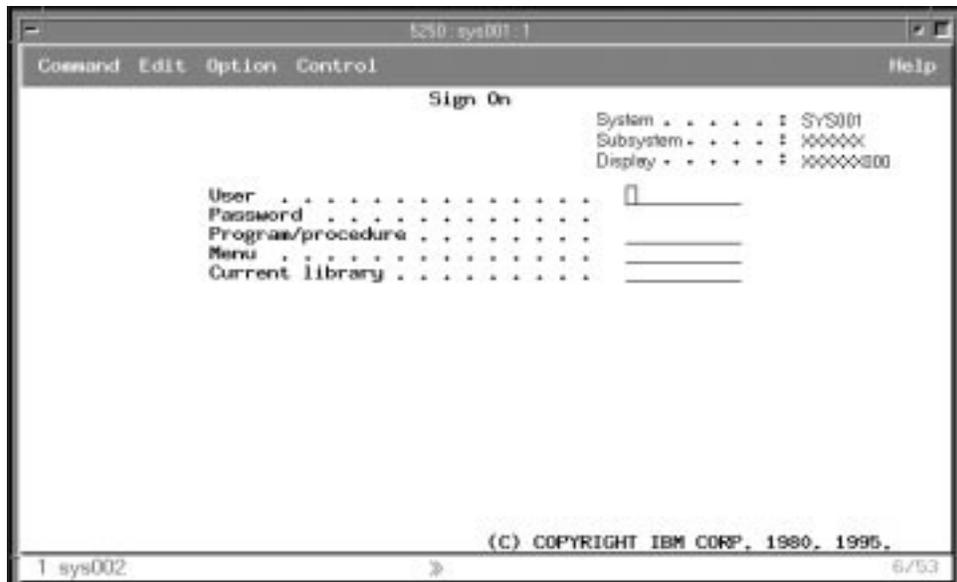


Figure 31. 5250 Session Display

If you click the 5250 button within the IBM Network Station menu bar, a New 5250 Session window appears as shown in Figure 32 on page 37.

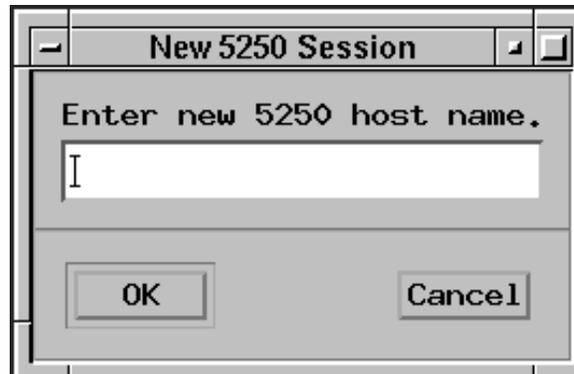


Figure 32. New 5250 Session Dialog Box

Note: You can use the name of the system or the IP address of the system to connect to or start a session. To use a system name, you must set up name translation information in your TCP/IP configuration.

Depending on the volume of network traffic, you can expect it to take from several seconds up to a minute to see the host sign-on display appear.

Learning About the 5250 Emulation Function

5250 emulation provides system users with greater function than they normally receive if they just use a nonprogrammable work station (NWS) to access the system. This additional function is available by clicking various pulldown options from the 5250 menu bar as shown in Figure 33:

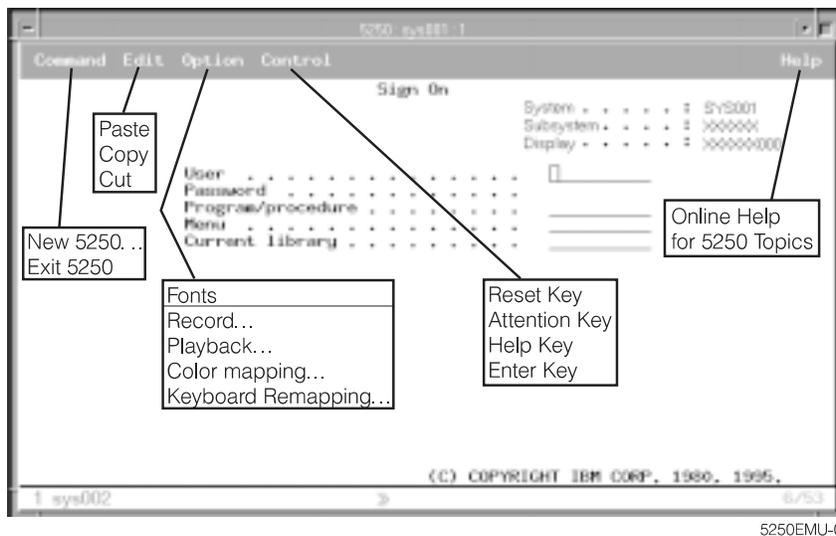


Figure 33. 5250 Emulation Session with Expanded Pulldowns

As shown in Figure 33, pulldowns are available to allow you to quickly access 5250 emulation functions such as multi-session support (Command pulldown), font selection by session (Option pulldown), and online help (Help).

The following list contains additional 5250 emulation support:

- Keyboard remapping²
- Color mapping (basic and advanced)²
- Record/playback capability²
- Autostart of playback file (from the Record/playback function)²
- Auto-logon
- Enter key location (you can specify your choice of key to be used for the Enter key)
- Multiple screen size support (for example: 24 X 80, 27 X 132)
- OV/400 controller text assist
- Cut, copy, paste function²
- Hotspot support
- Cursor style options (for example, block or underscore)
- Rule line support
- Row and column indicator
- Customizable window title²
- Column separator function

All the 5250 emulation functions have shipped defaults. Those functions that are managed by the IBM Network Station Manager program also have IBM-supplied defaults.

Accessing the online 5250 Emulation Help (by clicking the Help button) will provide more information on how to make each of these 5250 Emulation functions work.

Accessing Help

You can access help for the 5250 Emulator or your host session.

For the 5250 emulator, place your mouse pointer in the emulator's Menu bar and click Help. To access help for RS/6000, sign on to the RS/6000, place your mouse pointer in the host session window and press F1.

Working with the IBM Browser

The IBM Browser can provide access to the Internet. It is also used to access the IBM Network Station Manager program, which is used to manage IBM Network Station users and workstations.

If you used the Menu feature of the Startup function (within the IBM Network Station Manager program) and you added a new IBM Network Station Browser session labeled IBM Browser, that Menu button (labeled IBM Browser) will appear within the menu bar as shown in Figure 34.

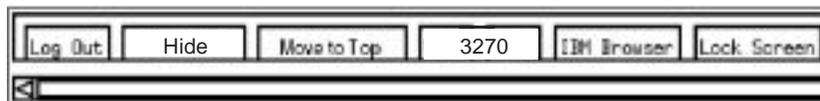


Figure 34. IBM Network Station Menu Bar with IBM Browser Button

² The IBM Network Station Manager program controls these 5250 Emulation functions. The online help in the IBM Network Station Manager program provides more information along with all 5250 emulation default settings.

If the IBM Browser session was set to autostart, an IBM Browser session will appear on the screen of your IBM Network Station as shown in Figure 35 on page 39.



Figure 35. IBM Browser Session Display

If autostart was not specified, and you click the IBM Browser button within the menu bar, an instance of the IBM Browser appears.

Depending on the volume of network traffic, you can expect it to take from several seconds up to a minute to see the new IBM Browser screen appear.

IBM Browser News - What is the Latest?

To find out the latest information about IBM Browser features and what is new with this level of the IBM Browser product, click Help on the IBM Browser main page.

Select the HELP Page option from the Help pulldown.

In the Contents frame, scroll to Frequently Asked Questions (FAQ) or the README items. Either of these items provide late-breaking information about the IBM Browser.

IBM Browser Capabilities

Key IBM Browser features that are available in the first release of the browser include the following:

- Ability to display Web pages that contain text, HTML, GIF images (including animated GIFs), and JPEG images
- Javascript 1.1 or compatible
- HTML 3.2

- Frames
- SSL 2 at 128 or 40 bit levels (in separate versions of the product, for US and Canada, or for export, respectively)
- Java applets can be run by the IBM Network Station Java VM

IBM Browser MIME Types:

<i>Table 3. IBM Browser MIME Types</i>	
TYPE/SUBTYPE	USAGE
Text/plain	Plain text with no HTML tags
Text/HTML	Text with HTML markup tags
Image/gif	GIF images, including animated GIFs
Image/jpeg	JPEG images
Note: No other MIME types are supported (because they require plug-ins or helper applications).	

IBM Browser URL Types Supported

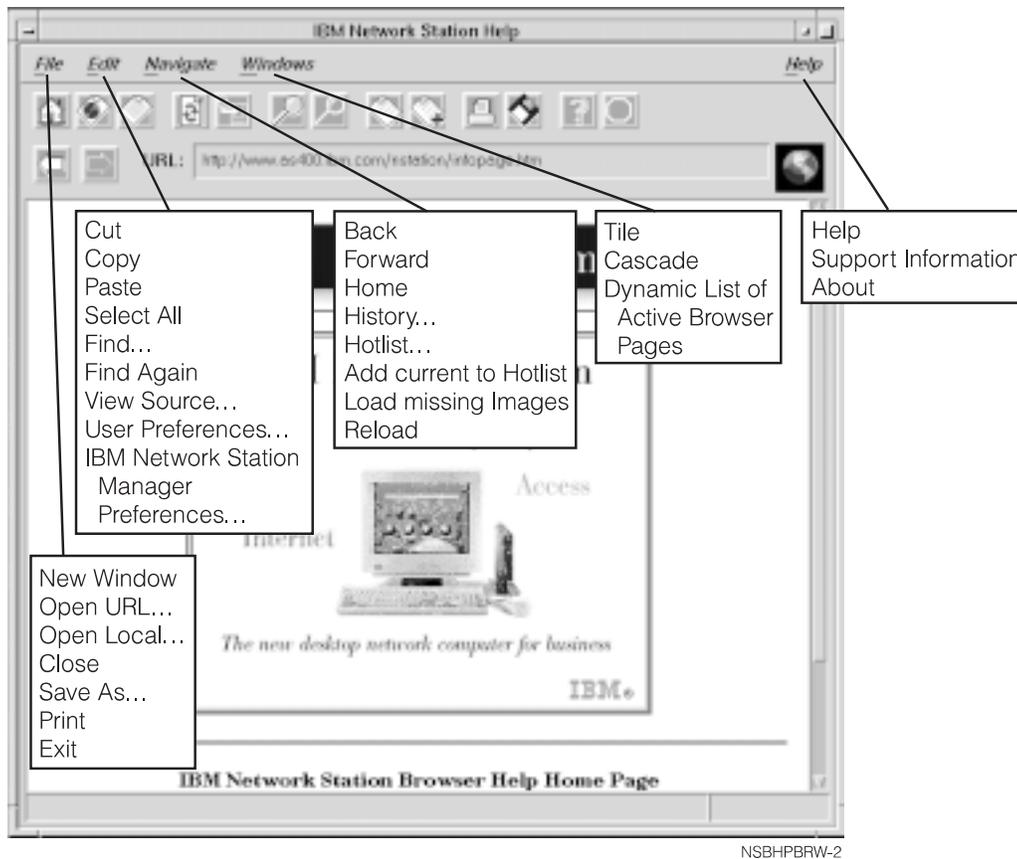
The IBM Browser can handle the following URL types:

<i>Table 4. IBM Browser URL Types Supported</i>	
URL TYPE	USAGE
HTTP	Display content using HTTP protocol, such as any web page with HTML, and so forth
HTTPS	Same as HTTP, but using SSL security
MAILTO	Start the e-mail editor to create and send an e-mail message
ABOUT	Display copyright information about the browser
FTP	Open an FTP session
JAVASCRIPT	Run JavaScript
VIEW SOURCE	Display source file

Learning About IBM Network Station Browser Functions

The IBM Network Station Browser licensed program has many capabilities to help you manage Internet access and quick connection the IBM Network Station Manager program.

These functions, and others, are available by clicking various pulldown options from the IBM Browser menu bar as shown in Figure 36 on page 41 :



NSBHPBRW-2

Figure 36. IBM Network Station Browser with Extended Pull-downs

As shown in Figure 36, pull-downs are available to allow you to quickly access IBM Browser functions such as multiple IBM Browser session support (New Window in the File pull-down), font selection by user (User Preferences in the Edit pull-down), and online help (Help).

The following list contains some of the IBM Network Station Browser support:

- Open URL. . .
- Open Local. . .
Opens an ASCII or HTML file.
- Close
- Save As. . .
Saves a file with user-specified name and file extension.
- Print³
- View Source. . .
Views the program source for the file in the current IBM Browser session.
- User Preferences³

³ The IBM Network Station Manager program controls these IBM Browser functions. The online help in the IBM Network Station Manager program provides more information along with all IBM Browser default settings.

Allows configuration of fonts, colors, printing, caching and so on.

- IBM Network Station Manager program preferences. . .
Provides a direct link to the IBM Network Station Manager program.
- History. . .
Provides a list of web pages that were visited during the current IBM Browser session.
- Hotlist
A list of frequently visited web pages. Access the web page by clicking the Hotlist entry.
- Tile
Tile allows you to manage how multiple IBM Browser sessions will be presented on the display screen. For example, assume that you want four sessions. You can use the Tile function to specify two side-by-side sessions at the top of the display followed by two side-by-side sessions at the bottom of the display.
- Cascade
Cascade allows you to manage multiple IBM Browser sessions on the display screen by layering one over the other. Each new session is slightly lower than the previous session, thus allowing a user to work with all active IBM Browser sessions.
- Help Page
Allows a user to access Help for the IBM Browser through a Contents listing on this page. Key topics are the README and the Frequently Asked Questions (FAQ).
- Support Information
Allows a user to view and save IBM Browser support information to a file.

Many of the IBM Browser functions have shipped defaults. Those functions that are managed by the IBM Network Station Manager program also have IBM-supplied defaults.

Accessing Help

You can access help for the IBM Browser via the Help menu option. The help includes a Frequently Asked Questions (FAQ) section, and an addendum for last-minute changes.

For IBM Browser help, place your mouse pointer in the IBM Browser Menu bar and click Help.

Changing the IBM Browser Encryption Level for Improved Transaction Security

To change the IBM Browser encryption capability, use the IBM Network Station Manager program. You will need to work with the Internet Setup Task and select Network.

Working with the Navio NC Navigator Browser

Navio NC Navigator Browser can provide access to the Internet. It is also used to access the IBM Network Station Manager program, which is used to manage IBM Network Station users and workstations.

If you used the Menu feature of the Startup function (within the IBM Network Station Manager program) and you added a new Navio NC Navigator Browser session labeled Navio Browser, that Menu button (labeled Navio Browser) will appear within the Menu bar as shown in Figure 37.

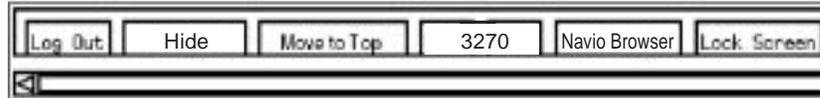


Figure 37. IBM Network Station Menu Bar with Navio Button

If the Navio NC Navigator browser session was set to autostart, an Navio NC Navigator browser session will appear on the screen of your IBM Network Station as shown in Figure 38.

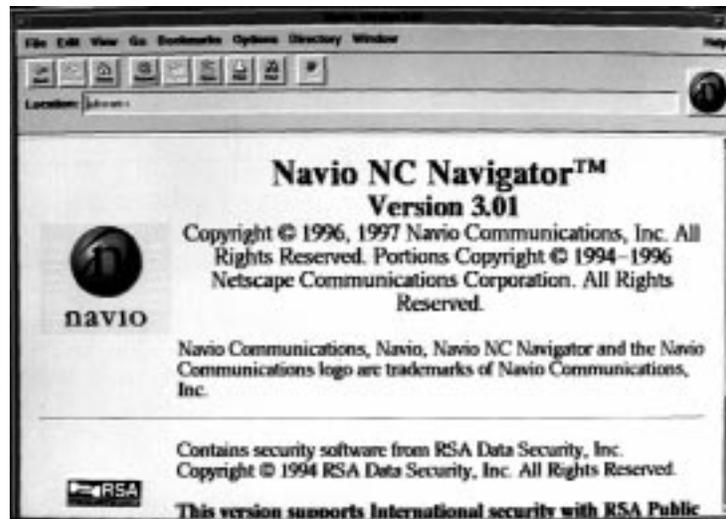


Figure 38. Navio NC Navigator Browser Session Display

If autostart was not specified, and you click the Navio button within the Menu bar, an instance of the Navio NC Navigator browser appears.

Depending on the volume of network traffic, you can expect it to take from several seconds up to a minute to see the new Navio NC Navigator browser screen appear.

Navio NC Navigator Browser News - What is the Latest?

To find out the latest information about Navio NC Navigator browser features and what is new with this level of the Navio NC Navigator browser product, click Help on the Navio NC Navigator main page.

Select the HELP for Navio NC Navigator option from the Help pulldown.

In the Contents frame, scroll to Frequently Asked Questions (FAQ) or the README items. Either of these items provide late-breaking information about the Navio NC Navigator browser.

Navio NC Navigator Browser Capabilities

In general, Navio NC Navigator is a compatible subset of the popular Netscape Navigator 3.01 browser (UNIX version). Key features that are available include the following:

- Ability to display Web pages that contain text, HTML, GIF images (including animated GIFs), and JPEG images
- Javascript 3
- HTML Compatible with Navigator 3.01
- Frames
- SSL 2 and 3 at 128 or 40 bit levels (in separate versions of the product, for US and Canada, or for export, respectively) with server and client certificates
- Java applets can be run by the IBM Network Station Java VM

Navio NC Navigator MIME Types:

<i>Table 5. Navio NC Navigator MIME Types</i>	
TYPE/SUBTYPE	USAGE
Text/plain	Plain text with no HTML tags
Text/HTML	Text with HTML markup tags
Image/gif	GIF images, including animated GIFs
Image/jpeg	JPEG images
Note: No other MIME types are supported (because they require plug-ins or helper applications).	

Navio NC Navigator URL Types Supported

The Navio NC Navigator Browser can handle the following URL types:

<i>Table 6. Navio NC Navigator URL Types Supported</i>	
URL TYPE	USAGE
HTTP	Display content using HTTP protocol, such as any web page with HTML, and so forth
HTTPS	Same as HTTP, but using SSL security
MAILTO	Start the e-mail editor to create and send an e-mail message
ABOUT	Display copyright information about the browser
FTP	Open an FTP session
JAVASCRIPT	Run JavaScript
VIEW SOURCE	Display source file

Learning About Navio NC Navigator Browser Functions

The Navio NC Navigator browser licensed program has many capabilities to help you manage Internet access and quick connection to the IBM Network Station Manager program.

These functions, and others, are available by clicking various pulldown options from the Navio NC Navigator browser Menu bar as shown in Figure 39:

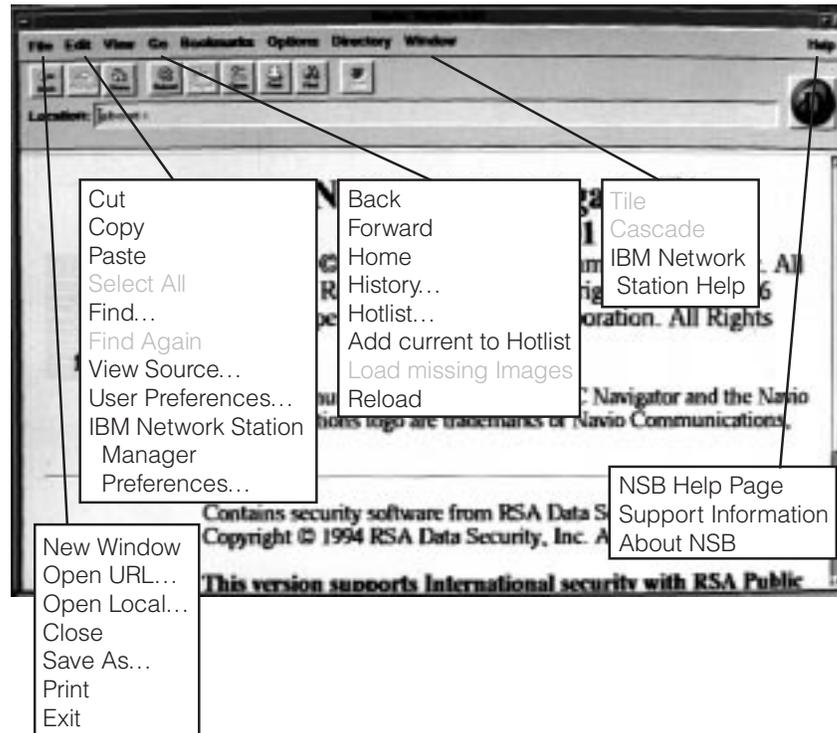


Figure 39. Navio NC Navigator Browser with Extended Pulldowns

As shown in Figure 37 on page 43, pulldowns are available to allow you to quickly access Navio NC Navigator functions such as multiple Navio NC Navigator browser session support (New Web Browser in the File pulldown), font selection by user (General Preferences in the Option pulldown), and online help (Help).

The following information presents and describes some of the Navio NC Navigator browser support.

File Pulldown

The following Navio NC Navigator functions are available from the File pulldown:

New Web Browser

Provides another session of the Navio NC Navigator browser to appear on your screen.

New Mail Message

Provides the capability to address and send E-mail to another person. To use New Mail Message, you must have the Identity tab, located in the Options pulldown under Mail & News Preferences, completed.

Mail Document

Provides the capability to address and send documents to another person. To use Mail Document, you must have the Identity tab, located in the Options pulldown under Mail & News Preferences, completed.

Open Location

Provides the capability to specify a URL address that, when requested, is displayed in the browser window.

Open File

Provides the capability to specify a file that, when requested, is displayed in the browser window.

Save as. . .

Provides the capability to save (with a different name and file type) a document or file currently displayed in the browser.

Print

Provides the capability to specify how (paper size, print orientation, font, which pages, and so on) a document currently displayed in the browser will be printed.

Close

Provides the capability to close the current browser window. Any other browser windows remain open.

Exit

Provides the capability to close all browser sessions at once.

Edit Pulldown

The following Navio NC Navigator functions are available from the Edit pulldown:

Undo

Provides the capability to undo or cancel the previous operation. For example, if you deleted a word and decided you did not want to, you could click undo and the word would return.

Cut

Provides the capability to delete specified pieces of a document.

Copy

Provides the capability to copy specified pieces of a document so that it can be pasted elsewhere.

Paste

Provides the capability to paste (or insert) specified pieces of a document that had been marked for either copying or cutting (deleting).

Find

Provides the capability to search a document for a specified word or text string.

Find Again

Provides the capability to search a document for multiple occurrences of a word or text string.

View Pulldown

The following Navio NC Navigator functions are available from the View pulldown:

Reload

Provides the capability to reload (retrieve) the currently displayed page. You also have a Reload button in the Tool bar.

Reload Frame

Provides the capability to reload the active frame of a document currently displayed in the browser.

Load Images

Provides the capability to retrieve the images for the document currently displayed in the browser. Load Images only works if the Auto Load Images function (located in the Options pulldown) is off.

Refresh

Provides the capability to retrieve a new copy of the currently displayed document. The new copy is retrieved from cache, not from a server.

Document Source

Provides the capability to view the HTML source of the currently displayed document.

Document Info

Provides the capability to retrieve basic information about the currently displayed document. For example, creation date, date last modified, size, number of URL links on the page.

Frame Source

Provides the capability to view the HTML source for the active frame currently displayed in the browser.

Frame Info

Provides the capability to retrieve basic information about the active frame currently displayed in the browser. For example, creation date, date last modified, size, number of URL links on the page.

Go Pulldown

The following Navio NC Navigator functions are available from the Go pulldown:

Back

Provides the capability to navigate backwards to previously accessed documents. Back is only active if you have been to one or more documents. A Back button is also available on the Tool bar.

Forward

Provides the capability to navigate forward to previously visited documents. Forward is only active if you have been to a document and then navigated (or moved) backwards. A Forward button is also available on the Tool bar.

Stop

Provides the capability to stop or end the activity of loading a new document to be displayed in the browser. A Stop button is also available on the Tool bar.

Remainder of Go Pulldown

Entries in the remainder of the Go pulldown represent URL locations that you have been to in the current browser session. You can access these locations

by clicking on them or by pressing the listed combination of keys (usually Alt + a number).

Bookmarks Pulldown

The following Navio NC Navigator functions are available from the Bookmarks pulldown:

Add Bookmark

Provides the capability of adding the URL of the currently displayed document to your list of bookmarks. Bookmarks is a list of URLs that a user frequently visits. Placing the URL in the Bookmark list gives a user quick access to those URLs.

Remainder of Bookmarks Pulldown

Entries in the remainder of the Bookmarks pulldown represent URL locations that can be accessed by clicking them. To change or delete items that you have added to this list, use the Bookmarks item on the Window pulldown.

Options Pulldown

The following Navio NC Navigator functions are available from the Options pulldown:

General Preferences...

Provides the capability to customize browser appearance, browser fonts, and how images are handled by the browser.

Mail and News Preferences...

Mail and News Preferences consists of the following tabs:

- Compose

Provides the capability to specify how E-mail is handled when it is mailed.

- Servers

Provides the capability to view the name of the SMTP server.

- Identity

Provides the capability of identifying yourself and your organization for the purpose of using E-mail and the sending of documents.

Network Preferences

Network Preferences consists of the following tabs:

- Cache

Provides the capability to clear memory caches and specify how often cached documents are verified.

- Connections

Provides the capability to specify the number of connections to an internet server and to determine the size of the network buffer (amount of data Navio NC Navigator can receive in a transmission).

- Proxies

Provides the capability to view your proxy configurations. You have to work with the network administrator to understand or change any proxy configurations.

- Protocols

Provides the ability for you to be notified before accepting a cookie from a remote server. A cookie is a mechanism that allows a server to remember information about you that the server can use in subsequent sessions.

- Languages

Provides the capability to view how Java and JavaScript are configured. Java and JavaScript are controlled by the IBM Network Station Manager program. Work with your system administrator if changes need to be made to the configuration of Java or JavaScript.

Security Preferences

Security preferences consist of the following tabs:

- General

Provides the capability to set an alert when entering, leaving, viewing, or submitting a document insecurely. These alerts can also remind you of when you change levels of security.

- Passwords

Provides the capability to specify that a password be required from people who want to access your computer.

- Personal Certificates

Provides validation of who you say you are when attempting to access a secure server. Personal certificates are password protected (from the password tab). To obtain personal certificates you have to contact companies that issue personal certificates. If a personal certificate is issued, it is typically downloaded to your computer and accessible through the browser. You can view or delete personal certificates. However, you can not edit or modify personal certificates.

- Site Certificates

Provides validation that this user, on this machine (the site), is who they say they are while attempting to access a secure server. Site certificates can be issued by secure servers. They are typically downloaded to your computer and accessible through the browser. You can view or delete site certificates. However, you can not edit or modify site certificates.

Show Menubar

Provides the capability to have the Menu bar displayed or not displayed during a browser session. The Menu bar contains the File, Edit, View, Go, Bookmarks, Options, Directory, Window, and Help pulldowns. If you deselect Show Menubar, the Menu bar immediately disappears from the browser. To retrieve the Menu bar, press the right mouse button and select Show Menubar.

Show Toolbar

Provides the capability to have the Toolbar displayed or not displayed during a browser session. The Toolbar provides buttons for Back, Forward, Home, Reload, Images, Open, Print, Find, and Stop buttons. If you deselect Show Toolbar, the Toolbar immediately disappears from the browser. To retrieve the Toolbar, select the Options pulldown and select Show Toolbar.

Show Location

Provides the capability to enter a URL directly from the keyboard and show the URL for the current document.

Show Directory Buttons

Provides the capability to display or not display directory buttons. Directory buttons provide users with quick access to specified URLs. Directory buttons are best used to provide access to certain URLs for all users. Directory buttons are similar to Bookmarks; however, Bookmarks are generally used for personal preference rather than for a whole organization. Directory buttons, when specified, appear below the Location field in the browser. Directory buttons are managed through the IBM Network Station Manager program. No Directory buttons will be shown unless they have been defined by your installation.

Auto Load Images

Provides the capability to have images loaded automatically or not at all when a document is requested. You may want to select this option if you are browsing documents on remote servers. Auto Load Images works in conjunction with the Load Images item in the View pulldown. If Auto Load Images is disabled, images can be loaded for a particular document by using the Load Images function under the View pulldown.

Save Options

Provides the capability to immediately save any changes made to any Options.

Directory Pulldown

The following Navio NC Navigator functions are available from the Directory pulldown:

Navio's Home

This Directory entry provides a link to Navio's home page.

You must be able to access the Internet to use this item.

IBM Network Computing

This Directory entry provides a link to IBM's Network Computing home page.

You must be able to access the Internet to use this item.

IBM Home Page

This Directory entry provides a link to IBM's corporate home page.

You must be able to access the Internet to use this item.

IBM Network Station Manager for (your system name appears here)

This Directory entry provides a link to the IBM Network Station Manager program for the server system that your IBM Network Station was loaded from.

This program is used to manage all IBM Network Stations and their users.

Window Pulldown

The following Navio NC Navigator functions are available from the Window pulldown:

Address Book

Provides the capability to compile a book of names and addresses of individuals or groups you correspond with on a regular basis. This item is used for sending mail.

Search, editing, and filing capabilities are also provided in the Address Book function.

Bookmarks

Provides the capability to file, edit, and manage your personal lists of bookmarks.

The Bookmark function activities you perform are reflected in the list of bookmarks that you can view using the Bookmarks pulldown in the Tool bar. For example, if you have two bookmarks whose names are very similar, you could edit one of them and add a text string that more readily identifies the bookmark when you access the Bookmarks pulldown.

History

Provides the capability to view a list of documents you have accessed during this session.

From this list you can create bookmarks for documents previously accessed or go directly to any selected document.

Remainder of Window Pulldown

The remainder of the Window pulldown contains a list of documents you have accessed during this session. You can access the document by pressing the push button next to it.

Help Pulldown

The following Navio NC Navigator functions are available from the Help pulldown:

About Navio NC Navigator

Provides the version level and trademarking information about Navio NC Navigator.

Help for Navio NC Navigator

Provides help information and Frequently Asked Questions (FAQs).

Navio NC Navigator Handbook

Provides additional information about using the browser.

Many of the Navio NC Navigator browser functions have shipped defaults. Those functions that are managed by the IBM Network Station Manager program also have IBM-supplied defaults.

Accessing Help

You can access help for the Navio NC Navigator browser using the Help menu option. The help includes a Frequently Asked Questions (FAQ) section, and an addendum for last-minute changes.

For Navio NC Navigator browser help, place your mouse pointer in the Navio NC Navigator browser Menu bar and click Help.

JAVA VM

You can set up Java applets and applications by using the IBM Network Station Manager. The applets and applications can be set to either autostart (they appear running on your Network Station when you login) or set as menu items (they appear as buttons in the menu bar).

Note: Only a single Java application can run within the IBM Network Station and, if running, also precludes applets from running in both the desktop and in the browser.

The Java Virtual Machine (JVM) and the supporting class packages that were installed with the product together provide an environment for programs that were written and compiled in the Java programming language. The current level of Java that is supported by the IBM Network Station is equivalent to the 1.0.2 level distribution of the Java Development Kit (JDK) from JavaSoft. You can start and configure Java programs through the IBM Network Station Manager program.

What Is Java?

Java is an object-oriented programming language. Java is compiled into a byte code stream which JVM interprets at runtime. Java programs are portable and, in general, may be run on any computer that supports a JVM. This is one of the primary attractions of the Java language.

What do I do with Java?

In order to use Java, you must first obtain a program that was written in Java. This may be a program that you have purchased, downloaded from the Internet, or written and compiled by yourself. In general, the IBM Network Station is not geared towards being a development platform; therefore any significant program should be developed on another platform before loading it on the IBM Network Station.

What are Java Applications and Applets?

There are two kinds of Java programs: those which are intended to be transferred and run across the Internet (applets), and those which run as programs from the local file system (applications). The first variety, applets, are designed so that they utilize a browser to provide windows and graphical layout for the applet. In general, these applets are not trusted by the browser since they are downloaded across the Internet and there is no way of knowing the intent of the author. Therefore, the browser has the ability to restrict applets from reading or writing to local files and from connecting to machines other than the machine from which they are downloaded. These restrictions are intended to protect the user from malicious programs and provide a safe environment to examine programs on the Internet.

Starting an Application

An application must be installed on the file system of the server.

Notes:

1. Only a single Java application can run within the IBM Network Station and, if running, also precludes applets from running in both the desktop and in the browser.
2. In order to run a Java application, the IBM Network Station Manager program must be used to either autostart the application or create a button on the IBM Network Station menu bar.

Starting an Applet

Applets can be installed on the file system of the server that is your boot host, or downloaded from a remote system by using a Uniform Resource Locator (URL). The applet to load is specified through tags on an HTML page.

Applets can be run three different ways:

- By creating a button on the IBM Network Station menu bar for an applet
- By creating a button for a browser URL
- By starting a browser then loading an HTML page which contains an applet

Configuration of the applet is managed through parameter tags within the HTML file (the specific parameter names are determined by the applet vendor). Applets that load from the file system of your boot host should be well-known and trusted applets (the source of the applets is reliable). There are no security restrictions placed on applets that run from the local file system, so the applet may write to files and communicate with other machines (which may be desirable if you are saving your spreadsheet, but it would be a problem if a malicious applet decided to erase your files).

Where do I find Additional Information on Java?

You can find additional information at the following web sites.

JavaSoft home page:

<http://www.javasoft.com>

IBM Java home page:

<http://www.ibm.com/java>

Appendix A. Advanced CDE/XDM Session Configuration

Basic Session Configuration

Common Desktop Environment (CDE)

The CDE Style Manager lets you customize the colors, fonts, backdrops, keyboard, mouse, bell screen, window, startup, and workspace behavior of the desktop.

Extensive help is available for Style Manager. Select the **Help** icon from the toolbar, select **Common Desktop Environment** from the Welcome to Help Manager menu, then select **Style Manager Help** from the Common Desktop Environment menu.

X Display Manager (XDM) and Motif Windows Manager (MWM)

You can customize your Motif Window Manager desktop by using the custom tool, and also creating a `.xinitrc` and a `.mwmrc` file in your home directory. See the *AIXWindows Desktop Advanced User's and System Administrator's Guide* (SC23-2671) for instructions.

Advanced Session Configuration

CDE login and local window manager

As previously discussed, the IBM Network Station also offers its own local window manager client, based on Motif Window Manager, but simpler and less resource intensive. If your system has been set up to start CDE as your environment, but you'd prefer to use the IBM Network Station's local window manager client, add the following to your `$HOME/.Xdefaults` file:

```
#ifdef EXT_NCD_SETUP
Dtsession*wmStartupCommand: /usr/bin/rsh SERVERHOST wm
#endif
```

After adding the above line to your `.Xdefaults` file, you'll have to log out of your current session, then log back in for the change to take effect.

Note: This type of session does not use the CDE Front Panel and doesn't allow access to the normal CDE root window capabilities. The local window manager root menu can be accessed by pressing the Shift and Alt keys on the keyboard and the right mouse button.

When you're ready to log out, press the Pause/Break key to bring up the console window, select the **Login** menu, then select **Logout** from the Login pull-down menu.

You can also log out from the root menu. Press the Shift and Alt keys on the keyboard and the right mouse button, then select **Logout** from the root menu.

X Server preferences

As a user, you can set a number of preferences for your IBM Network Station sessions by creating a **\$HOME/.netstationrc** file.

This is a typical entry in the **.netstationrc** file:

```
set pref-mouse-arrangement = left-handed
```

To understand the meaning of a parameter listed in any of the configuration files in **/usr/netstation/configs**, refer to the **/usr/netstation/configs/configd.doc** file, which contains descriptive information about each parameter.

Note: Since the **configd.doc** file contains entries for hundreds of parameters, a useful way to find the one you need is to open the file in a text editor (for example, vi), then search for the parameter you want to change.

This is the **configd.doc** entry for the **pref-mouse-arrangement** parameter:

NAME	pref-mouse-arrangement
HIDEBOX	Console=>Setup=>Change User Preferences=> Pointing Devices=>Button Arrangement
SNMP NAME	ncdPrefMouseButtonArrangement
SNMP PATH	ncdPref 13
TYPE	CHOICE
CHOICES	{ right-handed left-handed }
DEFAULT	right-handed
PERMISSION	READ-WRITE
EFFECT	IMMEDIATE
NVRAM	NO
DESCRIPTION	Specifies whether the mouse buttons are mapped with Button1 at the right or left.

In this case, the user has configured the mouse to be set up for a left-handed user.

Note: As a user, you can add an entry for a parameter only if its name in the **configd.doc** file begins with the string **pref**.

CDE Integration

Your CDE desktop can be configured to open a local client when you select its icon from the **Application Manager** window. You have two options to create a CDE Action:

- manually
- using the Create Action graphical interface

Creating a CDE Action manually

1. Using a text editor (for example, vi), create a file called **networkstation.dt**.
2. Create an entry in the **networkstation.dt** file like the one in this example. The CDE Action created here opens a telnet session when the user selects the Telnet icon:

```

ACTION NsTelnet
{
    TYPE            COMMAND
    WINDOW_TYPE    NO_STDIO
    ICON           Dtterm
    LABEL          Telnet
    EXEC_STRING    /bin/ksh -c " \
                    H="%Hostname:"%; \
                    A= echo \${DISPLAY} | awk -F:' ' '{print \$1}' ; \
                    rsh \$A term -ctyp telnet \$H"
    DESCRIPTION    Network Station telnet terminal emulator
}

```

3. Save the **networkstation.dt** file in the **\$HOME/.dt/types** directory and close the editor.
4. At the command line, type:


```
touch $HOME/.dt/appmanager/ACTION
```

 where *ACTION* corresponds to the Action you're creating. In our example, this is the command:


```
touch $HOME/.dt/appmanager/NsTelnet
```
5. At the command line, type:


```
chmod 755 ACTION
```

 where *ACTION* corresponds to the Action you're creating. In our example, this is the command:


```
chmod 755 NsTelnet
```
6. At the command line, type:


```
dtaction ReloadApps
```

The CDE Action has been created. If you want to confirm that the procedure worked, select the **Application Manager** icon from the Front Panel. You'll see the icon labeled **Telnet** in the box that opens.

See Appendix D, "CDE Action" on page 65 for a listing of other CDE Actions.

Creating a CDE Action using the Create Action graphical interface

Note: This procedure creates the same CDE Action as the one described above.

1. Select the **Application Manager** icon (located on the Front Panel between the Style Manager and the Help Viewer).
2. Select the **Desktop_Apps** icon from within the Application Manager window.
3. Select the **Create Action** icon from within the Desktop_Apps window.
4. In the Create Action window, enter this information:


```

Action Name (Icon Label): NsTelnet
Command When Action is Opened: /bin/ksh -c " H="%Hostname:"%;
A=echo \${DISPLAY} |awk -F:' ' '{print \$1}' ; rsh \$A term -ctyp telnet \$H"

```
5. Select **Find Set** to set the icon.
6. Type **Dtterm** in the Enter Icon Filename field.
7. Select the **OK** button.

8. In the Create Actions window, Select **Save** from the File pull-down menu.

The CDE Action has been created. If you want to confirm that the procedure worked, select the **Application Manager** icon from the Front Panel. You'll see the icon labeled NsTelnet in the box that opens.

Note: The icon's label is different than the label created in the manual procedure; the manual procedure offers the opportunity to label the icon something other than the Action name; the GUI procedure does not offer that opportunity.

See Appendix D, "CDE Action" on page 65 for a listing of other CDE Actions.

For additional details on adding actions, please read the Create Action section of Application Manager Help. Select the Application Manager icon on the CDE Front Panel. Select **Help** from the menu bar, then use the Search function to search for entries with Create Action.

Appendix B. Running Java Applets and Applications under CDE/XDM Environment

Note: In order for you to be able to run a Java applet or application on your IBM Network Station, your system administrator must make a directory available on the RS/6000 server for your applets and applications. The directory must be accessible from the IBM Network Station by either TFTP or NFS. By default only one such directory is accessible—**/usr/netstation**—but that directory is writable only by the root user.

Running a Java applet

Note: In the instructions below, \$NS is the default directory for IBM Network Station software, **/usr/netstation**, and \$ACT is the hostname of the IBM Network Station.

Applet setup

To run the Java applet **Smooth** on the IBM Network Station, the **smooth.class** java class file must reside in a directory with its HTML configuration file, and it must be readable by the client. For example:

```
$NS/applets/smooth/smooth.class  
$NS/applets/smooth/Smooth.html
```

HTML setup

The Java Virtual Machine (JVM) must read the Java applet's characteristics before the applet is loaded. An HTML file is created to define the Java code and its window parameters. For example:

```
<HTML>  
<HEAD>  
  <TITLE> IBM Network Station</TITLE>  
</HEAD>  
<BODY>  
<CENTER>  
  <APPLET CODE="smooth.class"  
    NAME="Smooth"  
    WIDTH=400  
    HEIGHT=400>  
</APPLET>  
</CENTER>  
</BODY>  
</HTML>
```

Note: The APPLET CODE names the path to the Java applet relative to the HTML file.

Command

The JVM reads its Java classes and applet classes from the server via TFTP or NFS. The JVM's classpath, when using the appletviewer, is pre-set to find the JDK classes; the users needs only to specify the path to the applet itself. In our example, type at the command line:

```
rsh $ACT appletviewer $NS/applets/smooth/Smooth.html
```

Multiple applets

Only one instance of the JVM can be launched on the IBM Network Station; however, the appletviewer of the JVM can run multiple applets as threads. For example, to run the **Rotator** and **Scribble** applets, type at the command line:

```
rsh $ACT appletviewer $NS/applets/Rotator/RotX.html
```

and press the Enter key, then type at the command line:

```
rsh $ACT appletviewer $NS/applets/Scribble/Scribble.html
```

and press the Enter key.

Wrapper

You can write a script to simplify launching applets. Here's an example launch script:

```
#!/bin/ksh

ACT=$(echo $DISPLAY | awk -F':' '{print $1}')

if [[ ! -f "$1" ]]; then
    echo "Give full path: $1"
    exit 1
fi

if [[ "$1" = "$(basename $1 .html)" ]]; then
    echo "HTML file expected as an argument"
    exit 2
fi

rsh $ACT appletviewer $1
```

If you wanted to use the script to launch the **Smooth** applet, you'd type at the command line:

```
launch /usr/netstation/applets/smooth/Smooth.html
```

Running Java applications

Applications are even easier, since no HTML file is needed to launch them.

Note: In the instructions below, \$NS is the default directory for IBM Network Station software, **/usr/netstation** and \$ACT is the hostname of the IBM Network Station.

Application setup

To run the Java application **Pipeline** on the IBM Network Station, the **Pipeline.class** Java class file must reside in a directory that is readable by the client. For example:

```
$NS/applications/pipeline/Pipeline.class
```

HTML setup

Java applications do not require an HTML file.

Command

The JVM reads its Java classes and applications from the server via TFTP or NFS. The JVM's classpath, when using JAVA, must be set on the command line.

In the example, this is the command:

```
rsh $ACT java -classpath
$NS/java:$NS/java/classes.zip:$NS/applications
$NS/applications/Pipeline &
```

Multiple applications

You cannot run multiple Java applications.

Wrapper

You can write a script to simplify application launching. In this example, the **run_Pipeline** script was created and saved in a new directory called **\$NS/applications/bin**. The script contains the following lines:

```
#!/bin/ksh

ACT=$(echo $DISPLAY | awk -F':' '{print $1}')
NS=/usr/netstation

xset s off

rsh $ACT java -classpath $NS/java:$NS/java/classes.zip:$NS/applications \
$NS/applications/Pipeline &
```

Notes:

1. The class path must include the **/usr/netstation/java** directory, as well as the file **/usr/netstation/java/classes.zip**.
2. Any other directories that your application accesses must also be listed.

To use the script to launch the **Pipeline** application, type at the command line:

```
run_Pipeline
```

Since this is an application (not an applet), the appletviewer is not launched; instead, a new window appears containing the Java application.

Troubleshooting Java execution problems

If the Java applet or application does not start, bring up the console window by pressing the Pause/Break key and select the **Messages** button. Examine the messages displayed in the messages section of the console window. The messages displayed should give an indication of a problem found by the JVM in executing your Java program.

Error Messages:

- **Can't find class**

The JVM cannot find the class file requested by the Java applet or application. If the error is returned while executing a Java application, inspect the classpath specified in the calling program, and make sure that it includes the directories which contain the class files associated with the program that is being executed. If the classes are provided in a zip file, the fully qualified zip file name must explicitly appear within the classpath.

- **Can't read zip file**

Zip files cannot be read when TFTP is used as the file service. Take one of the following actions:

- Have the system administrator configure the IBM Network Station to use NFS for its file service.
- Have the system administrator install the class files expanded.

- **Out of Memory**

The heap size and/or the stack size may need to be adjusted for the application or applet being run. The system administrator can do this via configuration files loaded at boot time.

Appendix C. More about CDE

What is CDE?

The Common Desktop Environment (CDE) desktop is an interactive graphical user interface jointly developed by IBM, HP, Sun, and Novell for open systems. The desktop is a rich and intuitive user interface based on X11 release 5 and OSF/Motif 1.2. It is designed for enterprise computing and scales across a variety of platforms, appealing to a wide range of users from novice to expert.

CDE targets three key audiences: the end user, the system administrator, and the application developer.

End users are presented with an easy-to-use interface, with emphasis on common look, feel, and behavior. The desktop is both visually appealing and highly customizable. Extensive online help has been provided to aid users in familiarizing themselves with the desktop in minimal time.

System administrators will appreciate CDE's integrated approach to accessing applications, whether they reside locally or on a remote host. CDE is also easy to set up and configure, with most of the setup handled by tools which come packaged with the desktop. Applications can be served from systems that do not have CDE installed.

Application developers will find application integration to be straightforward and painless. An application developer's toolkit comes standard with CDE 1.0 on AIX. The toolkit includes libraries, custom widgets, header files, and application building tools. The desktop also supports existing X Windows, and OSF/Motif applications. See "CDE Infrastructure," *AIXpert*, November 1996.

The scope of the desktop is broad, and encompasses core services, as well as productivity tools and applications. The base support covers areas such as window management, file management, customization, and online help. Advanced programming services for interapplication communication include messaging, drag/drop, data interchange, and session and workspace management. See "Plug-and-Play," *AIXpert*, April 1997.

Why CDE?

Broad industry acceptance

AIX is X/Open CDE compliant.

Extensive online help system

The standard online help system is both system-wide and application-specific. With the click of a mouse button, information about every feature of the desktop is available. Applications can also be easily integrated with online help.

Rich set of productivity tools

Many tools are provided standard with the desktop. Among these are a calendar, text editor, mailer, print manager, terminal emulator, and icon editor.

Multiple workspaces

One of the more popular features of the desktop is its multiple workspace capability. Workspaces multiply the amount of display area available for windows. Each workspace occupies the entire display, as though the display has multiple screens.

Designed for enterprise computing

The desktop is designed to help you take advantage of distributed computing. For example a user can add an appointment to another user's calendar or run an application that resides on a remote machine.

Standards Based

CDE is based on industry standards X/OPEN, X11 release 5, OSF/Motif 1.2, and Spec 1170. Also a CDE Sample Implementation standard was established with the release of CDE 1.0.

Usability

CDE is based on a consistent user interface for appearance and behavior of the desktop components. The design uses a graphical user interface and direct manipulation approach. A cross-corporate team of usability professionals were involved in the design of the CDE desktop. Additionally, extensive usability testing was performed to verify the usability of the desktop.

Open Systems Based

Because CDE is X/Open-compliant, applications written for CDE can be easily ported to run on all manufacturers' machines running the CDE desktop. This means that developers don't have to create multiple versions of an application.

Check this URL for additional information about the CDE:

<http://www.rs6000.ibm.com/software/OS/CDE/>

Appendix D. CDE Action

```
ACTION NsConsole
{
    TYPE          COMMAND
    WINDOW_TYPE   NO_STDIO
    ICON          Dtinfbk
    LABEL         Console
    EXEC_STRING   /bin/ksh -c "\
        A= echo \${DISPLAY} | awk -F:' '{print \$1}'; \
        rsh \${A} console"
    DESCRIPTION   Network Station diagnostic terminal
}

ACTION NsTerms
{
    TYPE          COMMAND
    WINDOW_TYPE   NO_STDIO
    ICON          Dtinfbk
    LABEL         Terminals
    EXEC_STRING   /bin/ksh -c "\
        A= echo \${DISPLAY} | awk -F:' '{print \$1}'; \
        rsh \${A} term"
    DESCRIPTION   Network Station diagnostic terminal
}

ACTION NsSetup
{
    TYPE          COMMAND
    WINDOW_TYPE   NO_STDIO
    ICON          DtCMtdo
    LABEL         Setup
    EXEC_STRING   /bin/ksh -c "\
        A= echo \${DISPLAY} | awk -F:' '{print \$1}'; \
        rsh \${A} setup"
    DESCRIPTION   Network Station setup
}

ACTION NsQuickSetup
{
    TYPE          COMMAND
    WINDOW_TYPE   NO_STDIO
    ICON          DtCMtdo
    LABEL         Quick Setup
    EXEC_STRING   /bin/ksh -c "\
        A= echo \${DISPLAY} | awk -F:' '{print \$1}'; \
        rsh \${A} quicksetup"
    DESCRIPTION   Network Station quick setup
}

ACTION NsPref
{
```

```

        TYPE          COMMAND
WINDOW_TYPE        NO_STDIO
ICON              Fpstyle
LABEL             Preferences
EXEC_STRING       /bin/ksh -c " \
                  A= echo \$DISPLAY | awk -F:' '{print \$1}'; \
                  rsh \$A pref"
DESCRIPTION       Network Station preferences
    }

ACTION NsStats
{
    TYPE          COMMAND
WINDOW_TYPE        NO_STDIO
ICON              Dtload
LABEL             Statistics
EXEC_STRING       /bin/ksh -c " \
                  A= echo \$DISPLAY | awk -F:' '{print \$1}'; \
                  rsh \$A stats"
DESCRIPTION       Network Station statistics
}

ACTION NsWm
{
    TYPE          COMMAND
WINDOW_TYPE        NO_STDIO
ICON              DtDtwm.pm
LABEL             Window Manager
EXEC_STRING       /bin/ksh -c " \
                  A= echo \$DISPLAY | awk -F:' '{print \$1}'; \
                  rsh \$A wm"
DESCRIPTION       Network Station local window manager
}

ACTION NsTelnet
{
    TYPE          COMMAND
WINDOW_TYPE        NO_STDIO
ICON              Dtterm
LABEL             Telnet
EXEC_STRING       /bin/ksh -c " \
                  H="%Hostname:"%; \
                  A= echo \$DISPLAY | awk -F:' '{print \$1}'; \
                  rsh \$A term -ctype telnet \$H"
DESCRIPTION       Network Station telnet terminal emulator
}

ACTION Ns5250
{
    TYPE          COMMAND
WINDOW_TYPE        NO_STDIO
ICON              Dtterm
LABEL             5250
EXEC_STRING       /bin/ksh -c " \

```

```

        A= echo \$DISPLAY | awk -F:' '{print \$1}'; \
        rsh \$A ns5250"
    DESCRIPTION Network Station 5250 terminal emulator
}

ACTION Ns3270
{
    TYPE          COMMAND
    WINDOW_TYPE   NO_STDIO
    ICON          Dtterm
    LABEL         3270
    EXEC_STRING   /bin/ksh -c " \
        H="%Hostname:"%; \
        A= echo \$DISPLAY | awk -F:' '{print \$1}'; \
        rsh \$A ns3270 \$H"
    DESCRIPTION Network Station 5250 terminal emulator
}

ACTION NsJVM
{
    TYPE          COMMAND
    WINDOW_TYPE   NO_STDIO
    ICON          jInterpreter
    LABEL         JVM
    EXEC_STRING   /bin/ksh -c " \
        A= echo \$DISPLAY | awk -F:' '{print \$1}'; \
        rsh \$A jvm"
    DESCRIPTION Network Station JVM
}

ACTION NsLogin
{
    TYPE          COMMAND
    WINDOW_TYPE   NO_STDIO
    ICON          DtStart.pm
    LABEL         RFS Login
    EXEC_STRING   /bin/ksh -c " \
        A= echo \$DISPLAY | awk -F:' '{print \$1}'; \
        rsh \$A actlogin"
    DESCRIPTION Network Station AS/400, MVS, & NT login
}

ACTION NsMemory
{
    TYPE          COMMAND
    WINDOW_TYPE   NO_STDIO
    ICON          Dtload
    LABEL         Memory
    EXEC_STRING   /bin/ksh -c " \
        A= echo \$DISPLAY | awk -F:' '{print \$1}'; \
        rsh \$A show memory"
    DESCRIPTION Network Station memory usage
}

```

ACTION NsVersion

```
{
    TYPE          COMMAND
    WINDOW_TYPE   NO_STDIO
    ICON          Dtinfbk
    LABEL         Version
    EXEC_STRING   /bin/ksh -c " \
                A= echo \${DISPLAY} | awk -F:'' '{print \$1}' ; \
                rsh \${A} show version"
    DESCRIPTION   Network Station version
}
```

ACTION NsConnections

```
{
    TYPE          COMMAND
    WINDOW_TYPE   NO_STDIO
    ICON          Dtinfbk
    LABEL         Connections
    EXEC_STRING   /bin/ksh -c " \
                A= echo \${DISPLAY} | awk -F:'' '{print \$1}' ; \
                rsh \${A} show connections"
    DESCRIPTION   Network Station connections
}
```

ACTION NsBootp

```
{
    TYPE          COMMAND
    WINDOW_TYPE   NO_STDIO
    ICON          smit
    LABEL         BootP
    EXEC_STRING   /bin/sh -c 'PATH=$PATH:/usr/netstation/bin smit bootp'
    DESCRIPTION   BootP configuration for the IBM Network Station
}
```

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