Network Station Manager

What is new in V2R1

Network Station Education
IBM NCD
August 1999

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Objectives

- Product Evolution, New Hardware, Product Content Summary
- Graphical Desktop
- Netscape
- Java
- ICA
- NSM
- Kiosk
- Emulators
- Printing
- Install
- PD
- Boot Monitor

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Notes

This presentation contains an overview of what is new in Network Station Manager (NSM) Version 2 Release 1 (V2R1).

The objective is to highlight only the items that are new in V2R1, without providing in depth information, so that one can get a quick glance at only the differences with the previous release.

We provide one chart, two at the most, on each of the items listed here.

In general, only the NSM graphical configuration interface, the installation process and the 3270 and 5250 emulators look and feel have not changed. Everything else has been significantly changed, in particular

- a brand new kernel
- a totally new graphical desktop
- a new browser
- new PD tools
- new ICA client
- new hardware

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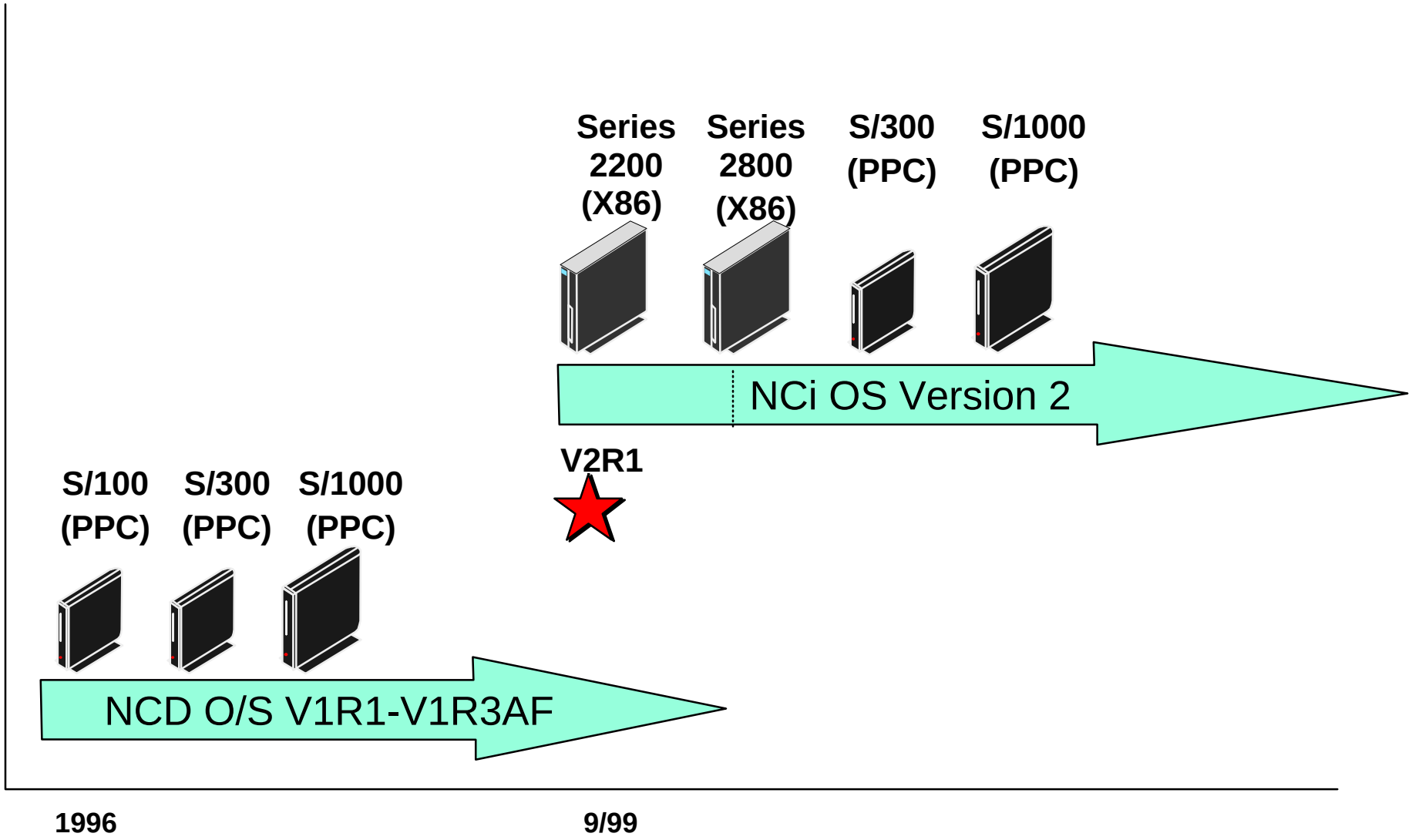
Product Evolution



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Notes

Since the beginning of the Network Station in 1996, there has been a steady evolution of the NSM functional content that has been based on the same hardware platform and the same operating system.

With Version 2, a significant new step is taken by moving to a new operating system and introducing a new hardware platform, while maintaining compatibility with all previous models except for the Series 100.

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Hardware Overview

- Two New Family Members

Series 2800
High End
Java Focused Design

Series 2200
Low End
Access Focused Design

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Notes

These are the two new hardware family members based on an X86 processor..

The Series 2800 is the high end model designed for supporting Java applications.

The Series 2200 is the low end model designed for Host Access.

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Network Station Families at a glance

	Series 300	Series 2200	Series 1000	Series 2800
Memory	• EDO SIMM - 16 to 64 MB	• SDRAM DIMM - 32 to 288 MB	• EDO SIMM - 32 to 64 MB • Cache option	• SDRAM DIMM - 64 to 256 MB • 512k L2 Cache
Connectivity	• Ethernet 10Mb • Token-Ring 4/16Mb • Twinax cable (1)	• Ethernet 10/100Mb • Token-Ring 4/16Mb	• Ethernet 10/100Mb • Token-Ring 4/16Mb	• Ethernet 10/100Mb • Token-Ring 4/16Mb
I/O	• One serial - Printers - Touch Screen - Other Devices • One parallel - PC Printers	• One USB (open) - Legacy Parallel Printers via converter	• One serial - Printers - Touch Screen - Other Devices • One parallel - PC Printers	• Two serial - Printers - Touch Screen - Other Devices • One parallel - PC Printers • 2 USB (2)
Expansion	• PCMCIA - Linear flash - Multi-port Serial	• Compact Flash	• PCMCIA (option) - Linear Flash - Multi-port Serial	• PCI (2 short slots) - Multi-port serial • Compact Flash
Audio		• External Speakers • External Microphone (2)	• External Speakers • External Microphone (2)	• External Speakers • External Microphone (2)
Input Devices	• PS/2style keyboard - Wedges • PS/2 style mouse	• USB style keyboard • PS/2 style mouse plugged to keyboard	• PS/2 style keyboard - Wedges • PS/2 style mouse	• PS/2 style keyboard - Wedges • PS/2 style mouse

Notes: (1) Not supported by V2R1 (2) Dependent on software to enable, no base support in V2R1

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Notes

This chart taken from a Hardware Overview presentation on the Marketing CD summarizes the characteristics of all the models supported by Version 2 Release 1.

Generally, we can think of the Series 2200 as the X86 equivalent to the Series 300 PPC model and the Series 2800 as the equivalent of the Series 1000 PPC, although it has more flexible I/O capabilities.

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V2R1 Product Content - Summary

- **V1R3 AF Equivalent Function as a Baseline**
  - **Emulators (5250/3270/VTXXX)**
  - **Printing**
  - **Xwindows**
  - **Dialer, Flash, Touch, Lightpen, Multiple Serial Ports**

- **New Functional Content**
  - **New kernel**
  - **New Graphical Desktop**
  - **Netscape version 4.5**
    - Navigator Browser
    - Netscape Internal JVM
    - Email and Newsreader
  - **Java Environment**
    - IBM JVM 1.1.8+ (+ is primarily Euro Support)
    - Lotus eSuite 2.0
  - **ICA Client Enhancements**
  - **Emulator Enhancements**
  - **Audio/Video Plug-ins including Real Networks**
  - **Adobe Java PDF Viewer**
  - **>256 bit Color**
  - **True Kiosk Mode**
- **Network Station Manager**
  - **Support New O/S Functionality**
  - **Configurable Desktop**
  - **Support new Functions**
  - **New configuration files (profiles)**
- **Server Support**
  - **AS/400, Windows NT and AIX**
- **Coexistence with V1R3**
- **Hardware Support**
  - **S/1000**
  - **S/300**
  - **Series 2200 (X86 Low End)**
  - **Series 2800 (X86 High End)**

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Notes

This chart provides you with a glance at all the important enhancements in V2R1.

- First, note that all the V1R3 AF functions have been retained
- The major enhancements are
  - a new kernel
  - a new graphical desktop
  - a new current Netscape browser that includes an internal JVM and the Java Plugin
  - a new Java environment, which is the full JDK at the 1.1.8 level
  - an ICA client that has been significantly enhanced, along with the addition of a Remote Application manager
  - Miscellaneous Emulator enhancements, including a VTxxx emulator with the same look and feel as the 3270/5250 emulators
  - Miscellaneous plugin and Java based viewers
  - Support for 16-bit color palette
  - and the Introduction of a true kiosk mode
- The Network Station Manager support has been extended to include new configuration items. The underlying configuration files have been totally changed and reduced in number and a new command line tool for batch or interactive changes to the configuration profiles is now available.
- The release supports the Microsoft Windows NT, AIX and AS/400 platforms and is can coexist with the previous release on the same server.

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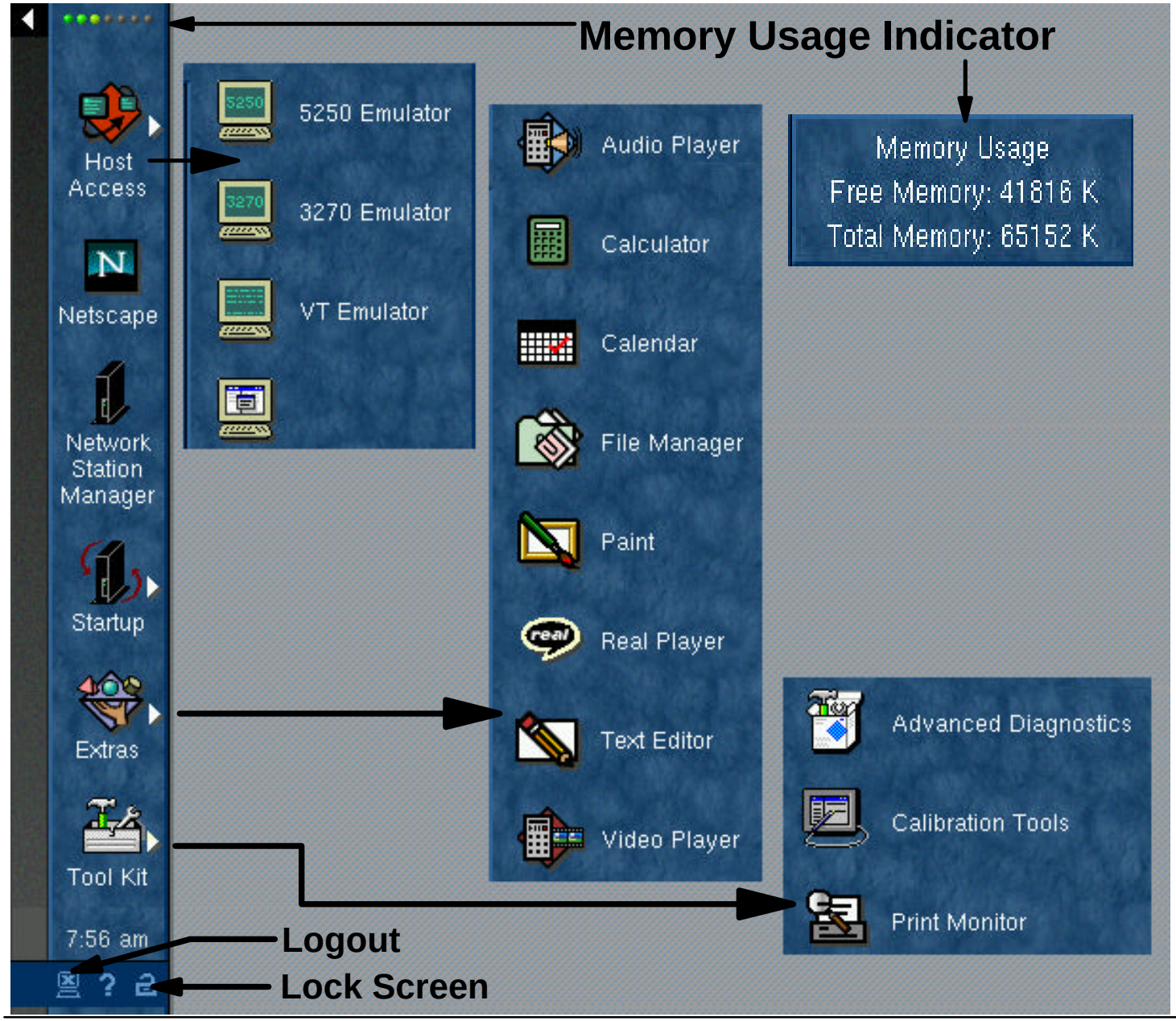
V2R1 Graphical Desktop



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Notes

Certainly the most evident part of the new look is the new graphical desktop shown here with a launchbar on the left on which appear either application icons or folders containing application icons.

Scroll up/down arrows are used when more folders are available on the launchbar than can be displayed.

Pulldown controls are available on folders to bring up the pulldown menu of applications contained in the folder. On this chart, the Extras folder is expanded to show the applications that it contains. Notice that the applications shown here are supplied by default:

- Audio Player
- Calculator
- Calendar
- File Manager
- Paint
- Real Player
- Text Editor
- Video player

The window management is similar to Windows, with Windows style decorations for minimizing and maximizing windows, tiled windows and minimized icons.

The launchbar also contains a memory indicator at the top. The color indications on the memory indicator gives a visual indication of the memory usage; a click on the indicator expands to show the actual amount of memory used and of free memory.

At the bottom is a digital clock and the three indicators for Logout, Help and Locking the station.

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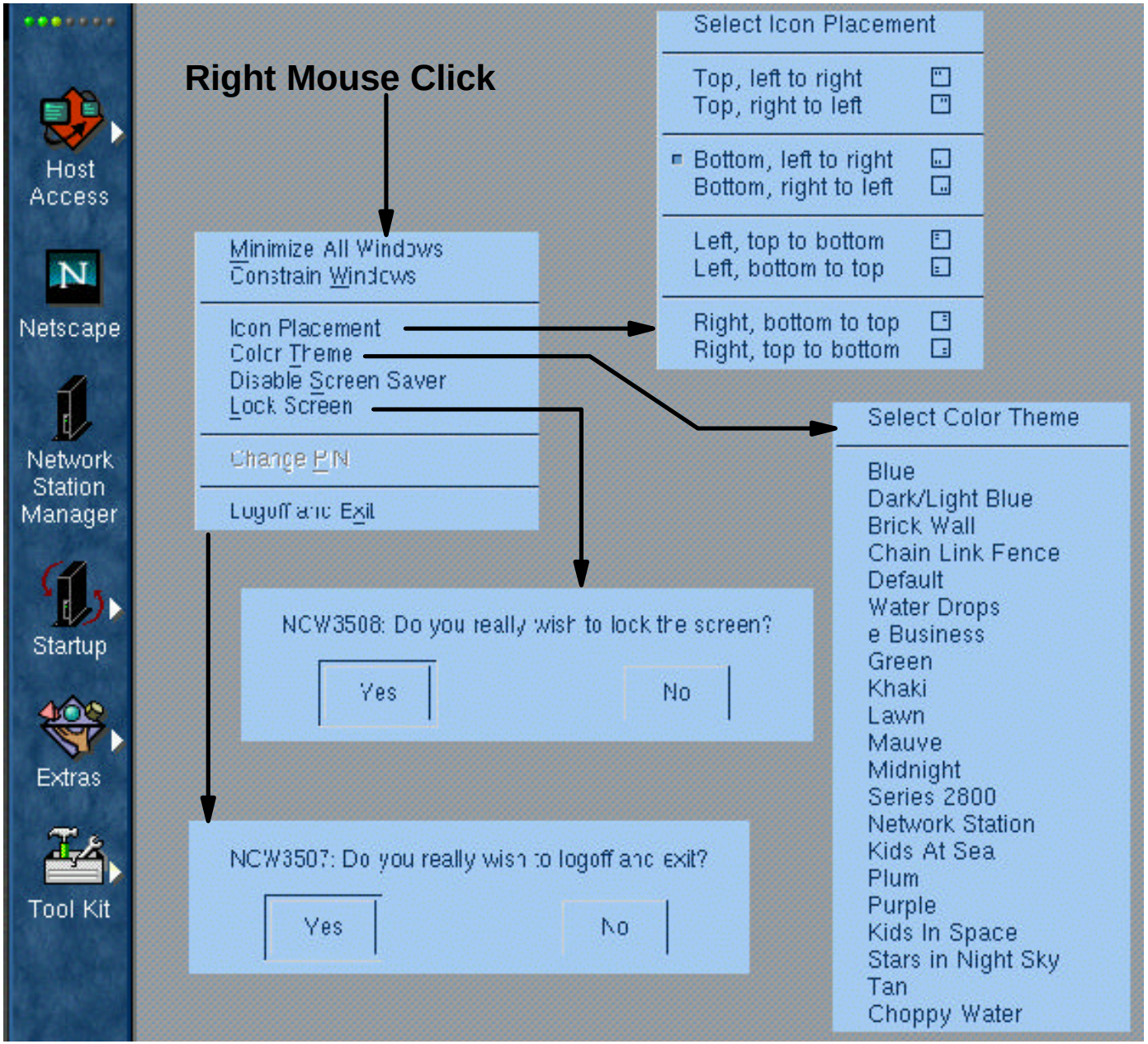
Desktop Settings



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Notes

A right mouse click on the desktop brings up a menu from which one can minimize all windows, or specify the placement of the minimized icons, or constrain the windows so that they do not disappear behind the launchbar.

One can also change the background wallpaper (Color Theme), lock the keyboard and logout and exit.

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Netscape Communicator 4.5

- **Full product is Netscape Communicator, including:**
  - NC Navigator browser, NC Messenger e-mail, and Newsreader
- **Netscape Navigator level is 4.5 (current level)**
  - New user interface, Dynamic HTML, JavaScript 1.3
  - New JavaScript-based customization capabilities
  - Application launcher to launch local applications
  - More translations and code pages
  - Kiosk support improved
- **Netscape Navigator uses its built-in JVM, not external JVM**
  - Provides compatibility with other versions of Netscape
  - Sun's Java Plug-In provides ability to redirect applets to external JVM
  - Able to run applets independently of activity on external JVM
  - Enhanced by IBM for Euro and robustness
- **Netscape Messenger**
  - New user interface
  - Adds IMAP4 support (existing product supports SMTP and POP3)
  - LDAP Support for address book
- **Plug-Ins and Helper Apps now supported**
  - PDF 1.2 viewer (Adobe Acrobat 3.0 level)
  - Real Audio & Real Video (R5 level)
  - AU & WAV audio

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Notes

The new browser is Netscape Communicator 4.5 full product, including:

- NC Navigator browser, NC Messenger e-mail, and Newsreader, Dynamic HTML, JavaScript 1.3

It also includes new JavaScript-based customization capabilities, and an application launcher capability to launch local native applications.
There are more translations and code pages, and the Kiosk support has been improved.

The Navigator uses its built-in JVM, not external JVM, and therefore provides compatibility with other versions of Netscape. Sun's Java Plug-In provides ability to redirect applets to the Network Station's JVM which is at a higher level.

The Navigator is able to run applets independently of the activity on the external JVM which has been enhanced by IBM for Euro support and robustness.

Netscape Messenger has a new user interface and adds IMAP4 support to the existing SMTP and POP3 support. LDAP Support for the address book is provided as well.

Finally, the plugins and Helper Apps identified here are now supported.

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Java Support

- **V2R1 Enhancements**
  - Multiple concurrent Java applications
  - Provide the Netscape Communicator 4.5 internal JVM
    - Allows to build Java applets for any Netscape platform
  - Higher level of JDK (1.1.8)
  - IBM Enhancements to Sun's JDK 1.1.8
    - Memory management fixes
    - Euro currency support
    - Enhanced security (supports security model of Java 1.1 and 1.2)
    - Integration with the Network Station's Operating System
  - Complete JDK instead of just the Java Run Time Environment (JRE)
  - Enhanced class library support, Java Extensions (JMF, Swing, javax.comm)
  - Package two (swappable) JVMs in the Network Station
    - Latest JDK for stable and current Java environment
    - Latest JDK beta for development activities
  - Java plug-in to execute applets in a Netscape environment but provide a full function JVM and access to native extensions
  - Support for signed applets and JAR files

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Notes

The Java environment has been significantly enhanced in V2R1. The enhancements are as follows:

- More than one Java application can now be executed simultaneously
- The browser (Netscape Communicator 4.5) now has an internal JVM and applets built for any Netscape platform can be executed
- Sun Microsystem's JDK 1.1.8 is provided to which IBM has added enhancements such as memory management fixes, euro currency support, enhanced security and integration with the Network Station's operating system.
- The complete JDK is also provided instead of just the Java Run Time environment which means that the Java compiler can be executed on the Network Station itself
- Jave extensions such as JMF, Swing and javax.comm are provided
- Two swappable JVM's are provided so that the latest JDK can be used for development activities. The switch from one to the other is done through the use of an environment variable.
- The Java plug-in is provided to allow applets executed in a Netscape environment to use the full function JVM of the Network Station instead of the Netscape JVM.
- Finally, there is now support for signed applets and JAR files.

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V2R1 ICA Features

- **Remote Application Manager**
  - Similar in function to the 'ICA Chooser'
  - System administrator configures connection entries
  - Users may (optionally) configure connection entries
  - Presents a list of servers to choose from
- **Audio**
  - Now provide the Windows audio experience (wav, midi, etc.)
  - One way audio mapping with audio compression
  - Not synchronized with video for now
- **Secure ICA**
  - Supports Citrix's Secure ICA option pack
  - End-to-end RSA RC5 encryption for the ICA data Stream (40 bit and 128 bit key sizes)
  - Provides secure medium for running Windows applications
- **Protocol Compression**
  - Provides better response times over WAN connections
- **NSM configuration enhanced**
  - Easier ICA configuration for System Administrators - client configuration integrated into NSM

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Notes

In V2R1, the ICA client has been enhanced with many additional features.

- A Remote Application Manager, which is similar in function to the 'ICA Chooser' that presents a list of servers to choose from, is now available on the desktop by default. The system administrator can configure connection entries and users may also configure connection entries, if that was enabled.
- The ICA client now provide the Windows audio experience (wav, midi, etc.) and one way audio mapping with audio compression
- Secure ICA is available to provide a secure medium for running Windows applications . It supports Citrix's Secure ICA option pack and end-to-end RSA RC5 encryption for the ICA data Stream
- Protocol Compression provides better response times over WAN connections
- The NSM configuration has been enhanced to make it easier for System Administrators to configure client connections.

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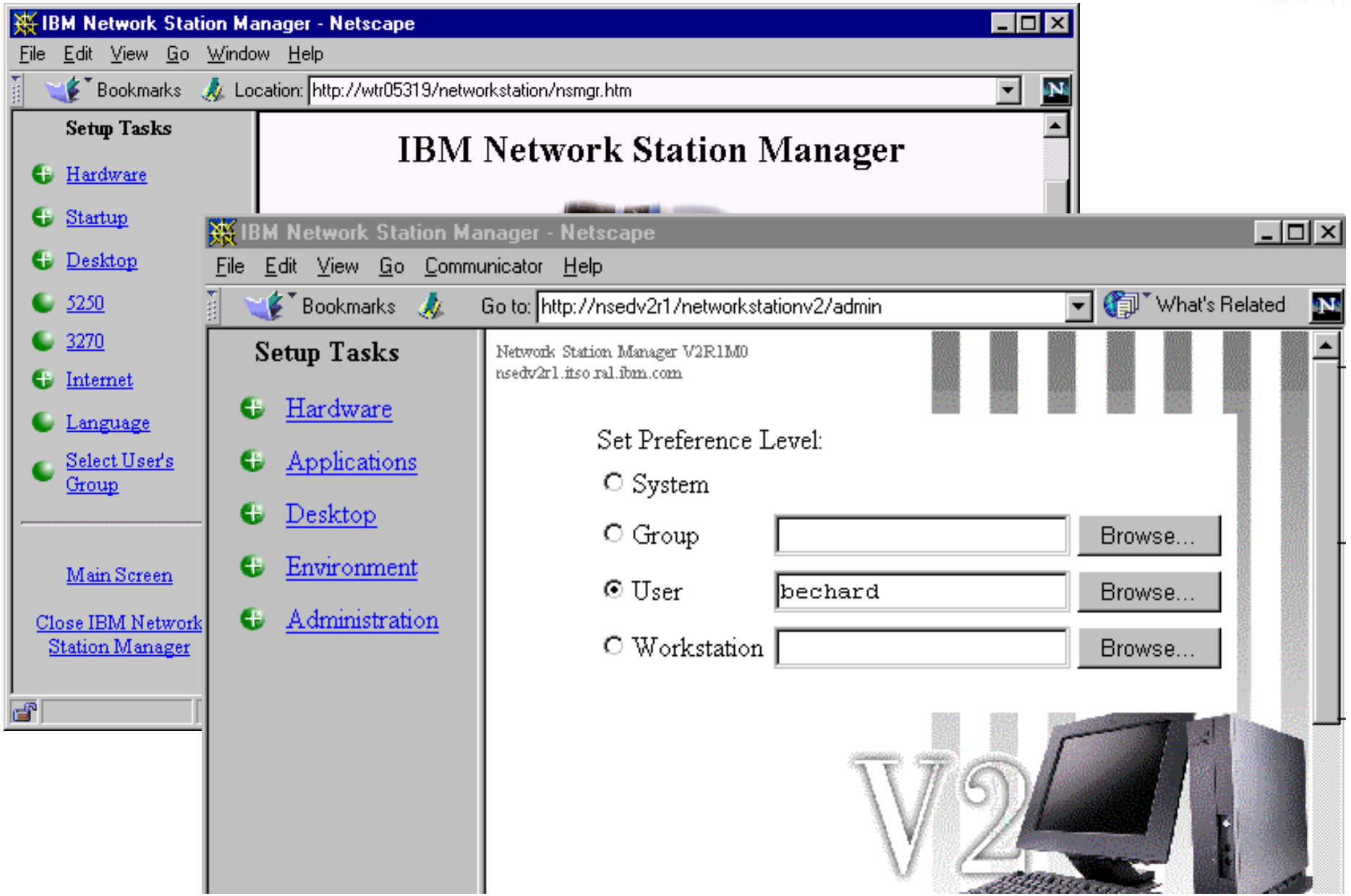
Network Station Manager - V1R3 and V2R1



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Notes

This shows the main Network Station Manager panel each for V1R3 (on the left) and V2R1 (on the right).

The visual differences are minor:

- The setup task bar is the same but some of the submenus are different
- The choice of level, System, Group, User or Workstation is now done on the main panel, BEFORE choosing a task as opposed to after selecting a task. This avoids having to choose a level after each selecting each task and therefore provides a better flow since one usually chooses a level to work on first, and then tasks to configure.

However, even though the graphical interface has not changed much, lots of changes have been made to the underlying functions.

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Network Station Manager V2R1

- **NSM V2R1 can coexist with NSM V1R3 on the same server**
- **Migrates configuration information from V1R3**
- **Main menu similar with modified setup tasks**
- **Configuration support for the desktop and launchbar**
- **Configuration support for remote reboot and forced logoff**
- **Provides command line interface for interactive or batch update of configuration files**
- **Reduced number of configuration files (Maximum of 8)**
  - Only one format (XML-based)
- **Provides a command line interface for interactive and/or batch updates**
- **OMRON Support of V1R3 has been removed**

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Notes

These are the main to the Network Station Manager V2R1 application.

- First, V2R1 can coexist with V1R3 on the same server because the root of each directory structure is different
- Configuration information from V1R3 config files can be migrated to V2R1 profiles
- The NSM main menu is similar but the list and organization of the setup tasks have been slightly modified
- V2R1 now has configuration support for the desktop and launchbar, and this is a lot more flexible than the V1R3 menu bar
- The number of configuration files has been significantly reduced. There are now only 8 configuration profiles, including the override files and there is a single format (XML - Extended markup language).
- A command line interface is now provided to do either interactive or batch update of the configuration files
- Finally, the OMRON support from V1R3 has been removed

These are only the major changes. Many of the actual NSM panels have also had some changes, but most of the fields are the same and their meaning has not changed.

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NSM Command Line Interface

- **Utility (written in Java) to make batch changes directly to the XML-based download profiles (NSMCL)**
- **User interface; choice of:**
  - Interactive GUI interface
  - Run from the command line
- **Configuration change commands; choice of:**
  - Run individually
  - Run script files containing many commands
- **Scripting language is SGML (Standard General Configuration Language)**

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Notes

The Network Station Manager Command Line interface (abbreviated NSMCL) is a utility written in Java to make batch changes directly to the XML-based configuration profiles.

The user actually has the choice of two interfaces;

- Configuration commands can be run directly from the command line
- Or the user can use a graphical interface to enter the configuration commands

In addition, configuration change commands can be issued individually or a script file containing many commands can be specified as the input file.

The scripting language used is SGML (Standard General Configuration Language) Text.

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True Kiosk Mode in V2R1

Summary	True Kiosk Mode	Suppressed Login Panel Mode
User authentication	No	Yes
Access to server file system	Read-only	Read/write
Behaviors	System	System, group, and user
Window manager	Yes, but initial application runs in borderless mode	Yes
Desktop	No desktop. The application is the base window with no borders	Configurable
Applications	One only, but it may launch others or open other windows	One or more
Application launching	Auto-started Auto-restarted	Configurable

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V2R1 has introduced true kiosk mode, while still making the previous mode that was used in V1R3 available (called Suppressed Login mode). This chart highlights the differences between these two modes?

In true kiosk mode:

- There is no specific user identity, whereas there is a specific user in suppressed login mode, even though the user himself did not enter a name, because the name was fetched from a file.
- Acces to the server must be read-only for all functions. Since there is no user identity, there is no need to store user preferences for example.
- Since there is no user identity, there is only system and group behavior that's applicable. (default group since there is no real user)
- Actually, the window manager is active but it is not apparent because the application runs full screen without any borders
- There is no desktop in true mode
- There is only one application running (although some applications can actually launch other applications
- The application is autostarted in both cases, but more than one application can be launched when in suppressed login panel mode.
- In true kiosk mode, the application can be restarted if ended by the user (but not in suppressed login panel mode).

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Emulators

- Full screen coverage, Readability - scaleable fonts
- PC look and feel
- VTxxx keyboard remapping
- Augmented Help text, including keyboard functions
- SSL version 3 telnet support
- Editable macros
- Use TCP/IP Host name as session name
- VTxxx - convergence toward 5250 / 3270 standard User Interfaces
  - Graphical Keyboard remapper
  - Online Help Text
  - Miscellaneous preferences
  - NSM config options controls
  - Standard NWS printer support for ASCII, PS, PCL datastreams

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Notes

This is a summary of some of the enhancement made to the emulator applications in V2R1.

In general, full screen coverage is available and the readability improved with scaleable fonts.
The applications now have more of a PC look and feel.

A VTxxx keyboard remapping facility has been added and the Help text has been significantly augmented, including keyboard functions.

SSL version 3 telnet support has been added as well as editable macros.

The IP host name can also now be used as a session name.

For the VTxxx emulator, convergence toward 5250 / 3270 standard User Interfaces has been started with the following functions added:

- A Graphical Keyboard remapper
- Some Online Help Text
- The ability to specify miscellaneous preferences
- Configuration options controls in NSM
- Standard printer support for ASCII, PS and PCL datastreams

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Printing

- **Serial Ports 1 to 18 (instead of 1 to 5)**
  - On Series 2800, 2 PCI cards (at 8 ports each) plus the two native ports
- **NSM - Print GUI - Now Serial Options Settings**
  - baud rate, etc.
- **ASCII options and DBCS no longer supported**
- **Browser print dialog has changed slightly**
- **Print selector looks different but functionally the same**
- **lpr and nclpr command line command available**
- **A print monitor function to monitor local print jobs and allow the possibility of canceling jobs**
- **Direct Seriald sockets added for second native port on Series 2800**
  - 5962 for passthru
  - 6462 for command interpret mode

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Notes

The changes from V1R3 relative to printing are minor changes for the most part.

Serial ports up to 18 can now be defined on a Series 2800 because there are 2 native ports and possibly two PCI cards that can each support 8 serial ports. On a Series 1000, there is one native port and a multiple serial port adapter card allowed four more for a total of 5 ports.

In NSM, the configuration panels for printer settings now have a Serial Options settings (which used to be done using override files in V1R3) and the ASCII options for DBCS have been removed.

The browser print dialog has changed slightly and the print selector panel has also changed slightly but the functionality is the same.

The lpr (or nclpr which is equivalent) command can be used on the command line to initiate a print request.

A print monitor window is available to display the current print jobs scheduled for local printers, which can also be canceled from that window.

Since the Series 2800 has two native serial ports, the IP ports 5962 and 6462 have been added to the seriald daemon for the second native serial port.

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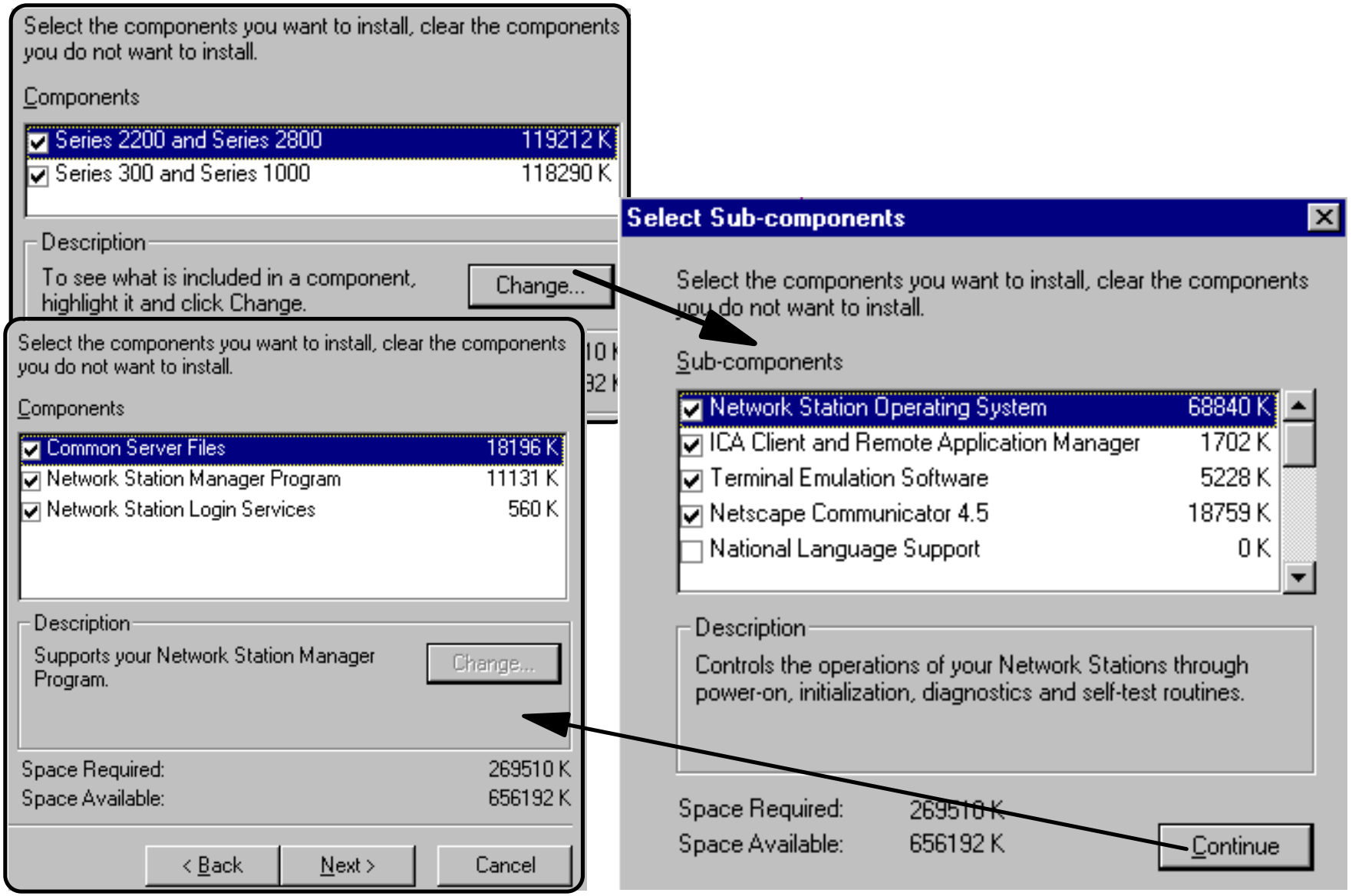
Custom Install



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Notes

The install process overall is basically the same as in the previous release.

The only difference in this release is that the special install switches that could be specified on the command line for the base code server and authentication server installations can now be specified on the graphical interface and a new custom install is available to the advanced user who wants to be able to control the components individually.

The panels shown here are the panels presented to the user when selecting Custom Install.

The first allows to eliminate the support for either the Power PC based Network Stations or the X86 based Network Stations in the case where the server being installed is only required to support one of these two families.

The second panel lists the components that can be selectively chosen for inclusion or exclusion during a Custom install. This capability allows the administrator a much finer control over the components that are required and therefore the space needed to install the product. For example, if Emulation and ICA are never used, those components can be completely removed from the installed code.

The last panel deals with the Network Station manager program itself (which is not required on a base code server for example) and the Network Station Login service which is only required on an authentication server.

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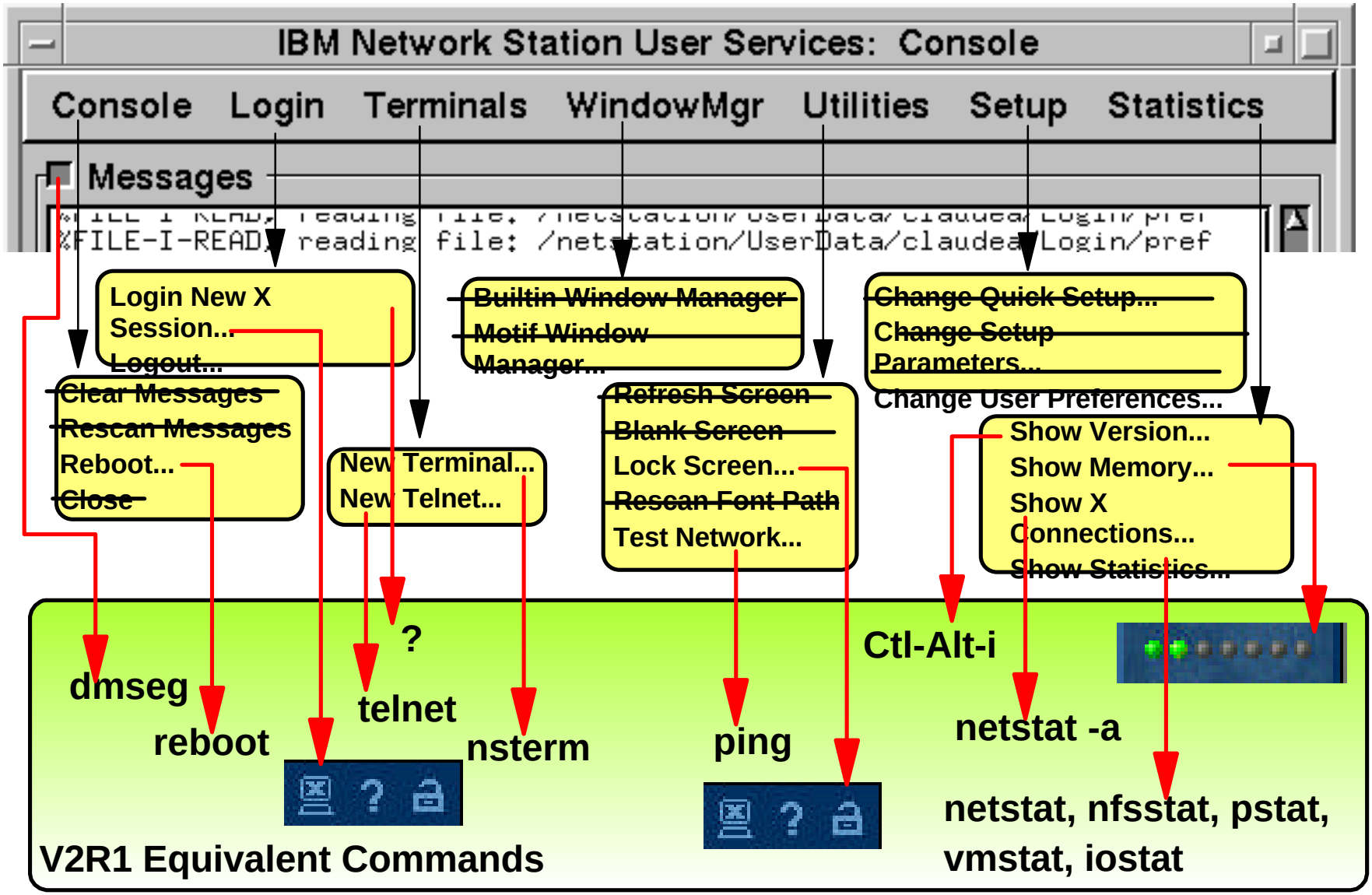
V1R3 Console vs V2R1 Commands



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Notes

For those who were very knowledgeable in the V1R3 release, the biggest difference lies in the way to interface with the station's functions and the way to get at the information required to do problem determination.

Since the Network Station console has been replaced with a command line interface, this diagram summarizes the differences between the functions provided through the V1R3 Console facilities and the way to get similar functions through the V2R1 command line.

At the top is the V1R3 console with each pulldown expanded to show the available functions. The functions that are either not applicable or not available in V2R1 have been indicated with a horizontal bar through it.

Others have an arrow pointing to the command to issue on the V2R1 command line to get either an identical or similar function.

In the case of the Screen lock and the Logout, it is not a command but a click on an icon located at the bottom of the launchbar, and the memory function is located at the top of the launchbar (if enabled).

In general, there is additional flexibility provided in V2R1 through a variety of commands that were not available in V1R3 but it takes a bit of time to get used to the new environment, as with any change.

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Some Common Functions

Function	NSM V1R3	NSM V2R1
Display Messages	Use Console Messages	dmesg command
Retrieve Console Messages Remotely	Telnet to port 5998	Telnet to station and use the dmesg command
Execute a command remotely	RSH to station	Telnet into the station and enter the command
Access Configuration daemon remotely	Telnet to port 5999	Not available
Ping	Console/Utilities/Test Network	Ping command - Use Ctl-C to stop
Start a telnet session	Console/Terminal Pulldown	telnet command
Show Version	Console/ Statistics/ Show Version	Ctrl+Alt+I is somewhat equivalent.
Show Memory	Console/ Statistics/ Show Memory	Click on colored dots at the top of the launch bar. Color, from green to red, indicates status.
Menu Bar	Menu Bar	Launch Bar

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Notes

This is another way to look at some of these differences. We have tried to include as many of these as we could, so far anyway, in the redbook in order to guide V1R3 users through the transition.

This table shows some of the common functions, how it was done in V1R3 and how it is accessed in V2R1. It is not meant to be complete but only as an example of some of the common functions.

Since V1R3 did not really have a command line facility, as V2R1 does, most functions can now be performed through some command on the command line.

This is very handy for the administrator but the end user will most likely perform all of its functions through the graphical interface of the icons on the launchbar. The command line is a diagnostic facility more than an operational facility.

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Boot Monitor

- More extensive menus
- No command prompt
- Service aids functions selectable in a menu
- More service LAN trace functions
- Better protection against update failures
- Supports newer level of DDC type monitors
- Does not upload dump files (done by the kernel)
- Has DNS capability during boot
- Removed from memory after kernel is operational
- DHCP client accepts only valid responses

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Notes

From a base function perspective, the V1R3 and V2R1 boot monitors are similar since they carry out the same functions. However, there are quite a lot of differences in many aspects. For example:

- The menus are more extensive and easier to use in V2R1
- The Service aids functions are selectable in a menu and there are a lot more service LAN trace functions provided
- There is a better protection against update failures
- The V2R1 boot monitor supports the newer level of DDC type monitors
- Dump files are now uploaded by the kernel
- The boot code has DNS capability during the boot phase
- The boot monitor removes itself from memory after the kernel is operational
- The DHCP client in the boot monitor now accepts only valid responses from a DHCP server (meaning that if options 66 and 67 are not present in the offer for example, the offer is rejected).
- There is no command prompt

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New Kernel

- Greater Color Depth (>256 colors)
- Scaleable Font Support
- Load Time Improvements
- Better Memory Utilization
- Standards Compliance (Posix)
- Thread Support
- Pre-emptive Multitasking
- Generally, more robust development and operating environment
- Euro Support

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Notes

The least apparent changes are probably in the new kernel, since this is underlying support that the user is not really exposed to.

For those with an interest at that level of details, here is a list of some of the enhancements provided by the new kernel.

The most significant of these is probably the added stability and robustness that it provides.

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Where to Go for More Information

- **Main Web Site**
  - **www.ibm.com/nc**
- **Current Network Station Redbook**
  - **SG24-5844 Network Station Manager V2R1 Guide**
- **Marketing CD**
  - **GK3T-5163-00 Selling the IBM Network Station**
- **Previous Network Station Redbooks**
  - **SG24-5187 AS/400 - Techniques for Deployment in a WAN**
  - **SG24-5221 Windows NT - NSM Release 3**
  - **SG24-5212 Printing**
  - **SG24-2127 Windows NT/WinCenter**
  - **SG24-4954 S/390, SG24-2016 RS/6000, SG24-2153 AS/400**
- **Product Publications**
  - **SC41-0684 Installing NSM for AS/400**
  - **SC41-0685 Installing NSM for RS/6000**
  - **SC41-0688 Installing NSM for Windows NT**
  - **SC41-0690 Using NSM**
  - **IBM Network Station Advanced Information (On the Web Site)**

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Notes

We hope that this quick tour, in just a few minutes, has given you a good perspective of everything that is new in Version 2 Release 1.

Each of the other presentations on this CD goes into further details, while still trying to give you the most important aspects in a condensed fashion.

For real in-depth technical details, we recommend that you use the redbooks supplied on this CD, the product publications as well as the advanced user information available on the Network Station Web site.

There is also a Marketing CD available, under the number GK3T-5163-00, that provides marketing level details on how to leverage new sales and markets with Network Station Manager Version2 Release 1.

Thank you.

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