IBM Network Station

IBM Network Station Advanced Information V2R1, October 2000

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Note

Before using this information and the product it supports, be sure to read the information in “Appendix H. Notices” on page 245.

First Edition (September 1999)

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

Contents

IBM Network Station Advanced Information

Who should read this book

This information is intended for the person who needs to understand advanced concepts that are related to the IBM Network Station environment.

Information on the Internet

- You can find additional information about your thin client at the following URL:

  http://www.pc.ibm.com/support

  1. Click **NetVista**.
  2. Click **NetVista thin client**.
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Related information

The following information is available for IBM Network Station Manager:

	Information name	Information description
	Installing IBM Network Station Manager for AS/400, SC41-0684	Describes the installation and simple configuration of an AS/400 Network Station environment. It is shipped with the IBM Network Station Manager licensed program. Updates to this information are at http://www.ibm.com/nc/pubs.
	Installing IBM Network Station Manager for RS/6000, SC41-0685	Describes the installation and simple configuration of an RS/6000 Network Station environment. It is shipped with the IBM Network Station Manager licensed program. Updates to this information are at http://www.ibm.com/nc/pubs.
	Installing IBM Network Station Manager on Windows NT, SC41-0688	Describes the installation and simple configuration of a Windows NT Network Station environment. It is shipped with the IBM Network Station Manager licensed program. Updates to this information are at http://www.ibm.com/nc/pubs.
	Installing IBM Network Station Manager on Windows 2000, SA23-2811	Describes the installation and simple configuration of a Windows 2000 thin client environment. Updates to this information are at http://www.ibm.com/nc/pubs.
	Using IBM Network Station Manager, SC41-0690	Describes the basic tasks for managing user desktops through the IBM Network Station Manager program. It is shipped with the IBM Network Station Manager licensed program. Updates to this information are at http://www.ibm.com/nc/pubs.
	IBM Network Station Advanced Information	Describes tasks and information beyond a basic installation and configuration of your Network Station environment. This information is only available at http://www.ibm.com/nc/pubs.

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

How to send your comments

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

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- The publication number of the book.
- The page number or topic to which your comment applies.

Chapter 1. Introduction

This book is intended to supplement the books that were shipped with your software. Use the *Installing IBM Network Station Manager* and *Using IBM Network Station Manager* books to install and use a basic Network Station environment. Use this book to find information that is beyond the scope of the books that were shipped with your software.

This book makes reference to substitution variables such as $ProdBase or <float>. See Table 64 on page 121 for an explanation of the substitution variables.

This book makes reference to environment variables such as ${IP}. See “Appendix B. Environment variables” on page 125 for an explanation of some common environment variables.

Chapter 2. Taking advantage of multiple server environments

You can install the IBM Network Station Manager licensed program on one computer system or on multiple computer systems. Any particular computer system can provide one or more of the server roles. On the Windows NT and RS/6000 platforms, the installation program allows you to easily install combinations of the server roles. A brief description of each server role follows:

BOOTP or DHCP server
BOOTP or DHCP provides the Network Station with information such as its IP address, the base code server address, and the address of the workstation configuration server.

IBM Network Station Manager program server
The IBM Network Station Manager program provides the ability to configure user configuration settings and workstation configuration settings. Examples of what you might configure on this server are a user's start-up programs or a user's browser preferences.

Base code server
The base code server provides the operating system (kernel) and the local application programs that are downloaded to the Network Stations.

Configuration server
The configuration server serves workstation configuration settings and user configuration settings. The address of the configuration server is the same as the address of the base code server by default. It is possible to split this service between two servers, where one server serves workstation configuration settings and another server serves user configuration settings (see "User configuration server" on page 5).

Authentication server
The authentication server provides user authentication. The address of the authentication server is the same as the address of the base code server by default. On the IBM Network Station login screen, you can use the *Roam* button to manually direct a Network Station to a different authentication server.

The authentication server is where the user's home directory resides. Because some applications (such as Netscape Communicator) may frequently access the user's home directory, you should make sure the communication link from the Network Station to the authentication server has adequate bandwidth.

Multiple server roles using DHCP

The DHCP options in Table 1 have the flexibility to apply on a network, subnet, class, or client basis. If you find that options 211-214 and 219 are already in use for other purposes, you can separate these options by subnet or class. Use Table 2 on page 4 to determine the Network Station classes.

Table 1. DHCP options for multiple server environments

Option number	Description
Option 3	Router IP Address (Default Gateway). Multiple IP addresses separated by a blank can be specified.
Option 66	Base code (bootstrap) server IP address.
Option 67	Boot file path.
Option 98	Authentication server URL consisting of the protocol and IP address. Multiple URLs separated by a blank can be specified.
Option 211	Protocol to use for the base code server. Possible values are tftp or nfs.
Option 212	Workstation configuration server IP address. Up to two addresses separated by a blank can be specified.

Table 1. DHCP options for multiple server environments (continued)

Option number	Description
Option 213	Configuration files path name for option 212. Up to two paths separated by a blank can be specified.
Option 214	Protocol to use for option 212. Possible values are nfs or rfs. Up to two values separated by a blank can be specified.
Option 219	Secondary base code server IP address.

Notes:

1. Options 211, 212, 213, 214, and 219 are vendor specific options in DHCP. If you are already using these options for another purpose, you will need to configure DHCP to avoid conflicts.
2. When two configuration servers are specified, the first server is tried. If that fails, then the second server is tried. If the second server is successful, then the second value in options 213 and 214 are used.
3. The IBM Network Stations must be using boot monitor version 3.0.0 or later. See the *Using IBM Network Station Manager* book for information on how to view the boot monitor version.

Table 2 lists the DHCP classes assigned to each IBM Network Station type and model.

Table 2. IBM Network Station DHCP Classes

Type-model, series, interface	Class
8361-110, 300, Ethernet	IBMNSM 2.1.0
8361-210, 300, token-ring	IBMNSM 1.1.0
8362-A22, 1000, token-ring	IBMNSM A.2.0
8362-A23, 1000, token-ring	IBMNSM A.2.0
8362-A52, 1000, Ethernet	IBMNSM A.5.0
8362-A53, 1000, Ethernet	IBMNSM A.5.0
8363-EXX, 2200, Ethernet	IBM 8363-EXX
8363-TXX, 2200, token-ring	IBM 8363-TXX
8364-EXX, 2800, Ethernet	IBM 8364-EXX
8364-TXX, 2800, token-ring	IBM 8364-TXX

Multiple server roles using the NS Boot utility

The NS Boot utility offers some limited ability to define multiple servers. (The NS Boot utility is found on the IBM Network Station Type 8363 and 8364.) The following servers are defined:

- First base code (boot file) server
- Second base code (boot file) server
- Third base code (boot file) server
- First workstation configuration server
- Second workstation configuration server
- Authentication server

These settings can be used when you use the Manual (NVRAM) boot method. The NS Boot utility settings can also be used to supplement the BOOTP boot method. For example, the NS Boot utility can be used to specify a domain name server. For more information on using NS Boot see the *Using IBM Network Station Manager* book.

User configuration server

User configuration profiles are normally provided by the authentication server. It is possible to define a server other than the authentication server to serve user configuration profiles. Follow the instructions below for your platform:

RS/6000 and Windows NT

Create a file named `nslduser.cfg` in the $ServBase/configs directory. The contents of the file should have the following format:

```
nsm_userconfig_server = server1 x.x.x.x y.y.y.y
nsm_userconfig_server = server2 x.x.x.x y.y.y.y
...
nsm_userconfig_server = servern x.x.x.x y.y.y.y
```

Where:

- n is less than or equal to 2048.
- server*n* is the name of the server where the user configuration profiles are located.
- x.x.x.x is a subnet.
- y.y.y.y is the subnet mask for the subnet.

The nslduser.cfg file is read by the login program at startup. When the user authenticates, the login program looks for an IP address match between the Network Station and the subnets defined in the nslduser.cfg file. If a match is found, the user configuration profile comes from the server specified in the nslduser.cfg file. If a match is not found, the user configuration profile comes from the authentication server.

AS/400

Create the user configuration server file. You can use the following command to create and edit the file:

```
STRSEU SRCFILE(QYTCV2/QYTCNSLD) SRCMBR(CONFIGSVR) TYPE(TXT) TEXT('NSLD ConfigServer ')
```

The file should have the following format:

```
nsm_userconfig_server = server1 x.x.x.x y.y.y.y
nsm_userconfig_server = server2 x.x.x.x y.y.y.y
...
nsm_userconfig_server = servern x.x.x.x y.y.y.y
```

Where:

- n is less than or equal to 2048.
- server*n* is the name of the server where the user configuration profiles are located.
- x.x.x.x is a subnet.
- y.y.y.y is the subnet mask for the subnet.

The user configuration server file is read by the login program at startup. When the user authenticates, the login program looks for an IP address match between the Network Station and the subnets defined in the user configuration server file. If a match is found, the user configuration profile comes from the server specified in the user configuration server file. If a match is not found, the user configuration profile comes from the authentication server.

Roaming user example

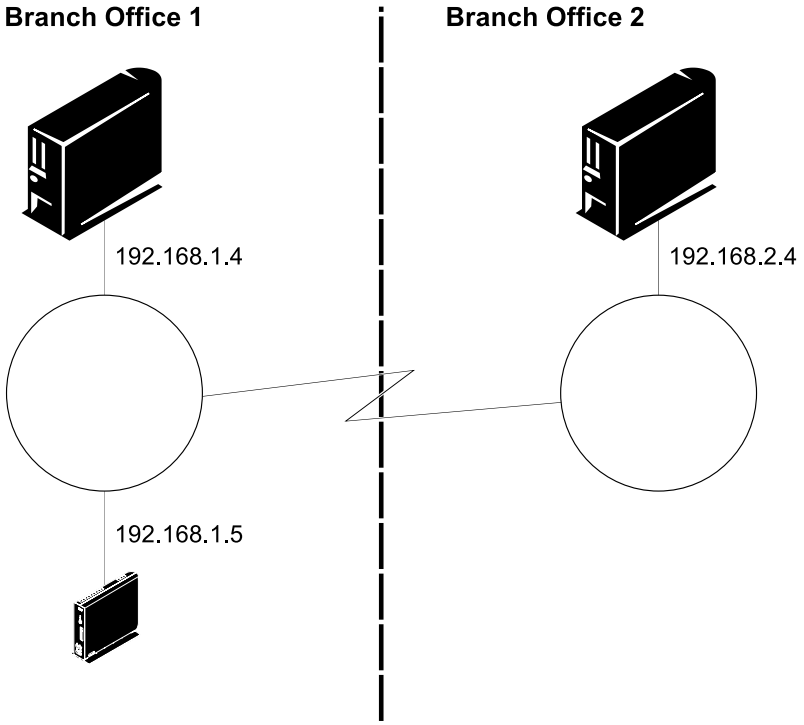


Figure 1. Roaming user example

Figure 1 shows how multiple servers can allow visiting users to obtain their home configurations.

In the case of a user from branch office 2 visiting branch office 1, one server is in branch office 1, and one server is in branch office 2.

The server in branch office 1 provides the following information:

- The IBM Network Station IP address
- The operating system and applications
- The workstation-based configuration information
- A log-on dialog

The visiting user selects the **Roam** button on the login dialog. The user then enters the name or IP address of the branch office 2 authentication server (192.168.2.4).

The branch office 2 authentication server provides the following information:

- The authentication of the user
- The user-based configuration information

The IBM Network Station Manager program on the server in branch office 1 manages the workstation-based configuration information. The IBM Network Station Manager program on the server in branch office 2 manages the user-based configuration information.

Load balancing example

Load balancing implies that you can share the burden of serving Network Stations to reduce network

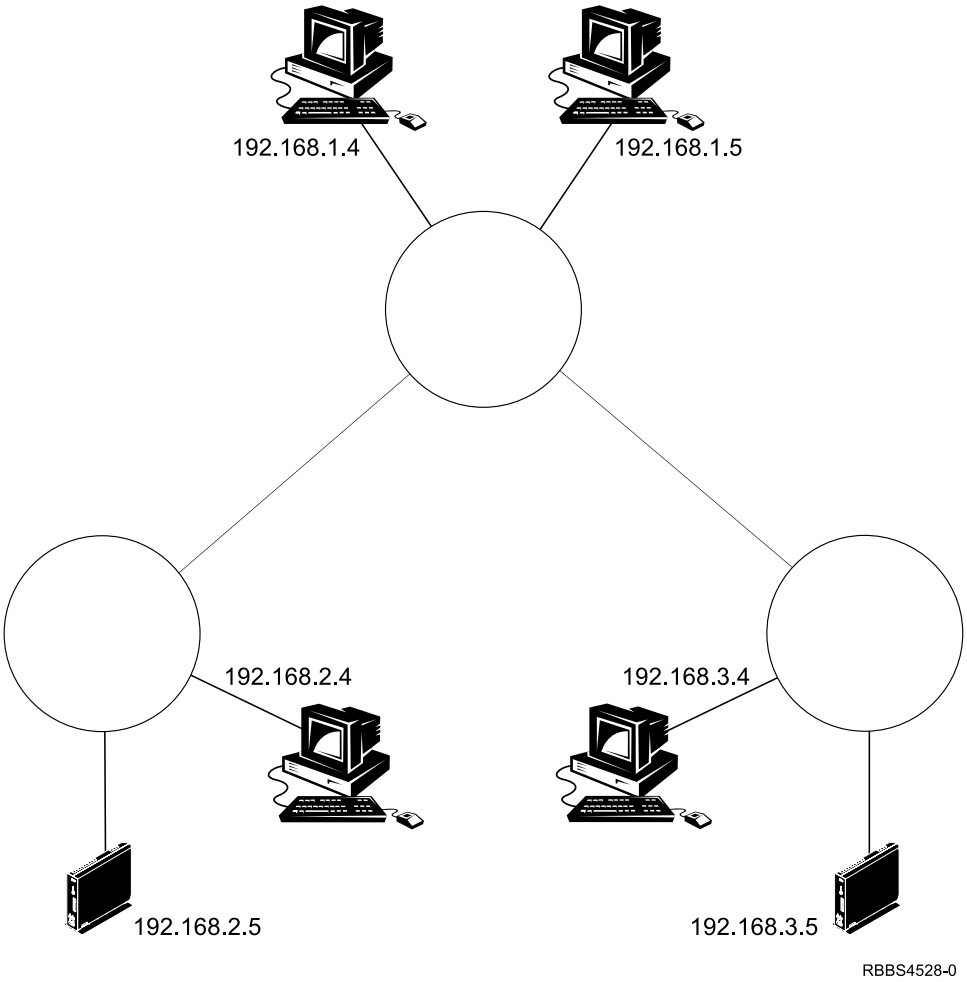


Figure 2. Load balancing example.

congestion. For example, if a site experiences a power outage, it might have a large number of Network Stations power on simultaneously (known as a boot storm). If each Network Station received its boot files from the same server, the server may experience performance degradation.

One solution for a boot storm is to have multiple base code servers. In Figure 2 there is one base code server assigned per subnet. Table 3 describes which services each server provide.

Table 3. Services for Network Stations in Figure 2.

Server roles	**IP address**
IBM Network Station Manager program server	192.168.1.4
Workstation and user configuration server	192.168.1.4
DNS server	192.168.1.5
DHCP server	192.168.1.5
Authentication server	192.168.1.4
Base code server for 192.168.2.0	192.168.2.4
Base code server for 192.168.3.0	192.168.3.4

Table 4 describes the order that the 192.168.3.5 Network Station accesses the servers after power-on.

Table 4. Load balancing power-on sequence for 192.168.3.5

Server role	**IP address**
1. DHCP server	192.168.1.5
2. Base code server	192.168.3.4
3. Workstation configuration server	192.168.1.4
4. Authentication server	192.168.1.4
5. User configuration server	192.168.1.4

Table 5 describes how DHCP is configured to create the example for 192.168.3.5.

Table 5. DHCP configuration for 192.168.3.5

DHCP option	**Example**
66 base code server	192.168.3.4
67 boot file path	/NetworkStationV2/prodbase/x86/kernel.2800
98 authentication server IP address	RAP://192.168.1.4
211 base code server protocol	nfs
212 workstation configuration server IP address	192.168.1.4
213 configuration files path for option 212	/NetworkStationV2/userbase/profiles/
214 protocol for option 212	nfs

AS/400 example

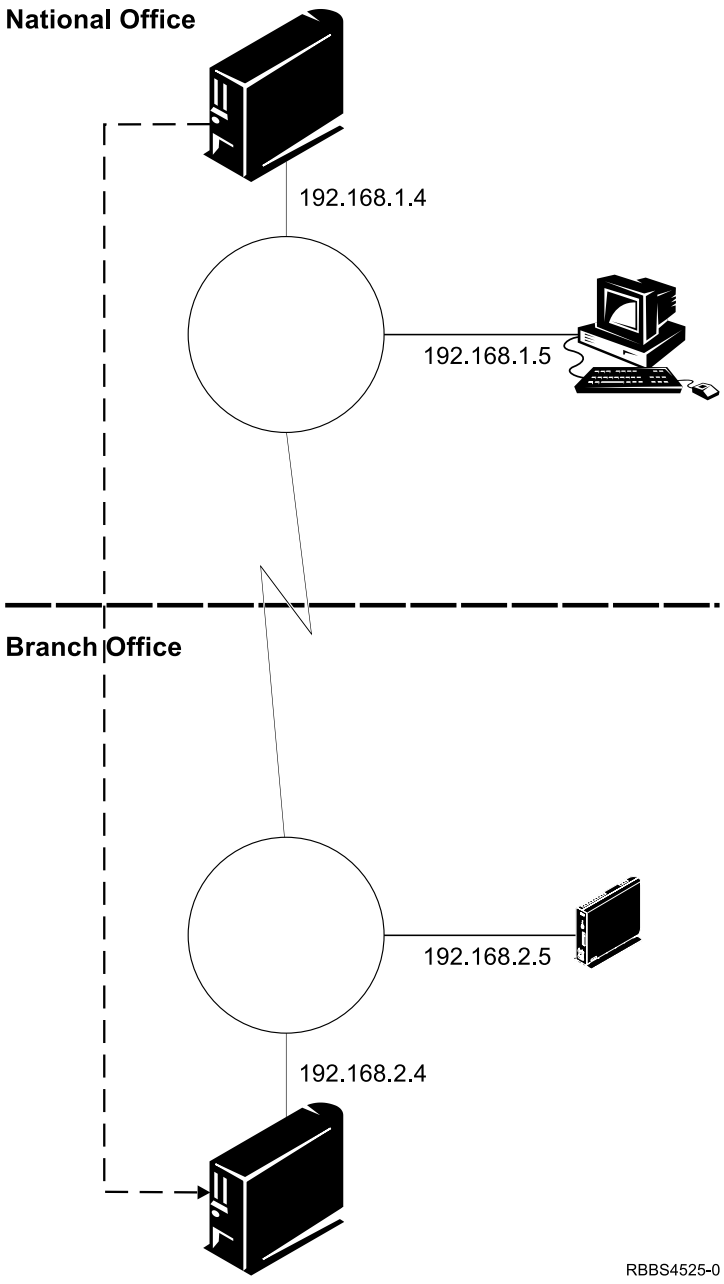


Figure 3. AS/400 example.

Figure 3 shows an example where the server roles of the Network Station environment are spread across multiple AS/400 servers. There is one national office server and one or more branch office servers. The national office serves as the central point of control. The following table describes which services are provided by each server.

Table 6. Services for Network Stations in Figure 3 on page 9.

	Server roles	**IP address**
National office	IBM Network Station Manager program server	192.168.1.4
	Authentication server	192.168.1.4
	Workstation and user configuration server	192.168.1.4
	DHCP server	192.168.1.4
	DNS server	192.168.1.5
Branch office	Base code server	192.168.2.4
	Workstation and user configuration server	192.168.2.4

In this example the IBM Network Station Manager program on the national office server is used to maintain workstation and user configurations on the branch office server. When the workstation configuration files and the user configuration files are changed on the national office server, they are copied to the branch office server. The authentication services are provided by the national office server. The workstation and user configuration files and the local Network Station applications are served from the branch office server.

In this example a full installation of the IBM Network Station Manager licensed program is installed on both the national office (192.168.1.4) and branch office (192.168.2.4) servers.

Table 7 shows how DHCP is configured to create this example.

Table 7. DHCP options for Figure 3 on page 9

DHCP option	**Example**
66 Base code server	192.168.2.4
67 boot file path	/QIBM/ProdData/NetworkStationV2/x86/kernel.2800
98 authentication server IP address	RAP://192.168.1.4
211 base code server protocol	tftp
212 workstation configuration server IP address	192.168.2.4
213 configuration files path for option 212	/QIBM/UserData/NetworkStationV2/profiles/
214 protocol for option 212	rfs

Windows NT example

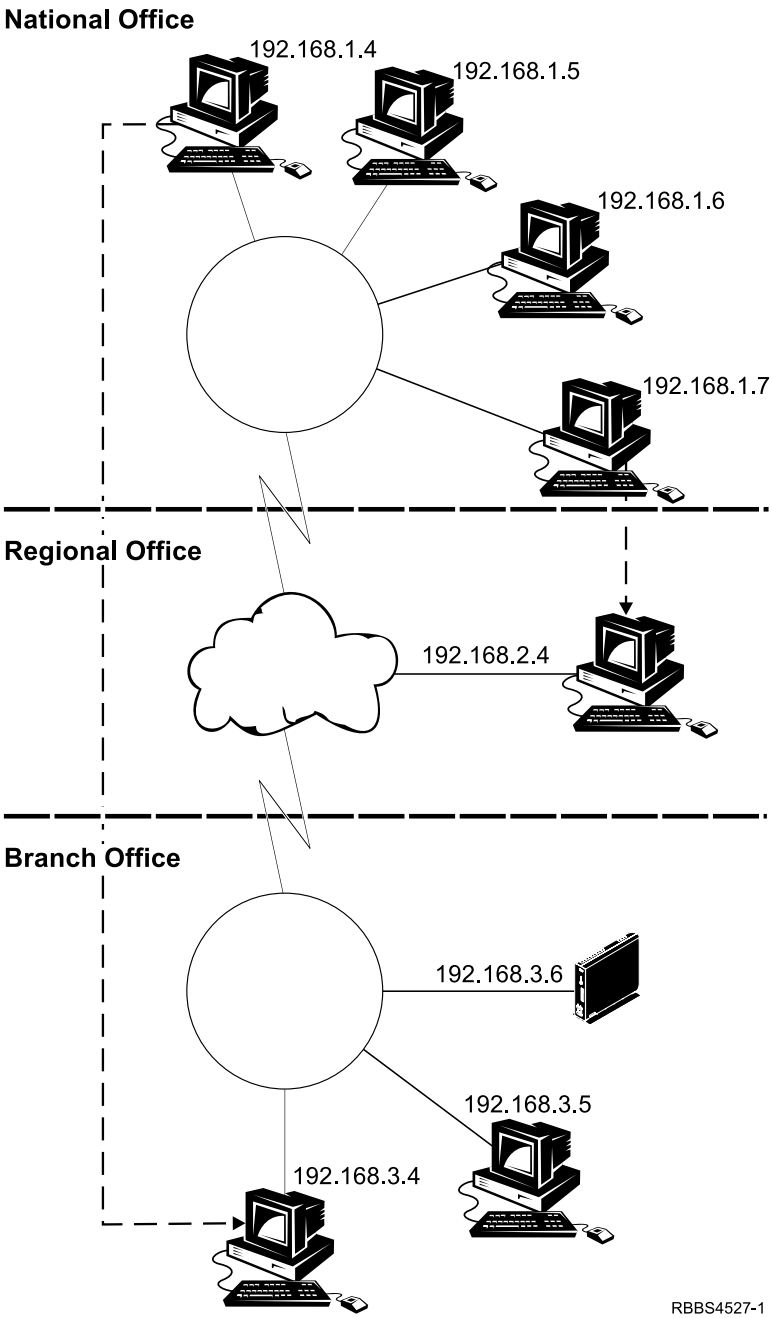


Figure 4. Windows NT example.

Figure 4 shows an example where the server roles of the Network Station environment are spread across multiple Windows NT servers. There is one national office server, one or more regional office servers, and one or more branch office servers. The national office serves as the central point of control. The following table describes which services are provided by each server.

Table 8. Services for Network Stations in Figure 4 on page 11.

	Server roles	**IP address**
National office	IBM Network Station Manager program server	192.168.1.4
	Workstation and user configuration server	192.168.1.4
	DNS server	192.168.1.5
	Primary domain controller (PDC)	192.168.1.6
	DHCP server	192.168.1.7
Regional office	Authentication server	192.168.2.4
Branch office	Base code server	192.168.3.5
	Workstation and user configuration server	192.168.3.4

In this example the user and workstation configuration files are served by the branch office server and maintained by the IBM Network Station Manager program installed on the national server. The user and workstation configuration files are updated on the national office server and copied to the branch server. The authentication services are provided by the regional office server. The local Network Station applications are served from the branch server.

When the authentication server is separated from the workstation and user configuration server, user credentials must be synchronized across the servers. The system administrator must generate the NFS user file (Iuser.cfg) and apply this file to the NFS server on each machine. All servers must be members of the same Windows NT domain. These two tasks together ensure that a uid and gid are consistently mapped to the same Windows NT user across servers and that Windows NT users are correctly granted access to files and directories based on NTFS permissions.

An example of an Iuser.cfg (the first letter of the filename is an uppercase i) file is shown below:

```
*:NSM_NFSROOT:0:0:::
*:sosuser1:10001:1:::
*:sosuser2:10002:1:::
*:sosuser3:10003:1:::
*:sosuser4:10004:1:::
*:sosuser5:10005:1:::
*:sosuser6:10006:1:::
*:sosuser7:10007:1:::
*:sosuser8:10008:1:::
*:sosuser9:10009:1:::
```

The format of the entries in the file is `*:UserName:uid:gid:::`. Where:

- UserName is a Windows NT user name.
- uid is an integer between 1 and 32000.
- gid is the integer 1 for Network Station users.

The first line of the file must always contain `*:NSM_NFSROOT:0:0:::`.

Installation considerations:

National office server (192.168.1.4)

The national office server (192.18.1.4) is added to the same domain as the other servers. Domain users are added to the local NSMUser group and local preference groups are created. See the *Installing IBM Network Station Manager for Windows NT* book for a description of how to add users to the NSMUser group. The Custom Install installation option is selected for the national office server (192.168.1.4). The following components are installed:

- Common Server Files

- Network Station Manager Program

The following post-install adjustments are required:

1. Stop the NFS service.
2. Copy the Iuser.cfg file to x:\<float>\OnDeman\Server\etc.
3. Start the NFS server.
4. Create a directory in $UserBase\nsmshared for each user.
5. Set the NTFS access control lists on the directories that you just created:

Table 9. Access control list for $UserBase\nsmshared\<user>

Access control entry	**Permissions**
Administrators	Full Control
NSMAdmin	Full Control
NSMUser	Read
SYSTEM	Full Control
<user>	Full Control

6. Create user, group, or workstation profiles using the IBM Network Station Manager program.

Regional office server (192.168.2.4)

The regional office server (192.168.2.4) is installed as a member of the Windows NT domain. Domain users are added to the local NSMUser group. See the *Installing IBM Network Station Manager for Windows NT* book for a description of how to add users to the NSMUser group. The Custom Install option is selected for the regional office server (192.168.2.4). The following components are installed:

- Common Server Files
- Network Station Login Services

The following post-install adjustments are required:

1. Stop the NFS service.
2. Copy the Iuser.cfg file to x:\<float>\OnDemand\Server\etc.
3. Start the NFS server.
4. Create the file x:\<float>\Network StationV2\servbase\configs\nslduser.cfg. See “User configuration server” on page 5 for more information. For example:

```
nsm_userconfig_server = 192.168.3.4 192.168.3.0 255.255.255.0
```

Branch office base code server (192.168.3.5)

The branch office base code server (192.168.3.5) is added to the same domain as the other servers. The Base Code Server Install installation option is selected for the branch office base code server (192.168.3.5).

Branch office configuration server (192.168.3.4)

The Custom Install option is selected for the branch configuration server (192.168.3.4). The following component is installed:

- Common Server Files

The following post-install adjustments are required:

1. Stop the NFS service.
2. Copy the Iuser.cfg file to x:\<float>\OnDemand\Server\etc.
3. Start the NFS server.
4. Copy the user, group, or workstation profiles and $UserBase\nsmshared directories from the national office server (192.18.1.4) to the branch office configuration server (192.168.3.4).

5. Set the NTFS access control lists on the profiles and $UserBase\nsmshared directories:

Table 10. Access control list for $UserBase\nsmshared\<user>

Access control entry	**Permissions**
Administrators	Full Control
NSMAdmin	Full Control
NSMUser	Read
SYSTEM	Full Control
<user>	Full Control

Table 11. Access control list for $UserBase\profiles\users\<user>.nsm

Access control entry	**Permissions**
Administrators	Full Control
NSMAdmin	Full Control
SYSTEM	Full Control
<user>	Full Control

Table 12. Access control list for $UserBase\profiles\groups\<group>.nsm

Access control entry	**Permissions**
Administrators	Full Control
NSMAdmin	Full Control
SYSTEM	Full Control
<group>	Read

Table 13 shows how DHCP is configured to create this example.

Table 13. DHCP options for Figure 4 on page 11

DHCP option	**Example**
66 Base code server	192.168.3.5
67 bootfile path	/NetworkStationV2/prodbase/x86/kernel.2800
98 authentication server IP address	RAP://192.168.2.4
211 base code server protocol	nfs
212 workstation configuration server IP address	192.168.3.4
213 configuration files path for option 212	/NetworkStationV2/userbase/profiles/
214 protocol for option 212	nfs

RS/6000 example

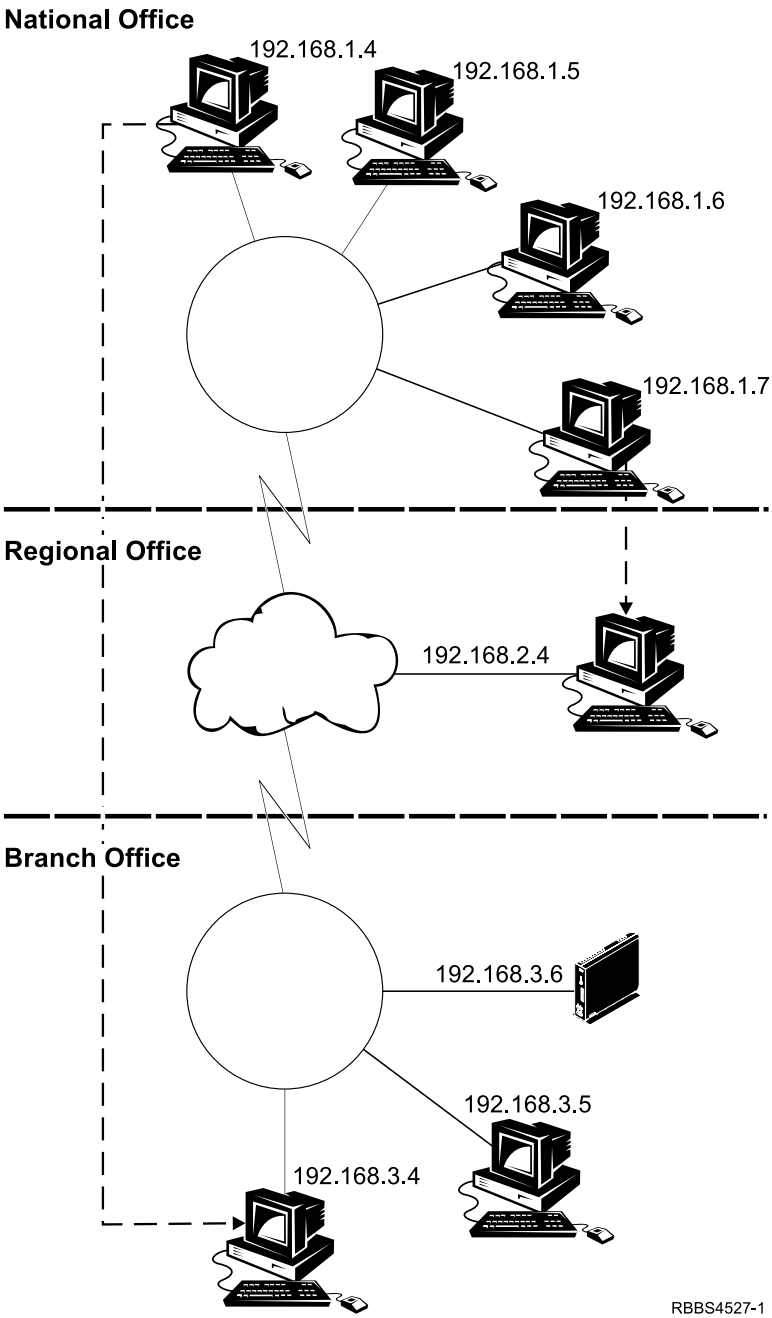


Figure 5. RS/6000 example.

Figure 5 shows an example where the server roles of the Network Station environment are spread across multiple RS/6000 servers. There is one national office server, one or more regional office servers, and one or more branch office servers. The national office serves as the central point of control. The following table describes which services are provided by each server.

Table 14. Services for Network Stations in Figure 5 on page 15.

	Server roles	**IP address**
National office	IBM Network Station Manager program server	192.168.1.4
	Workstation and user configuration server	192.168.1.4
	DNS server	192.168.1.5
	NIS master server	192.168.1.6
	DHCP server	192.168.1.7
Regional office	Authentication server (NIS slave server)	192.168.2.4
Branch office	Base code server	192.168.3.5
	Workstation and user configuration server	192.168.3.4

In this example the user and workstation configuration files are served by the branch office server and maintained by the IBM Network Station Manager program installed on the national server. The user and workstation configuration files are updated on the national office server and copied to the branch server. The authentication services are provided by the regional office Network Information System (NIS) slave server. The local Network Station applications are served from the branch server.

Note: In this example NIS is being used. If you are not using NIS, the authentication server and the user configuration server must be located on the same computer.

Installation considerations:

National office server (192.168.1.4)

The national office server (192.18.1.4) is added to the same domain as the other servers. The following filesets are installed:

- eNetstation.base
- eNetstation.nsm
- eNetstation.msg.<lang>
- eNetstation.nsm.<lang>
- eNetstation.tools (optional)

The following post-install adjustment is required:

- Create user, group, or workstation profiles using the IBM Network Station Manager program.

Regional office server (192.168.2.4)

The following filesets are installed on the regional office server (192.168.2.4):

- eNetstation.base
- eNetstation.login
- eNetstation.msg.<lang>

The following post-install adjustment is required:

- Create the file /usr/Network StationV2/servbase/configs/nslduser.cfg. See “User configuration server” on page 5 for more information. For example:

```
nsm_userconfig_server = 192.168.3.4 192.168.3.0 255.255.255.0
```

Branch office base code server (192.168.3.4)

The following filesets are installed on the branch office base code server (192.168.3.4).

- eNetstation.base
- eNetstation..S2x00.base**

- eNetstation.S300_1000.base**
- eNetstation.msg.<lang>

** These filesets may be installed separately or together depending upon the type of IBM Network Station hardware models in your network.

Branch office configuration server (192.168.3.5)

The following filesets are installed on the branch office configuration server (192.168.3.5):

- eNetstation.base
- eNetstation.msg.<lang>

The following post-install adjustment is required:

1. Copy the user, group, or workstation profiles on the national office server (192.18.1.4) to the branch office configuration server (192.168.3.5).

Table 15 shows how DHCP is configured to create this example.

Table 15. DHCP options for Figure 5 on page 15

DHCP option	Example
66 Base code server	192.168.3.5
67 bootfile path	/usr/NetworkStationV2/prodbase/x86/kernel.2800
98 authentication server IP address	RAP://192.168.2.4
211 base code server protocol	nfs
212 workstation configuration server IP address	192.168.3.4
213 configuration files path for option 212	/usr/NetworkStationV2/userbase/profiles/
214 protocol for option 212	nfs

Planning for backup servers

When your Network Stations are in a mission-critical role, it is important to plan for network failures. Because Network Stations are so dependent on servers for their operating system and applications, failure to communicate with their servers would stop productivity. For example, if the Network Stations on a network cannot communicate with their primary base code server, you could plan to direct the Network Stations to an alternative base code server. With proper backup planning, your end-users may be unaware of any server failures.

Figure 6 on page 18 describes a typical network topology for Network Stations that takes advantage of having the server roles on different physical servers.

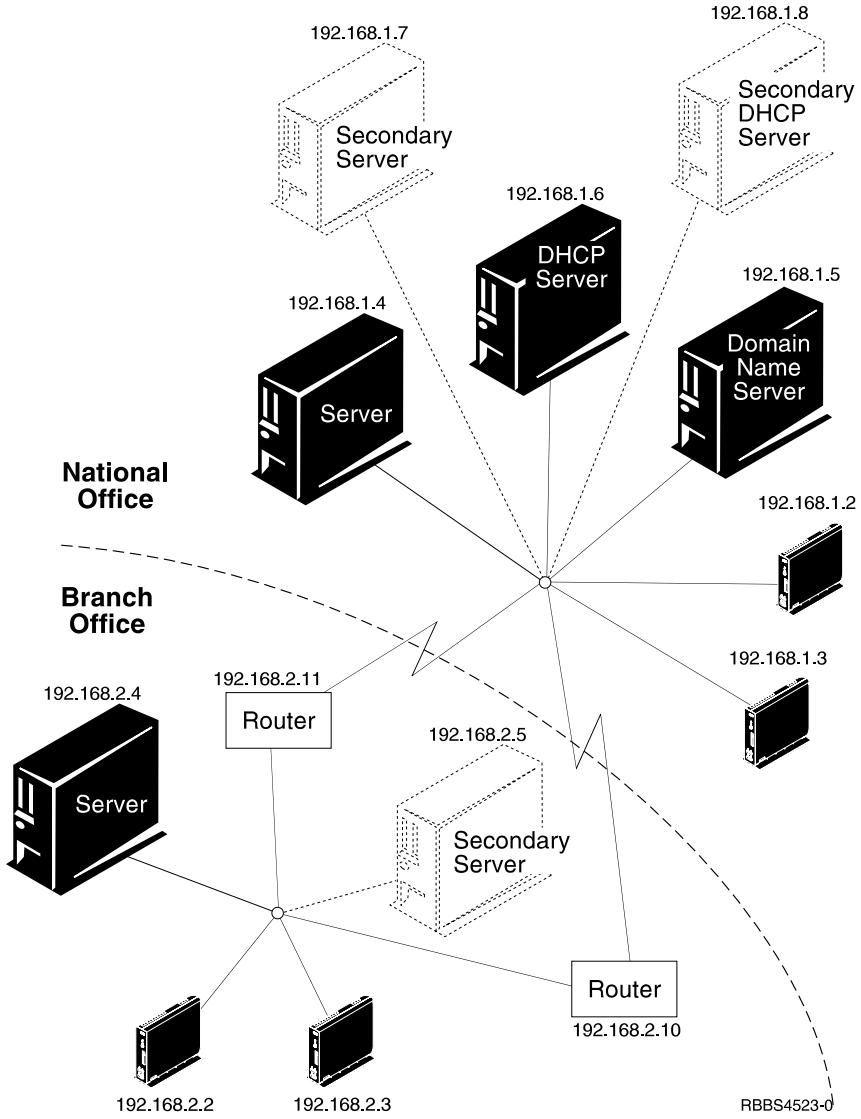


Figure 6. Network topology example with backup planning

Table 16. Backup possibilities

Symptom	Solution
Absence of primary router or gateway (192.168.2.10).	In your DHCP configuration modify option 3 to add up to three IP addresses of gateways. The first address being the first choice, the second address being the second choice, and so on. For example 192.168.2.10 192.168.2.11.
Absence of primary base code, workstation configuration, and application server (192.168.2.4).	In your DHCP configuration, add option 219 to specify a secondary base code server. For example 192.168.2.5.
Absence of primary authentication and user configuration server (192.168.1.4).	In your DHCP configuration, add a second server to option 98.
Absence of primary DHCP server (192.168.1.6).	Add a secondary DHCP server (192.168.1.8) on your network. Or add a BOOTP server and set the Network Stations to boot first from the DHCP server and second from the BOOTP server.

Chapter 3. Kiosk mode

Kiosk mode is a special mode of operation wherein the Network Station boots to an application (or the desktop) without the end user having to explicitly login. This would be a typical scenario in kiosks or other environments where no user-specific identification or application preferences are required.

As designed, this capability is intended to launch a single, full-screen application without a desktop or window decorations (also called ″chromeless″). However, many customers wish to be able to launch several applications, possibly including the desktop, without requiring any login. While this could be done with supressed login mode, there is typically no configuration server in these environments and/or no need to authenticate since there are no user preferences or home directory requirements. The boot itself may be from CompactFlash with no separate configuration/authentication server.

Single Application Kiosk Setup

Several template files are provided as part of IBM Network Station Manager. These template files enable kiosk mode. Kiosk mode creates a full screen environment for a specific application and bypasses the login function.

The intent of the template files is to allow the deployment of configurable ″terminals″ that run a single application in a hardened environment. Kiosk mode is different than the suppression of login function (see “Kiosk mode compared to suppression of login” on page 26).

The template files are stored in the $ServBase/defaults directory. A '*.ksk' file can be saved as:

- $UserBase/profiles/allkiosk.nsm if it is to apply to all workstations
- $UserBase/profiles/ncs/nc-id.nsm file; where nc-id is the hostname, MAC address, or IP address of the booting Network Station.

The following templates are provided:

- Appletviewer (appletviewer.ksk)
- ICA (ica.ksk)
- ICA Remote Application Manager (icaram.ksk)
- Java application (java.ksk)
- Netscape Communicator (netscape.ksk)
- 3270 emulator (ns3270.ksk)
- 5250 emulator (ns5250.ksk)
- VT emulator (nsterm.ksk)
- Xterm (unix.ksk)

The process for using these templates is as follows:

1. Choose one of these two methods:
   a. **For one Network Station at a time.** Copy the template for the appropriate application to the download profile for the workstation to be run in kiosk mode. This involves copying the file $ServBase/defaults/<application>.ksk to $UserBase/profiles/ncs/<ncid>.nsm where <ncid> is the host name, IP address or MAC address (without colons) of the workstation. If there is already a download profile for that workstation, it should be replaced.
      - You should always copy the template to the workstation profile. The templates in $ServBase/defaults should not be changed.
      - You should not create multiple download profiles for the same Network Station (where the download profile can be named by host name, IP address, or MAC address). Undesirable results may occur.

For example, preferences are saved to both a host name and an IP address file. The host name and the IP address belong to the same Network Station. These preferences are read by the Network Station in the following order:

1) Hostname
2) MAC address
3) IP address

Workstation profiles are most likely be overridden as they are read. For example, if a preference is saved in a hostname file and a different value for the same preference is saved in an IP address file, the IP address value will take precedence because it is read last. Preferences that are set in the hostname.nsm file and not set in the IP address file may be dropped. This behavior is dependent upon the NSM_NC_NAME_TYPE property of the RULES category of the Network Station registry. The property can have possible values of ANY, IP_ADDRESS, MAC_ADDRESS, or HOST_NAME. If ANY is given (the default), the above behavior will occur. If IP_ADDRESS, MAC_ADDRESS, or HOST_NAME are given, only the IP address, MAC address, or hostname profile respectively will be read. This can be changed at the system level using the IBM Network Station Manager command line utility.

b. **For all workstations.** You need to create your own kiosk file and name it allkiosk.nsm. You must put the file in $UserBase/profiles/allkiosk.nsm. Client-specific kiosk files go in $UserBase/profiles/ncs/<nc-id>.nsm. After that you will see all clients running with that kiosk file.

   Note: If an allkiosk.nsm file exists, no client-specific files (if present) get processed. The file allkiosk.nsm is picked up by the Flash manager along w/allncs.nsm/shipped.nsm.

2. Edit the download profile for the terminal to make any modifications. Refer to “Chapter 8. Customizing additional values” on page 87 for more information on command line parameters. Refer to the following for examples:

ns5250.ksk

To configure a kiosk that opens a session to the boot server and assigns the Network Station host name as the 5250 session name. Change the following line:

```
<PROPERTY NAME="desktop_command">nsm_wrapper ns5250 ${BOOTHOST}
-geometry 9999x9999+0+0</PROPERTY>
```

to:

```
<PROPERTY NAME="desktop_command">nsm_wrapper ns5250 ${BOOTHOST} -DISPLAY_NAME USE_HOST_NAME
-geometry 9999x9999+0+0</PROPERTY>
```

This is for non flash kiosk environments. Both $BOOTHOST and $SERVER_ADDRESS will be set to 0.0.0.0 in flash kiosk mode.

netscape.ksk

To configure a kiosk that opens a browser session to the http://www.ibm.com Web site. Change the following line:

```
<PROPERTY NAME="desktop_command">run_netscape</PROPERTY>
```

to:

```
<PROPERTY NAME="desktop_command">run_netscape www.ibm.com</PROPERTY>
```

ns5250.ksk

To enable the print screen function for the 5250 emulator, change the following line:

```
<PROPERTY NAME="NS5250*LocalPrint">keyboard_only_local_print</PROPERTY>
```

to:

```
<PROPERTY NAME="NS5250*LocalPrint">disable_and_hide</PROPERTY>
```

ns3270.ksk

To enable the print screen function for the 3270 emulator, change the following line:

```
<PROPERTY NAME="NS3270*LocalPrint">keyboard_only_local_print</PROPERTY>
```

to:

```
<PROPERTY NAME="NS3270*LocalPrint">disable_and_hide</PROPERTY>
```

nsterm.ksk

To enable the print screen function for the NSTerm emulator, change the following line:

```
<PROPERTY NAME="NSTerm*PrintMenu">keyboard_only_local_print</PROPERTY>
```

to:

```
<PROPERTY NAME="NSTerm*PrintMenu">disable_and_hide</PROPERTY>
```

Multiple Application Kiosk Setup

During the boot process, the Network Station reads a number of configuration files. These files control the capabilities of the workstation itself (e.g. printing, display, mouse, etc.) as well as the environment for the end user. The files are generated by NSM and contain eXtensible Markup Language (XML) directives to populate the registry. The registry is read by the operating system, desktop, and applications to determine the customizations to be applied. It is very similar in concept to the Microsoft Windows 95/98/NT registry. To build the registry in kiosk mode, the following files are read in order:

- $UserBase/profiles/shipped.nsm (shipped defaults; should not be edited).
- $UserBase/profiles/allncs.nsm (NSM-configured system-wide workstation preferences; should not be edited).
- $UserBase/profiles/allkiosk.nsm file if it exists.
- If no allkiosk.nsm file is present, the $UserBase/profiles/ncs directory is then searched for a nc-id.nsm file, where nc-id is the hostname, MAC address, or IP address of the booting Network Station. The files are searched in that order. If more than one file matches (e.g. a hostname.nsm and a IP_address.nsm) the results are unpredictable.

  As of PTF 6, this is processing is scheduled to change such that if an nc-id.nsm file exists, it will take precedence over the allkiosk.nsm file. It will then be possible to set up a general booting strategy in allkiosk.nsm and override it for individual workstations.

After the registry is populated with the workstation environment, the windowing system (Xwindows) initializes and the login process starts. Login then starts the window manager. If any of the ″.nsm″ files contained a setting indicating that the terminal is to boot in kiosk mode, then the login dialog is bypassed and the application specified in the registry as the kiosk application is started.

Since there is no user login in kiosk mode, there is no concept of a user or group. Therefore, the $UserBase/profiles/allusers.nsm is not read, nor are any of the group/user preference files in $UserBase/profiles/groups and $UserBase/profiles/users used.

Creating the Kiosk File

The focus of this section is on bringing up the Network Station desktop and then launching the applications either via icons or through the ″Startup″ folder.

The methodology for building these environments will be to use NSM to create/customize the workstation and desktop/application environment. These preferences will then be placed in a a single workstation configuration file or **allkiosk.nsm** file. The steps below will take you through the process.

In kiosk mode, only the first application that launches is chromeless. Since the desktop is the first application, it is effectively the chromeless application even though it isn't ″chromed″ to begin with. Applications launched via desktop icons or the ″Startup″ folder appear with window decorations unless other resources are set up to remove the chrome. Several of the applications have special controls in their ″.ksk″ file, such as invoking the **nsmrun** program. The steps for creating the files needed to run multiple applications in kiosk mode are given below. This setup assumes that these applications will be launched from the desktop. A later section will discuss running without the desktop.

1. Save Files

   The procedures described in subsequent steps will cause the *$UserBase*/**profiles/allncs.nsm** and *$UserBase*/**profiles/allusers.nsm** files to be changed. You should make backup copies of these files prior to starting. If you restore these files at a later time, you will return to the NSM configuration in place before the kiosk setup started. If you forget to make backups or they are unavailable/unusable for some reason, default versions can be retrieved from *$ServBase***/defaults**.

2. Configure Preferences

   Start NSM and after logging in (you will need to be the admininistrative user) choose **System** in the **Set Preference Level:** box.

   Next, click on each task that you want to perform from the **Setup Tasks** memu. Be sure to click the **Save** button when you complete each panel.

   It is possible to auto-start one or more of the applications when in kiosk mode. To enable this, simply add the application(s) to the ″Startup″ folder on the **Launch Bar Settings** panel. It is also possible to hide the ″Start″ menu, constrain the windows to the desktop, and remove the memory meter all through NSM. The only desktop information that cannot be changed is the ″Startup″ icon. It is present on every desktop.

3. Test

   At this point, you should test the configuration to make sure it behaves properly. You will be editing several files and it is easier to ensure that the behavior will be as expected if you test without kiosk mode first. Boot the Network Station normally and login as the administrative user. Unless you have configured something specific for the administrative user, you should see your desktop, icons, and applications. Test to ensure that the applications launch, that defined printers are working, etc. Make any changes now via NSM.

   The ″Startup″ folder cannot be removed using NSM. If you do not want a ″Startup″ folder, you can 4 of 8 3/10/00 9:01 AM remove it from the final kiosk file as explained below.

4. Create the **allkiosk.nsm**

   The result of the configuration work with NSM will update two files:

   - *$UserBase***/profiles/allncs.nsm**
   - *$UserBase***/profiles/allusers.nsm**

   The **allncs.nsm** file containing the workstation preferences is read during both normal boot and kiosk mode boot. However since there is no notion of a user when in kiosk mode, the user preferences that were configured and stored in **allusers.nsm** are not read. Therefore, the **allusers.nsm** file must be copied to a new file called **allkiosk.nsm** in the same directory.

5. Add the Kiosk Flag

   Everything is now complete except to set the flag which tells the login manager to start the system up in kiosk mode rather than continuing on to a full or suppressed login. In the allkiosk.nsm file, find the the line: </OBJECT NAME=″/login/session″>

   Then find the first occurance of: </OBJECT> which follows that line.

   Insert the following lines prior to the </OBJECT> line:

```
<CATEGORY NAME="KIOSK">
<PROPERTY NAME="commands" TYPE="LIST" ACTION="APPEND">
<ELEMENT>
<FIELD NAME="op">SET</FIELD>
<FIELD NAME="arg1">NSM_KIOSK_MODE</FIELD>
```

```
<FIELD NAME="arg2">ON</FIELD>
</ELEMENT>
</PROPERTY>
</CATEGORY>
```

If you are using the 3270, 5250 or VT emulation, you must also add the following lines prior to the </PROPERTY> line:

```
<ELEMENT>
<FIELD NAME="op">RUN</FIELD>
<FIELD NAME="arg1">usr/bin/nsmrun program</FIELD>
<FIELD NAME="arg2">FALSE</FIELD>
</ELEMENT>
```

Replace **program**with ns3270, ns5250, or nsterm as appropriate. If you are using more than one emulator, you must have a set of lines for each.

Save the result back into **allkiosk.nsm**.

The *$ServBase*/**defaults**/*app***.ksk** file for each application should be checked to see if there are any additional setup parameters for kiosk mode. Several of the applications use the **nsmrun** command and some resource settings to turn off the window decorations. If this is the desired behavior, these lines can be copied into the appropriate object definition(s) in the **allkiosk.nsm** file.

If you do not need to have a ″Startup″ folder and do not want to have the ″Startup″ icon on the desktop, remove the lines beginning with `<MENU NAME="Startup-FOLDER-system-1">` and ending with the matching `</MENU>` from **allkiosk.nsm**.

6. Test Again

   Setup the Network Station to boot from the server and it should recognize and process the **allkiosk.nsm** file and come up in kiosk mode. You can then test the applications to ensure that everything works correctly.

   If you have any behavior problems with an application, check first to see that you set up the correct information in NSM. Then check the appropriate single-application template kiosk files in the *$ServBase***/defaults** directory to ensure that any kiosk-specific options are in the **allkiosk.nsm** file.

7. Deploy

   If every Network Station is to boot to the same kiosk, you are finished. You can also create individual workstation configuration files for Network Stations that need to be booted using kiosk mode or with some other desktop preferences by movng the **allkiosk.nsm** file to *$UserBase*/**profiles/ncs**/*nc-id***.nsm**

   Note: If you have an **allkiosk.nsm** file, any workastation configuration files are ignored.

   The naming and placement of the multiple application kiosk file is the same as that for a single application file. See “Single Application Kiosk Setup” on page 19.

Multiple Applications Without a Desktop

The previous sections have discussed the setup for kiosk mode using the desktop to contain icons for launching the applications and/or using the ″Startup″ folder to autostart some or all of the applications. There may be instances where the desktop is not required and the customer wants to just start up multiple applications with no desktop. The windowing system is active, so windows can be moved, resized and iconified using the mouse. The Alt+Tab key sequence can also be used to move among the windows. However, since there are no desktop icons, if an application is closed it cannot be restarted. If the application on the **exec** line (see below) is closed, the entire script is re-executed and all the applications restart. This may require some user training.

The procedure for doing this is a combination of the multiple application setup discussed in the prior sections and the single application kiosk setup. Since only a single application can be started in kiosk

mode, a script is created to be that application (rather than the desktop as in the previous section). This script then launches the desired applications. Each application except the last is placed in the background (in UNIX parlance). The final application is started using the **exec** command to replace the script's execution with its own. (Don't worry if you don't know UNIX; like the XML examples, this is pretty much a cut/paste).

Begin by using the multiple application kiosk setup procedure to create the **allkiosk.nsm** file. Remove the lines enclosed with:

```
<PACKAGE NAME="/desktop/preferences">
</PACKAGE>
```

Then add the following lines:

```
<OBJECT NAME="/desktop/preferences">
<CATEGORY NAME="DESKTOP">
<PROPERTY NAME="desktop_command">/usr/local/bin/kiosk_script</PROPERTY>
</CATEGORY>
</OBJECT>
```

If all Network Stations are to boot in this kiosk mode, you are finished. To make it a workstation configuration file, rename it to (*$UserBase*/**profiles/ncs**/*nc-id***.nsm**).

Note: If you have an **allkiosk.nsm** file, any workstation configuration files are ignored.
Next, create the shell script in *$ProdBase***/usr/local/bin/kiosk_script**. This script will contain the command lines from the **allkiosk.nsm** file as shown:

```
#/bin/sh
#
# These applications must be placed in the background by using the
# '&' at the end of the command. Otherwise, these commands are
# identical to the commands defined in the *.ksk templates nsm_wrapper nsterm -host bissell.austin.ibm.com -title "VT\ 220\
#
# The last application must be exec'd on this process and NOT put in
# the background. Otherwise, this script process will terminate
# and will trigger a logout event. exec run_netscape http://bissell.austin.ibm.com/nc
```

Note: There will be significant new functionality delivered in PTF 6, including the capability to completely hide the launchbar and to auto-restart terminated applications.

Boot Server in Kiosk Mode

The methodology described in the two previous section is ideal for creating a boot server-only system.

1. Create allncs.nsm/allkiosk.nsm files on a system that has NSM loaded using the procedure above. This system will be the management server.
2. Install only the NSM boot server code on the machine(s) to be used as boot server(s) (such as the in-store processor in a retail environment).
3. Transfer the allncs.nsm and allkiosk.nsm files from the management server to each of the boot servers using whatever protocol or management package you normally use to maintain your servers. Some customization may be necessary for IP address, host names, etc.

As user needs change, you will need to run NSM on the management server to make the appropriate changes and to merge and deploy the new **allncs.nsm** and **allkiosk.nsm** files.

Including system, group or user preferences in a kiosk profile

PTF6 of the V2R1 IBM Network Station Manager program allows you to create kiosk profiles that include system, group or user preferences. There are three tasks you must perform in order to correctly create and configure this type of kiosk profile:

1. Create a system, group or user profile with preferences that you want to share with the kiosk profile that you are going to create. For more information on creating profiles, see ″Working with IBM Network

Station Manager program preference selections″ in Chapter 2 of the V2R1 publication of *Using IBM Network Station Manager* at the following website: `http://www.ibm.com/nc/pubs`

2. Copy and rename the file generated by the IBM Network Station Manager program to the appropriate directory according to the options listed in Table 17.
3. Use the IBM Network Station Manager program to enable kiosk mode for a workstation or system (see "Enabling kiosk mode").

Creating a profile

When you create a profile with the IBM Network Station Manager program, the preferences that you set are saved in a file with the .nsm extension. Network Station Manager stores these files with the system, group or user name that you assigned (represented here as `<system>`, `<group>`, or `<user>`) in the following directories:

- **System** profiles: `$Userbase/profiles/allusers.nsm`
- **Group** profiles: `$Userbase/profiles/group/<group>.nsm`
- **User** profiles: `$Userbase/profiles/users/<user>.nsm`

To create a kiosk profile that includes the launch bar and icons on the kiosk desktop, you need to create a system profile. This generates the `allusers.nsm` file in the `$Userbase/profiles/` directory. Once you have created this profile, you can make this kiosk setting global or workstation-specific. See Table 17.

In order for a kiosk profile to share the preferences that you set in a system, group, or user profile, you need to do the following:

1. Copy the file generated by the IBM Network Station Manager program into the appropriate directory. The directory you designate depends upon how you want your kiosk settings to be available (see Table 17).
2. Rename the file according to Table 17.

Designating global or workstation-specific kiosk settings

If you have created a profile, complete with preferences that you would like to include in a kiosk mode on a workstation, you can designate whether or not you want the preferences to be global (across all kiosk workstations on the network) or workstation-specific. Use the following table to configure your kiosk settings.

Table 17. Kiosk profiles

If you want your kiosk settings to be:	**copy the NSM-generated file into this directory,**	**and rename it:**
global:	`$Userbase/profiles/`	`allkiosk.ovr`
workstation-specific:	`$Userbase/profiles/ncs/`	`<ipaddress>.ovr`, `<macaddress>.ovr`, or `<hostname>.ovr`

You are now ready to enable kiosk mode.

Note: Kiosk profiles may not work properly when you are using a portable flash image, as `.ovr` files do not get copied when you create a flash image.

Enabling kiosk mode

This procedure assumes that:

- You are at PTF6 or greater of the V2R1 Network Station Manager program.
- You have already created a profile with the preferences that you want your kiosk profile to share.
- You have taken the profile generated by the Network Station Manager program and copied and renamed it to the appropriate directory, according to the options listed in Table 17.

1. From the main screen of the IBM Network Station Manager program, make your preference selection **System**, **Group**, or **User**, depending on the the type of profile you created with the preferences that you want your kiosk profile to share.
2. From the **Setup Tasks** menu, click **Environment**—>**General**.
3. Select the system, group or user for which you have created a profile with the preferences that you want your kiosk profile to share, and click **Select and return**.
4. Type `$NSM_KIOSK_MODE` in the **Environment variable** text field.
5. Type `ON` in the **Value** text field.
6. Click **Save**.

These changes go into effect after reboot.

Kiosk mode compared to suppression of login

The following table summarizes the differences between kiosk mode and suppression of login.

Table 18. Kiosk vs.Suppression of login

	Kiosk mode	**Suppression of login**
User is authenticated	No	Yes
Behavior scope	System and workstation	System, workstation, group, and user
Access to server file system	Read-only	Read/write
Window manager	Yes, but initial application runs without a window frame (except for Netscape and Java).	Yes
Desktop	No desktop, the application is the base window.	Configurable
Applications	One, however, it may launch others or open other windows.	One or more
Application launching	Auto-started, auto-restarted	Configurable

Booting from a CompactFlash card containing a kiosk image

This section addresses the setup of a Network Station to boot from a CompactFlash (CF) card containing a kiosk image.

See to install/update the flash.

Note: Be sure to use the option to create a card in kiosk mode using the Flash Manager tool in Network Station Manager.

Information specific to the kiosk mode:

1. From the Flash Manager, choose **Kiosk Files** from the **NSM Configuration** dropdown list on the first panel.
2. Choose the applications to put on the flash card using the **Applications** panel. These should match the applications that were selected when the Desktop Launch Bar was configured.
3. Return to the **Setup/Create** screen and click on the **Create Image** button. A new card image gets created that contains the kiosk files.

The workstation configuration files and/or the allncs.nsm file and shipped.nsm file are automatically picked up by the Flash Manager when a kiosk mode card is built.

See for flash boot setup.

For peer booting, see .

Configuring DNS

When building a flash image, the $ProdBase/etc/resolv.conf directory is copied to the flash image directory on the server in $UserBase/flash/Images and ultimately to the flash card itself. The /etc/resolv.conf file contains the domain name and DNS server(s) that are used during netstation boot. It is created based on what the server's domain and DNS entries are when NSM is installed. If the flash card is destined for an environment different from the one that server is in, the DNS will most likely be incorrect and cause very long boot times for the Network Station.

There is a way to create a flash card so that the /etc/resolv.conf file is dynamically generated from information in NVRAM. The file gets created dynamically at boot time from the NVRAM DNS information if you create a symbolic link from /etc/resolv.conf to /tmp/resolv.conf. This also works when using DHCP to set the DNS server. The resultant file will contain just a nameserver entry. There is no way in this scenario to specify the default domain name, as this is done with the domain directive in the standard /etc/resolv.conf file.

To do this, perform the following steps:

1. Use the Flash Tool in NSM to create the flash image as usual.
2. Edit the $UserBase/flash/Images/<Image_Name>/{x86|ppc}/BOM file (you can use WordPad on NT as this is not a UNIX system file) and change the line for /etc/resolv.conf as follows (use the current date/time for the timestamp):

   ```
   F - P lrwxrwxrwx 0 0          1024 Feb 15 05:49:29 2000 etc/resolv.conf -> /tmp/resolv
   ```

   Note: The first letter of the mode bits, lrwxrwxrwx, is a lowercase 'L' and there is no '/' before 'etc'. There is a space on either side of the ->. There are other symlink entries like this in the BOM file; use them for comparison.

   Note: You must make this change in the BOM prior to flashing the card. If you make this change and then attempt to update an existing card, you will get an error when the flash manager tries to remove the existing /etc/resolv.conf file.

Touch screen support

The series 300, 1000, and 2800 support the attachment of touch screens. The touch screen monitors that are supported with V2R1 of NSM and the above hardware are only the IBM MicroTouch and ELO Touch Monitors. Visit Elo at http://www.elotouch.com/

Monitors included are: IBM G70 t, G42, G54, G74, G94, flat panel T55A Elo TouchSystemsÆ IntelliTouch Ultra

Setup

The setup of a touchscreen is fairly simple.

1. Connect the monitor cable as normal and the serial cable to the serial port on the Network Station (port 1 for the 2800 which is the bottom port when the system is standing up).
2. Use NSM to enable the touchscreen daemon:
   a. Set the preference level to **WorkStation**.
   b. Then **Hardware** -> **Workstation** -> **Monitor Settings** to specify that you are using an IBM or ELO touchscreen.
3. You can also start the touch daemon from the command line:
   a. /usr/local/nc/bin/ibmtouchdaemon

      or

b. /usr/local/nc/bin/elotouchdaemon, specify the serial port to be used (as an example, /dev/tty00).

4. You can calibrate the touchscreen in NSM V2R1 via one of three ways:
   - the desktop GUI task bar -> **Toolkit** -> **Calibration Tools**
   - the command line interface: /usr/local/nc/bin/calibrate

     Automatically done by the touch daemon the first time when either /usr/local/nc/bin/ibmtouchdaemon or /usr/local/nc/bin/elotouchdaemon is entered on the command line.

Chapter 4. Suppressing the Network Station login dialog

Suppression of the Network Station login means that the Network Station automatically logs itself in under a special userid. The login screen is not shown to the user. This is the same function that was available in V1R3. In the text below, we refer to the userid that is used by the Network Station as the special userid.

In order to suppress the login, a special userid must be created on your server. Each special userid's desktop can be configured using the IBM Network Station Manager program. If you have more than one special userid, you may want to create a user group for these userids. Each Network Station that you associate with the special userid can automatically login.These special userids and passwords (along with the Network Station host name or IP address that you want to associate) must be added to a file that is encoded and saved on your server.

To suppress the Network Station login dialog, do the following:

__ 1. **Attention:** Review the following security considerations:

All Platforms	• The unencoded file contains the unencoded passwords of the special userids. It should only be accessible by the system administrator. • The encoding program should only be accessible by the system administrator. • The special userids associated with suppression of login should have very limited authority. Userids should be created similar to guest userids. • The kiosks.nsl file should only be writeable by a system administrator. • If the file system cannot prevent a general user from creating the file, an empty file should be created and protected by the system administrator. • If the user or system administrator change the password for a special userid after the encoded file is created, then the password in the encoded file must be updated by performing this procedure again.

AS/400	• User profiles associated with suppression of login should have initial menu = *SIGNOFF, initial program = *NONE, limit capabilities = *YES, special authorities = *NONE, and group profile = *NONE.
	• Change the authority of the encoded file so that public is excluded from reading or writing, QTFTP has read access only, and the system administrator has write access. Write access is needed by the system administrator when using the encoding utility. The following commands could be used to restrict access to the encoded file:
	`CHGAUT OBJ('/qibm/prodata/networkstationv2/configs/kiosks.nsl')`
	`USER (*PUBLIC) DTAAUT(*EXCLUDE) OBJAUT(*NONE)`
	
	`CHGAUT OBJ('/qibm/prodata/networkstationv2/configs/kiosks.nsl')`
	`USER (*QTFTP) DTAAUT(*R) OBJAUT(*NONE)`
	
	`CHGAUT OBJ('/qibm/prodata/networkstationv2/configs/kiosks.nsl')`
	`USER (sysadmin) DTAAUT(*W) OBJAUT(*NONE)`
	
	Where sysadmin is the userid of the system administrator.

Windows NT	• The unencoded file should NOT be kept in any subdirectory of \networkstationV2\, since clients have NFS and TFTP read access to the entire \networkstationV2\ tree. • If the unencoded file is kept on the server, it should be placed in a directory with appropriate NTFS access control. For example, all access control entries except for the Administrators group could be removed from the file. • Consider keeping the unencoded file on a diskette and stored in a secure location. • Remember that the special userids associated with suppression of login must be added to the NSMUser group through the User Manager.

__ 2. Review these DHCP considerations:

- Suppression of login relies on the Network Station being associated with an IP address or IP host name that can be matched to an IP address or IP host name in the kiosks.nsl file. DHCP needs to be configured so that the Network Station is assigned a fixed address or an address in a designated range.
- Wildcards are allowed in the kiosks.nsl file. This allows a match to an address in a designated address range.
- The userid and password for the first IP address or IP host name match that is found in the kiosks.nsl file is used for authentication. Searching the file stops after the first match is found.

__ 3. Create a file by using the security consideration mentioned above. Use any file name other than kiosks.nsl. For EBCDIC platforms (AS/400), the unencoded file must be created in EBCDIC format, not ASCII format. If the unencoded file is created in ASCII format on these platforms, unpredictable results may occur.

__ 4. Edit the file to add the Network Station IP address or host name, special userid, and password. The values should be separated by one or more spaces. For example:

```
10.9.99.99 specialid1 password1
special2      specialid2 password2
```

In this example, the IP address 10.9.99.99 is associated with specialid1. The Network Station at 10.9.99.99 will auto-login under the userid of specialid1 and use the preferences of specialid1.

You can use wildcards (that match patterns) to specify the IP address or hostname. Wildcard usage is in regular expression notation.

Pattern	Description
string	String (no special characters) - a string with no special characters matches the first IP address or host name that contains the string.
[set]	Set - matches a single character specified by the set of single characters within the square brackets.
^	Caret - signifies the characters following the ^ are the beginning of the IP address or IP host name.
$	Dollar - signifies the characters preceding the $ are the end of the IP address or IP host name.
.	Period - signifies any one character. The period means match any character, not just the period in an IP address.
*	Asterisk - signifies zero or more of preceding character.
\	Backslash - signifies an escape character. When preceding any of the characters that have special meaning, the escape character removes any special meaning from the character. The backslash is useful to remove special meaning from a period in an IP address.

For example:

Pattern	Examples of IP addresses or IP host names that match
10.2.1.9	10.2.1.9, 10.2.139.6, 10.231.98.6
^10\.2\.1\.9$	10.2.1.9
^10\.2\.1\.1[0-5]$	10.2.1.10, 10.2.1.11, 10.2.1.12, 10.2.1.13, 10.2.1.14, 10.2.1.15
special	special01, myspecial, aspecialbc
^special$	special
^special0[0-4][0-9]$	special000 through special049
special[3-8]	special3, myspecial4, aspecial5b
^special	special01, special

Pattern	Examples of IP addresses or IP host names that match
special$	myspecial, special, 3special
special...	special123, myspecialabc, aspecial09bcd
special*1	special1, myspecial1, aspecial1abc, specialkkkkk12
^special0..	special001, special099, special0abcd
^special0..$	special001, special099

__ 5. Run the program to encode the file. The program creates the kiosks.nsl file and places it in the $UserBase/profiles/ncs directory.

Platform	Program Syntax

AS/400	`CALL PGM(QYTCV2/QYTCMTKS)`
	`PARM('/QSYS.LIB/MYLIB.LIB/MYFILE.FILE/KIOSKS.MBR' '37')`
	
	Where:
	• `'/QSYS.LIB/MYLIB.LIB/MYFILE.FILE/KIOSKS.MBR'` is the full path and name of the unencoded file.
	• `'37'` is the CCSID value. This parameter is optional and defaults to CCSID 37 if omitted.

Windows NT	`d:\networkstationV2\servbase\bin\nsmkiosk x:\myDir\kiosk.source` Where: • `d:\` is the default installation drive and path. • `x:\myDir\kiosk.source` is the full path and name of the unencoded file.
RS/6000	`/usr/netstationV2/bin/createKIOSKS kiosk.source` Where: • `kiosk.source` is the name of the unencoded file.

If an error code is returned by the program, use the following table for an explanation:

Error code	Description	Action
1	The unencoded filename parameter is not specified.	Make sure that you specified a parameter with the name of the unencoded file.
2	The CCSID parameter is not valid.	Make sure that you specified a valid CCSID.
3, x	The unencoded file cannot be opened or read.	Make sure that you have specifed the correct full path and name of the unencoded file. Make sure that the user running the encoding program has the correct authority to read the unencoded file.
4, x	The encoded file cannot be created or written.	Make sure that the user running the encoding program has the correct authority to create or write the encoded file.
5	An internal codepage conversion error has occurred.	Contact IBM service.
6	There is invalid data in the unencoded file.	Make sure that the unencoded file is created following the instuctions in step 4 on page 30. If you specified a CCSID as an input parameter, make sure that it matches the CCSID with which the file was created.

Chapter 5. A flash solution

A flash solution is a CompactFlash card installed into a Network Station. The flash solution is best employed in environments where booting to a local server is not available. A typical application is in a wide area network (WAN) where a few Network Stations are located in a remote site and it is not cost effective to provide a boot server.

It is also useful in situations where network traffic is already at a maximum. A network with multiple routers and bridges that is experiencing a huge hit from 30 or more Network Stations booting up at the same time can reduce the amount of network traffic when CompactFlash memory cards are deployed within key LAN segments or on the far side of WAN connections.

Each Network Station does not require its own CompactFlash card to be installed internally. One Network Station with a CompactFlash memory card installed can dispense files to many other units. The unit with the CompactFlash memory card installed is known as a flash-based Network Station. The units downloading files from the flash-based Network Station are known as Peer Network Stations.

The following sections will lead you through creating a flash solution. The sections describe general information, how to create a flash image, configure the Network Station using static IP addresses (NVRAM) and how to copy a flash image to a CompactFlash card:

1. General information. See “General Information”
2. What CompactFlash memory cards to use. See “What CompactFlash cards to use?” on page 34.
3. Basic procedure to create a flash solution. See “Example of a basic procedure to create a flash solution” on page 34.

General Information

The following table shows $Prodbase and $Userbase for each of the three product platform operating systems (OS):

Table 19.

OS	$Prodbase	$Userbase
AIX	/usr/NetworkStationV2/prodbase	/usr/NetworkStationV2/userbase
AS/400	/QIBM/ProdData/NetworkStationV2	/QIBM/UserData/NetworkStationV2
Windows NT	/NetworkStationV2/prodbase	/NetworkStationV2/userbase
Windows 2000 (PTF8)	/NetworkStationV2/prodbase	/NetworkStationV2/userbase

Prerequisites

You must have V2R1 Network Station Manager PTF level 6 or greater loaded on the server. You must also have the latest level of firmware (NS Boot for S/2800 and S/2200) (Boot Monitor for S/1000) installed within the Network Station.

Table 20. Firmware by PTF level

Level	S/2200	S/2800	S/1000
PTF 6	B3041900	H3041900	V3.1.0.4
PTF 7	B3052500	H3051500	V3.1.1.0
PTF 8	B4071700	H4071700	V3.1.1.0
PTF 9	B4071700	H4071700	V3.1.1.0

Note: PTF 8 or higher recommended if using DHCP with CompactFlash cards.

What CompactFlash cards to use?

IBM has a location on the web that lists the CompactFlash memory cards that have been tested by IBM. The URL is www.ibm.com/nc.

Note: This information is valid as of October 4, 2000.

1. Choose **Thin Client**, then choose your country and click **Go**.
2. In the **Search** field, type in *compactflash*.
3. Choose **Support** from the drop down menu and click **Go**.
4. From the **Search Results**, choose *'Installing an optional CompactFlash card'*.
5. Choose *'Compatible CompactFlash cards'*.

Example of a basic procedure to create a flash solution

Creating a flash solution requires:

- The configuration of server and a client
- Writing data to a CompactFlash memory card.

To guide the user through the process, the following is a step by step procedure that illustrates the Network Station booting and obtaining the configuration files from the CompactFlash card with a server used for updating the CompactFlash card. The procedure creates a Netscape browser KIOSK solution that also supports NFS Peer booting (allows other Network Stations to boot from the Network Station).

CAUTION: Make sure the power cord is disconnected from the power outlet before installing the CompactFlash card.

1. Install a new 64MB or larger CompactFlash card into the Network Station.
2. Install NSM V2R1 PTF level 6 or newer onto the server used for creating a flash image (if not done already).
3. Bring up an NSM browser.
4. To start NSM, type the following for the address or location and press Enter:
   - http://<*nameofserver*>/NetworkStationV2/Admin

   Where <*nameofserver*> is your IP address or name of the server.
5. When prompted, logon with NSM Administrator authority. Use **QSECOFR** userid for AS/400; **Administrator** for Windows NT/2000; and **root** for AIX, or other ids in the NSM Administrator group.
6. To set Flash Update for a specific machine:
   a. Select **Workstation preference level**.
   b. Type the Machine Address Code (MAC), IP address or host name of the Network Station.
   c. Select **Hardware**->**Workstation**.
   d. Change the following parameters and **Save**.
      - Check for Flash Image update: **Yes**
      - Flash Image directory: myimage

      The netscape.ksk file does not support the autoproxy setup.

   Note: You must set **Check for Flash Image update** before creating the image. **Flash Image directory** is not a directory — it should be a name. The **Flash Image directory** value 'myimage' could be whatever name you want to call the flash image. This is the same name that is set in the Flash Manager.
7. Copy the netscape.ksk file between the following directorys:

a. **AIX** — `/usr/NetworkStationV2/servbase/defaults/` to `/usr/NetworkStationV2/userbase/profiles/`

b. **AS/400** — `/QIBM/ProdData/NetworkStationV2/nsm/defaults/` to `/QIBM/UserData/NetworkStationV2/profiles/`

c. **Windows NT** — `\NetworkStationV2\servbase\defaults\` to `\NetworkStationV2\userbase\profiles\`

Rename the netscape.ksk file to allkiosk.nsm. Edit the allkiosk.nsm file and change the proxy entries (yourproxy.server.com) to your proxy settings.

Note: With allkisok.nsm at the current location, all Network Stations booted from the server (assuming this is the workstation configuration server) will boot-up using this configuration (kiosk netscape session). You may want to rename this file when the flash image has been created to something other then allkiosk.nsm (e.g.: netscape.ksk).

8. Select the **System Preference Level**.
9. At the **Setup Tasks list**, select **Administration**->**Flash Manager**.
10. Once at the Flash Manager screen, change the parameters (in the order listed) to the following:

Table 21.

Parameters	Values
New Image:	Select it
Name:	myimage
Hardware support	X86 only
Flash Card Size	Type in the size of your CompactFlash card in KB

11. Select the **Applications** tab of the Flash Manager.
12. Select **NFS Peer Boot** and **Netscape** if there is enough room on your CompactFlash card. Press the **Add** button to add them to the Flash Image Applications list.
13. Press the **Setup/Create** tab of the Flash Manager.
14. Make sure the **Space Available** parameter is greater than zero.
15. Press the **Create Image** button to start the flash image creation. You will be prompted for the password used to log into NSM. Wait until you get the completion message.

Note: This period of time will vary depending on the processing power of your server and the size of the image you selected.

16. Turn on the Network Station. Wait until after the ″**Hardware testing in progress . . .**″ message disappears and press ESC to enter into the NS Boot Utility.
17. If the Select keyboard settings menu (MENU21) appears, do the following:

Note: This would appear if the Network Station is new or if the factory defaults have been set.

a. Select **keyboard** and press Enter.

b. At the **Select display resolution and frequency** menu (MENU22), select the resolution for the OS and follow the prompts.

c. At the **CompactFlash boot - Configure IP settings** menu (MENU25), press the F5 key.

d. At the **Attention Notice** menu (MENU19), press the F5 key.

e. At the **Change language setting** menu (MENU15), select **language** and press Enter.

18. At the **Advanced configuration** menu (MENU03), select **Configure network settings** and press Enter.
19. At the **Configure network settings** menu (MENU06.x), change the parameters to match the following table and then press Enter.

Table 22. MENU06x

Parameter	Value
Network priority: DHCP	Disabled
Network priority: BOOTP	Disabled
Network priority: Local (NVRAM)	First
Boot file source	Flash
Thin client IP address	*<IP address of the Network Station>*
Domain name server IP address	0.0.0.0
Gateway IP address	*<IP address of your gateway>*
Subnet mask	*<Your subnet mask for the network>*

20. At the **Change boot file server settings** menu (MENU08.x), change the parameters to match the following table and then press Enter.

Table 23. MENU08x

Parameter	Value
Boot file server IP address: First	0.0.0.0
Boot file server IP address: Second	*<IP address of boot file server (server on which the flash image is located)>*
Boot file server IP address: Third	0.0.0.0
Boot file server directory and file name: First	/kernel.*<xxxx>*
Boot file server directory and file name: Second	AIX - /usr/NetworkStationV2/prodbase/x86/kernel.xxxx AS/400 - /QIBM/ProdData/NetworkStationV2/x86/kernel.xxxx Windows NT - /NetworkStationV2/prodbase/x86/kernel.xxxx
Boot file server protocol: TFTP	AIX - Second; AS/400 - First; Windows NT - Disabled
Boot file server protocol: NFS	AIX - First; AS/400 - Disabled; Windows NT - First

21. At the **Change workstation configuration server settings** menu (MENU09), change the parameters to match the following table and then press Enter.

Table 24. MENU09

Parameter	Value
Workstation configuration server IP address: First	0.0.0.0
Workstation configuration server IP address: Second	*<IP address of boot file server>*
Workstation configuration directory: First	/termbase/profiles
Workstation configuration directory: Second	AIX - /usr/NetworkStationV2/userbase/profiles AS/400 - /QIBM/Userdata/NetworkStationV2/profiles Windows NT - /NetworkStationV2/userbase/profiles
Workstation configuration protocol: First	Flash
Workstation configuration protocol: Second	AIX - NFS; AS/400 - RFS; Windows NT - NFS

22. At the **Change authentication server settings** menu (MENU05), change the parameters to match the following table and then press Enter.

Table 25. MENU05

Parameter	Value
Authentication server IP address: First	0.0.0.0

Table 25. MENU05 (continued)

Authentication server IP address: Second	0.0.0.0

23. Press F10 at MENU03 to reboot.

The Network Station will obtain the OS from the network and then it will copy the flash image you created called 'myimage' to the CompactFlash card making the appropriate directories. When the copy is complete, the Network Station will boot and obtain the configuration files from the CompactFash card. The process will take a few minutes depending on your network and the Network Station.

This completes the basic procedure for creating a flash solution.

Flash solution procedures used for customization

The following sections will show how to customize a flash solution for special needs using the IBM Network Station (S/2200, S/2800):

1. Before creating a flash image on the server. See "Before creating a flash image on the server" on page 38.
   a. Changing a BOM file. See "Changing a BOM file" on page 38.
   b. Adding custom applications or files to a flash image. See "Adding custom applications or files to a flash image" on page 38.
   c. DNS and Host table considerations within the flash image. See "DNS and Host table considerations within the flash image" on page 42.
   d. Kiosk. See "KIOSK configuration" on page 43.
2. Creating a flash image on the server. See "Creating a flash image on a server" on page 44.
3. Additional flash image procedures. See "Additional flash image procedures" on page 46.
   a. Editing the bill of materials (BOM) files. See "Editing bill of materials (BOM) files" on page 46.
   b. Deleting a flash image from the server. See "Deleting a flash image from the server" on page 47.
   c. Flash image creation errors. See "Flash image creation errors" on page 47.
4. Copying flash image to a CompactFlash card. See "Copying flash image to a CompactFlash card" on page 48.
5. Configuring Network Station for booting the CompactFlash card. See "Configuring the Network Station for booting a CompactFlash card" on page 49.
6. Additional CompactFlash card procedures. See "Additional CompactFlash card procedures" on page 57.
   a. Updating from a flash image to a CompactFlash card. See "Updating a CompactFlash card using configuration files from a server" on page 57.
   b. Updating a CompactFlash card using configuration files from the CompactFlash card and a server. See "Updating a CompactFlash card using configuration files from the CompactFlash card and a server" on page 58.
   c. Updating a File in the Flash Image, insuring it gets put onto the card. See "Updating a File in the Flash Image, insuring it gets put onto the card" on page 59.
   d. Mounting the CompactFlash card. See "Mounting the CompactFlash card" on page 59.
   e. Un-mounting the CompactFlash card. See "Un-mounting the CompactFlash card" on page 59.
   f. Displaying contents of the CompactFlash card. See "Displaying contents of the CompactFlash card" on page 59.
   g. Deleting all file(s) on the CompactFlash card. See "Deleting all file(s) on the CompactFlash card" on page 60.
   h. Checking the file system on the CompactFlash card. See "Checking the file system on the CompactFlash memory card" on page 60.

7. OS booting errors. See “OS booting errors” on page 61.

Before creating a flash image on the server

The flash configuration utility allows the user to customize a flash image. Before a flash image is created on your server and before it is copied to a CompactFlash memory card you may want to customize the contents of the image from the standard IBM supplied package. This customization may consist of:

- Modifications to the IBM supplied files (removing or adding in certain files such as fonts)
- Adding your own custom application
- Adding a custom file such as a desktop bit map, or
- Adding special DNS/Host table information.

You may include your own custom desktop bit map (for example) to customize the desktop. This requires creating a BOM file for the new item and a custom application list.

The DNS and Host table information located on the server is copied to `etc/resolv.conf` and to `etc/hosts` when creating a flash image. You may want to alter, create or set for automatic this DNS information for your particular use of the Network Station.

Note: CompactFlash memory cards or flash images may be created for other locations that use different DNS and Host table information.
For instructions on how to do this, see “DNS and Host table considerations within the flash image” on page 42.

Changing a BOM file

To make changes to a BOM file — and have that change take affect in the flash-based clients — perform the following steps:

1. Make a backup copy of the BOM file that you are going to change. Again, the BOM files reside in the $Prodbase directory.
2. Edit the BOM file. Toggle the first column to add/remove files from the flash image. If you need to add lines to the file, copy a line that is like the one that you are adding. See .
3. Use the NSM flash configuration utility to update the flash images which use the changed BOM file.
4. Reboot the flash-based clients to load the flash image update.

Note: The IBM-supplied BOM files that reside in the $Prodbase directory WILL BE REPLACED whenever a PTF or new release is installed. You should keep track of changes you make to the BOM files and then reapply them after installing PTFs.

IMPORTANT: It is recommend that you do not modify the IBM-supplied BOM files (x86.Base_OS.BOM, ppc.Base_OS.BOM, x86.Video_Player.FBOM and etc.) whenever possible since they would be overwritten when applying a new PTF level. It is preferable to create your own BOM files and to use the customapp.lst file for selection within the flash configuration utility. Make backups of your files.

Adding custom applications or files to a flash image

You can create new custom BOM files for customized applications or files to be added to your flash image. You need to add the custom BOM name to `customapps.lst`.

`customapps.lst` is read by the flash manager so that your BOM will appear under ″Available Application″ in the **Application** section of the Flash manager.

For more information on the format of BOM files, see “Editing bill of materials (BOM) files” on page 46.

Following are three examples oF how to add custom applications or files.

1. **Example A** deals with applications on a server location based off of the root directory (outside of $ProdBase or $UserBase).
2. **Example B** deals with an application within the $ProdBase directory of the server.
3. **Example C** is an example showing how to add a desktop background bit map to the flash image — based on $ProdBase directory.

Example A - Custom application located based on the root directory on a server: A custom applications resides in the directory /customapp/ on the server and has the following files:

```
/customapp/customApplication1.jar
/customapp/customApplication2.jar
/customapp/customApplication3.jar
```

1. Create the application BOM files for the custom application and place them in the $ProdBase directory. This is the same directory in which the IBM-shipped BOM files are located. The custom application BOM files should use the following naming convention:

   <*hardware type*>.<*application name*>.BOM ... where <*hardware type*> is 'x86' or 'ppc'.

   Note: If you are only running with a 2200 and/or 2800, then you only have to make a BOM for 'x86'. <*application name*> is a unique name for the application BOM you are adding.

   In a network environment, it is recommended that custom applications reside in a network directory that is mounted to the Network Station using NFS or RFS. In a flash environment, placing custom applications on the flash card will reduce the network access.

   When making the custom BOM files, use the same format as the IBM BOM files and use the following rules:

   - Place an 'F' in the first column for items that go into the flash image. This will most likely be for each item in the custom BOM.
   - Place a 'C' in the third column to indicate the file name specifies a complete path.
   - Specify the complete path name in column 10.
   - It is recommended that custom applications do not reside in the $ProdBase directory.

   The following shows the BOM file contents for this application:

   ```
   F - C drwxr-xr-x 0 0 1024 Aug 15 05:50:32 1999 customapp/
   F - C -r-xr-xr-x 0 0 34345 Aug 15 05:50:32 1999 customapp/customApplication1.jar
   F - C -r-xr-xr-x 0 0 20343 Aug 15 05:50:32 1999 customapp/customApplication2.jar
   F - C -r-xr-xr-x 0 0 50507 Aug 15 05:50:32 1999 customapp/customApplication3.jar
   ```

   The path specified in column 10 is relative to the root directory of the server. On NT, this is the root directory of the C: drive. On AIX and AS/40,0 this starts at ″/″ root directory. For each server the path, separator is '/' within the BOM. Since this path is the same whether this application is for x86 or ppc, this BOM can be the same for both x86 and ppc. The names for these BOMs would be the following:

   - x86.customapp.BOM
   - ppc.customapp.BOM

2. Make a backup copy of your BOM files and place these files in the $ProdBase directory.

   Note: Files in the $Prodbase directory may get replaced or overwritten when applying PTFs or new releases to the server.

3. Once the custom application BOM is created, add the custom application to the customapps.lst file. This file has the following format (same format as the x86.applications.lst and ppc.applications.lst file without the date information at the top):

   APPLICATIONS <*Application Name*>&<*Application Type*>&<BOM name>&<*Application Size*>

Where the following rules apply:

- APPLICATIONS must be the first line of the file.
- All fields are separated by an ampersand '&'.
- <*Application Name*> is what will get displayed in the Flash Management utility.
- <*Application Type*> indicates whether the application is required or optional. This field must be ″REQUIRED″ for a required application or ″AVAILABLE″ for an optional application.
- <*BOM name*> is the name of the BOM (minus the x86. or ppc.)

Using the above rules, the customapps.lst would contain the following:

- APPLICATIONS
- Custom Applications&AVAILABLE&customapp.BOM&113002

4. After the custom application has been added to the customapp.lst file, it will appear in the Flash Manager utility under the ″Available Applications″. Now the application can be added to an image. Using the above example, the custom application will get copied to the following directories in the flash image.

   For x86 support:

   ```
   $UserBase/flash/Images/<Image Name>/x86/customapp/
   ```

   For ppc support:

   ```
   $UserBase/flash/Images/<Image Name>/ppc/customapp/
   ```

5. You would need to change the allkiosk.nsm file, allusers.nsm or the specific nsm file (based on IP address or MAC address) to access (execute) the application(s) desired on the CompactFlash card. The directory used would be /customapp/ based from the root directory of the CompactFlash card.

   Note: An icon on the launch bar could be created via NSM to allow the user to start the program.

Example B - Custom application residing in prodbase: If custom applications residing in the $ProdBase directory can not be avoided, follow these steps:

1. Create the custom application BOM file. In this situation the custom application BOM will be different for x86 and ppc. Using the same example as before, the custom application files reside in the following directories:

   - $ProdBase/x86/customapp/customApplication1.jar
   - $ProdBase/x86/customapp/customApplication2.jar
   - $ProdBase/x86/customapp/customApplication3.jar
   - $ProdBase/ppc/customapp/customApplication1.jar
   - $ProdBase/ppc/customapp/customApplication2.jar
   - $ProdBase/ppc/customapp/customApplication3.jar

   The following shows the BOMs for this application:

   x86.customapp.BOM

   ```
   F - P drwxr-xr-x 0 0 1024 Aug 15 05:50:32 1999 x86/customapp/
   F - P -r-xr-xr-x 0 0 34345 Aug 15 05:50:32 1999 x86/customapp/customApplication1.jar
   F - P -r-xr-xr-x 0 0 20343 Aug 15 05:50:32 1999 x86/customapp/customApplication2.jar
   F - P -r-xr-xr-x 0 0 50507 Aug 15 05:50:32 1999 x86/customapp/customApplication3.jar
   ```

   ppc.customapp.BOM

   ```
   F - P drwxr-xr-x 0 0 1024 Aug 15 05:50:32 1999 ppc/customapp/
   F - P -r-xr-xr-x 0 0 34345 Aug 15 05:50:32 1999 ppc/customapp/customApplication1.jar
   F - P -r-xr-xr-x 0 0 20343 Aug 15 05:50:32 1999 ppc/customapp/customApplication2.jar
   ```

```
F - P -r-xr-xr-x 0 0 50507 Aug 15 05:50:32 1999 ppc/customapp/customApplication3.jar
```

Note: Column three contains a 'P'. This indicates that the path is relative to the $Prodbase directory.

2. Make a backup copy of your BOM files and place these files in the $ProdBase directory.

   Note: Files in the $Prodbase directory may get replaced or overwritten when applying PTFs or new releases to the server.

3. Once the custom application BOM is created, add the custom application to the customapps.lst file. This file has the following format (same format as the x86.applications.lst and ppc.applications.lst file without the date information at the top):

   APPLICATIONS

   <Application Name>&<Application Type>&<BOM name>&<Application Size>

   Where the following rules apply:

   - APPLICATIONS must be the first line of the file.
   - All fields are separated by an ampersand '&'.
   - *<Application Name>* is what will get displayed in the Flash Management utility.
   - *<Application Type>* indicates whether the application is required or optional. This field must be ″REQUIRED″ for a required application or ″AVAILABLE″ for an optional application.
   - *<BOM name>* is the name of the BOM (minus the x86. or ppc.)

   Using the above example, the customapps.lst would contain the following:

   - APPLICATIONS
   - Custom Application&AVAILABLE&customapp.BOM&113002

4. After the custom application has been added to the customapp.lst file, it will appear in the Flash Manager utility under the Available Applications. Now the application can be added to an image. Using the above example, the custom application will get copied to the following directories in the flash image.

   For x86 support:

   ```
   $UserBase/flash/Images/<Image Name>/x86/customapp/
   ```

   For ppc support:

   ```
   $UserBase/flash/Images/<Image Name>/ppc/customapp/
   ```

5. You would need to change the allkiosk.nsm file, allusers.nsm or the specific nsm file (based on IP address or MAC address) to access (execute) the application(s) desired on the CompactFlash card. The directory used would be /customapp/ based from the root directory of the CompactFlash card.

   Note: An icon on the launch bar could be created via NSM to allow the user to start the program.

Example C - Desktop background bit map in $ProdBase directory: If a user wants a desktop bitmap other than what is supplied by IBM, the following steps explain how to add the desktop bitmap to the flash image.

1. Create two BOM files for your custom created files such as a bitmap file for the desktop background in the $ProdBase directory:

   - The file x86.*mydesktop*.BOM would contain the following:

     ```
     F - P -rwxr-xr-x 0 0 65685 July 25 23:59:59 2000 x86/usr/local/nc/registry/desktop/themes/mydesktop.xpm
     ```

   - The file ppc.*mydesktop*.BOM would contain the following:

     ```
     F - P -rwxr-xr-x 0 0 65685 July 25 23:59:59 2000 ppc/usr/local/nc/registry/desktop/themes/mydesktop.xpm
     ```

   Where *mydesktop* is any name that you want (prepended by x86. or ppc. and appended by .BOM). Use the same format as the IBM BOM files. The third column has a P standing for base of the $ProdBase directory. This is required since the bitmaps must be loaded from the $ProdBase directory.

2. Add the custom application (you may have to create this file if is does not exist) to the **customapps.lst** file. The contents of this file allow the custom applications and files to appear under ″Available Application″ in the Application Section of the Flash manager. The file has the following format (same format as x86.applications.lst, but no date information at the top): APPLICATIONS My desktop bitmap&REQUIRED&mydesktop&1024

   Where the following rules apply:

   - APPLICATIONS must be the first line of the file.
   - All fields are separated by an ampersand (&).
   - The first field is the application name.
   - The second field indicates required or available applications.
   - The third field is the name of the BOM file (minus x86. or ppc.).
   - The fourth field is size of the application (not enforced, just an attempt to help you figure out the size of the image).

3. Make a backup copy of your .BOM and .lst files.
4. Make sure to use NSM to select the desktop bitmap before creating the flash image. To set this up using NSM, do the following:
   a. Go to the location in NSM **Hardware**->**Worksations**.
   b. Look for the section called **Monitor Settings**.
   c. Change **Desktop background** to **Custom background image path**. Specify the path as `/usr/local/nc/registry/desktop/themes/mydesktop.xpm` (assuming the example was used).

DNS and Host table considerations within the flash image

The Flash Manager Tool in NSM assumes that you are building a card for the environment in which the NSM server exists. That's not true when you are building cards for a remote site or a branch office. Specifically, the **/etc/hosts** and **/etc/resolv.conf** files from the server where the Flash Manager is run are put onto the card image. If these files are not edited on the server before the image is created, these values may be incorrect. These files are copied onto every card, kiosk mode or regular boot.

When building a flash image, the **$ProdBase/etc/resolv.conf** directory is copied to the flash image directory on the server in **$UserBase/flash/Images** and ultimately to the flash card itself. The **/etc/resolv.conf** file contains the domain name and DNS server(s) that are used during the Network Station boot. It is created based on what the server's domain and DNS entries are when NSM is installed. If the flash card is destined for an environment different from the one that server is in, the DNS will most likely be incorrect and cause very long boot times for the Network Station.

There is a way to create a flash card so that the **/etc/resolv.conf** file is dynamically generated from information in NVRAM. By creating a symbolic link from **/etc/resolv.conf** to **/tmp/resolv.conf**, the file gets created dynamically at boot time from the NVRAM DNS information. This also works when using DHCP and BOOTP to set the DNS server. The resultant file will contain just a **nameserver** entry; there is no way in this scenario to specify the default domain name, as is done with the domain directive in the standard **/etc/resolv.conf** file. This generally does not pose a problem, as few users enter unqualified host names.

The **/etc/hosts** file should be edited to remove all of the local host names. You can substitute IP addresses or names for the remote systems. Simply leaving **/etc/hosts** with only the 127.0.0.1 (local host) entry is probably the best approach.

Before creating the flash image with the flash utility, do the following steps :

1. Change the x86.Base_OS.BOM file (make a backup of this file) so that the resolv.conf line is set for NOT to copy. The line in the original file should look like the following:

   ```
   F - P -rwxr-xr-x 0 0 0 Jun 26 19:31:31 1999 x86/etc/resolv.conf
   ```

   Change it to look like the following line (change in column one from F to -):

   ```
   - - P -rwxr-xr-x 0 0 0 Jun 26 19:31:31 1999 x86/etc/resolv.conf
   ```

Save the changes.

2. Create two new BOM files called **dnsauto.BOM** and **dnsbysvr.BOM**. The first, **dnsauto.BOM** should have the following within it (DNS resolve by NS Boot settings in NVRAM):

```
F - P lrwxrwxrwx 0 0 1024 Jul 31 12:59:59 2000 x86/etc/resolv.conf -> /tmp/resolv.conf
```

   Note: There is a space on either side of the ->. There are other symlink entries like this in the BOM file; use them for comparison. The first letter of the mode bits, lrwxrwxrwx, is a lowercase 'L' and there is no '/' before 'x86'.

   The second BOM file, **dnsbysvr.BOM** should have the following within it (DNS set by NSM server):

```
F - P -rwxr-xr-x 0 0 0 Jun 26 19:31:31 1999 x86/etc/resolv.conf
```

3. Create a custom application file if it is not already created. The custom application file is called **custapps.lst**. The following shows a sample content of the file:

   APPLICATIONS

   DNS via NS Boot&REQUIRED&dnsauto&1024

   DNS via server (orginial setting)&REQUIRED&dnsbysvr&1024

4. When creating a flash image and Selecting Application, select 'DNS via NS Boot' so that the DNS information is passed (via NVRAM, BOOTP or DHCP) to the OS. If you want to be able to use the default method of obtaining the DNS information, select 'DNS via server (orginial setting)'. Once selection (and any other application you require) is made, the flash image can be created.

KIOSK configuration

For kiosk setup, there are a variety of sample files provided in the *$ServBase*/**defaults** directory. Copy these files, suffixed with ″.ksk″, manually to the appropriate configuration directory. Modify the files to reflect the proper parameters for the environment. While this is not automated, it is straightforward. The ″.ksk″ file can be saved as either *$UserBase*/**profiles/allkiosk.nsm** if it is to apply to all workstations or in a *$UserBase*/**profiles/ncs**/*nc-id*.**nsm** file, where *nc-id* is the hostname, MAC address, or IP address of the booting Network Station. These files can be put onto the flash card to remove dependence on a server. The following is a list of the KIOSK configuration files:

- appletviewer.ksk
- ica.ksk
- icaram.ksk
- java.ksk
- nsterm.ksk
- unix.ksk
- ns5250.ksk
- ns3270.ksk
- netscape.ksk

The above sample files let you bring up a network station in single application kiosk mode. You can also set up your kiosk environment to start multiple applications or to bring up a full desktop. For more information on the kiosk environment and setup, see Chapter 4.

Once the KIOSK file(s) is copied, the user can modify it to meet the specific requirements for the KIOSK solution. The following are some example line insertations and line copies:

Example A full screen Netscape KIOSK.

- To set the Netscape browser to full screen for KIOSK the line in KIOSK file would change from:

```
<PROPERTY NAME="desktop_command">run_netscape</PROPERTY>
```

  to:

```
<PROPERTY NAME="desktop_command">run_netscape -geometry 9999x9999-0+0<\PROPERTY>
```

Example B enable Java applets for the netscape browser

1. The default setting for the Netscape browser is not to enable Java applets.
2. To enable the Java applets, you can enable them using the Network Station Manager (NSM)
3. Copy the required lines from the alluser.nsm to the your KIOSK file (may be the allkiosk.nsm or the specific file for the Network Station).
4. For this example, the lines to copy:

```
<OBJECT NAME="/netscape/preferences">
<CATEGORY NAME="NETSCAPE">
<PROPERTY NAME="lockPref.security.enable_java">True</PROPERTY>
</CATEGORY>
</OBJECT>
```

To create a multiple application KIOSK configuration, the KIOSK configuration files listed above can be combined into one file called allkiosk.nsm.

To create a KIOSK configuration with a desktop launch bar, you would configure the desktop via NSM for System preference level and save it. Then copy the allusers.nsm to allkiosk.nsm and edit it. In the allkiosk.nsm file, insert the following after the statement <OBJECT NAME=″/login/session″>:

```
<CATEGORY NAME="KIOSK">
<PROPERTY NAME="commands" TYPE="LIST" ACTION="APPEND">
<ELEMENT>
<FIELD NAME="op">SET</FIELD>
<FIELD NAME="arg1">NSM_KIOSK_MODE</FIELD>
<FIELD NAME="arg2">ON</FIELD>
</ELEMENT>
</PROPERTY>
</CATEGORY>
```

Creating a CompactFlash card for kiosk mode is straightforward. The Flash Manager tool in NSM has an option to create a card in kiosk mode. The workstation configuration files (if any), the **allkiosk.nsm** file (if any), **allncs.nsm** file, and **shipped.nsm** file are copied into the flash image (in the termbase/profiles directory) by the Flash Manager when a kiosk mode card is built.

1. Start NSM and then start the Flash Manager.
2. Choose **Kiosk Files** from the **NSM Configuration** drop down list on the first panel.
3. Choose the applications to put on the flash card using the **Applications** panel.

   Naturally, these should match the applications that were selected when the **Desktop Launch Bar** was configured.
4. Return to the **Setup/Create** screen and click on the **Create Image** button. A new card image will be created that contains the kiosk files.

Creating a flash image on a server

Use the IBM Network Station Manager (NSM) to create a flash image on the server. Complete the following steps:

Important: If you are creating an image that includes the kiosk configuration files, the name of the image directory must be specified in the **Hardware** => **Workstation** configuration panel before the flash image is created. The reason is that you must specify this image name (directory name) in one of the configuration files (allncs.nsm if working at the system level) that is part of the flash image that will be copied onto the kiosk flash card. If it is not specified ahead of time, the

configuration files will not point to any (or the correct) update image. If the image name is set after the image is created, then you will be able to create the image on the CompactFlash card, but will be unable to update it.

1. Start the flash configuration utility. Click **Administration** -> **Flash Manager**. The flash configuration utility is a Java application. Make sure that you have Java enabled in the browser on the machine in which you are currently running NSM.

   Note: The flash configuration utility is only available at the **System** preference level.
2. The default menu displayed is the **Setup/Create Tab**. Select **New Image** and type the name that you want to call your flash image. For example **flash_01**.
3. Select the Network Station platforms for which the new image is to be created. For example, select **PPC** under **Hardware Support** to specify the S/1000 client support. If you are using S/2800 or S/2200 hardware, select **X86** only. Currently only the same type hardware support (X86 or PPC) is supported.
4. Enter the size of your flash card, in kilobytes (1 MB is 1024 kilobytes), in the **Flash Card Size** field. This value is used to update the **Space Available** field as you configure your flash image. The values shown in the **Flash Card Properties** area do not prevent flash images from becoming too large, but help you to understand the size of the flash image.

   CAUTION: These sizes are just an estimate. Also beware that a 64K card does not have all 64K available. You can verify the size in the hardware settings or you can mount the card after it has been initialized and use the 'df .' command to see the space.
5. Select which IBM Network Station Manager configuration files to include in the flash image. There are two choices: Under **NSM Configuration**, select **None** to specify that you are not configuring a flash image for a kiosk. Or select **Kiosk Files** if you are configuring a flash image for a kiosk.
6. Select the **Applications** tab.
7. Select an application from the column on the left and click **Add** to add an application to the flash image. Refer back to **Flash Card Properties** under the **Create/Setup** tab to monitor the space available on the flash card or use the size indication at the bottom of the application page.

   Note: The **Space Available** is not an exact representation of space remaining on your flash card. It is an approximation of the size of the applications minus the size of your flash card.
8. Select the **Create/Setup** tab.
9. Click the **Create Image** button (if updating, the button will be **Update Image**) to trigger the creation of the flash image on the server. Dependent on the speed of your processor, this task may take a few minutes. The alternating progress indicator goes back and forth to indicate that the creation is in process. When completed, there is a message in the creation window that indicates 'Image Creation Complete'.

Use NSM to set the check for flash image updates (**Check for Flash Image update and Flash Image** directory) flag. Select **Hardware** -> **Workstation**. This enables the Network Station to check for new or updated flash images during the boot process. Set the flag at the system or workstation level to specify if all workstations or a specific workstation should update flash images.

Note: When you create the flash image, be sure to note the name of the image that you entered in the **New Image** field. This name is the name of the Flash image as well as a directory name. The flash image is stored in a directory, under $Userbase/Flash/Images using the name of the image as a directory name.

This image name (which is also a directory name) is the name that you specify in the **Hardware** => **Workstation** panel in NSM to indicate the name of the image. For example, the name of the directory is ″myimage″ . It is not the physical directory such as d:\Networkstationv2\userbase\...

Additional flash image procedures

Editing bill of materials (BOM) files

BOM files are installed on the boot server and contain information about all files that were installed as part of the IBM Network Station Manager licensed program.

- BOM files are a very important part of flash image creation.
- BOM files are used to define which files will be part of the flash image.
- BOM files contain a list of all files that are shipped with the IBM Network Station Manager licensed program.
- There is a BOM file for each application that can be placed into a flash image.
- The BOM files reside in the $ProdBase directory.
- The format for the BOM file name is platform.application.BOM, where platform is either x86 (S/2200 and S/2800) or ppc (S/1000), and application represents the application/software that will be installed on the flash card.
- The following table shows the application names currently supported:

Table 26.

Base OS	Base operating system
Emulators	3270, 5250, and VT emulators
ICA Client	ICA client
ICA Remote Application Manger	ICA Remote Application Manager
Java	Java
NFS Peer Boot	NFS Peer Boot support
Netscape	Netscape Communicator
*Extras - Audio Player	Audio player
*Extras - Calculator	Calculator
*Extras - Calendar	Calendar
*Extras - File Manager	File manager
*Extras - Paint	Paint brush
*Extras - Real Player	Real player
*Extras - Text Editor	Text editor
*Extras - Video Player	Video player

Note: The PDF viewer that is used within Netscape is not included in the BOM list when creating a flash image. The user MUST add this to the BOM by using a Custom application or editing the BOM directly. The PDF viewer (XPDF) is located in the $PRODBASE/usr/X11R6/bin directory.

The following table shows an example of the format of the BOM file:

```
F T P  -r-xr-xr-x  0 0 25088Aug 14 17:58:10 1999 x86/usr/bin/find
F -  P -rwxr-xr-x 0 0 419Mar 29 09:12:59 2000 x86/usr/bin/flashmgr
- T  P -r-xr-xr-x  0 0 123904Aug 14 18:02:30 1999 x86/usr/bin/gzip => zcat
```

Where the columns in the BOM file have the following meanings/usage:

- Column 1 F = In flash image, '-' = Not in flash image. X = Conditional (not if 128 bit files installed)
- Column 2 T = File is marked for service (currently not used) default should be T.
- Column 3 P = $Prodbase, C = complete path
- Column 4 Permissions (Unix permissions)

- Column 5 Size
- Column 6 Month file last updated
- Column 7 Day of month file last updated
- Column 8 Time file last updated
- Column 9 Year file last updated
- Column 10 File name (path based on column 3)
- Column 11 Link information (-> soft link, => hard link)
- Column 12 Link file (name of associated link)

The first column indicates if any given file will be written into the flash image (if the application represented by the BOM file is selected to be written into the flash image). The most common customization will be adding and removing files from the flash image by replacing 'F' with '-' (file will no longer be a part of the flash image), or replacing '-' with an 'F' (file will now become part of the flash image).

- It is recommend that you do not modify the IBM supplied BOM files (x86.Base_OS.BOM, ppc.Base_OS.BOM, x86.Video_Player.FBOM and etc.) since they would be overwritten when applying a new PTF level. Create your own BOM files and use the customapp.lst file for selection within the flash configuration utility. Make backups of your files.

Deleting a flash image from the server

System Administrators may want to delete flash images that are no longer needed or contain incomplete/incorrect flash images. The flash configuration utility does not currently support the ability to delete flash images on the server. To completely remove a flash image from an NSM server, perform the following steps:

1. Remove the image entry from the file `$Userbase/flash/ImageConfigs/images.lst`. In images.lst, delete the line that contains the image name.
2. Remove the image's .log and .fls files in the `$Userbase/flash/ImageConfigs/` directory.
3. Remove the image directory from the `$Userbase/flash/Images/` directory.

Flash image creation errors

The NSM flash configuration utility may return an error message ″ERROR_BAD_CLIENT″ or ″ERROR_PARSE_RESULTS″ when creating a flash image – and the time-out values on the NSM Web server are set too low. To correct this you need to increase the time-out values for the Web server:

- On AS/400:
  1. Enter CFGTCPHTTP command from the command line.
  2. Select option 2 from the menu and press Enter.
  3. Press Enter to select the default configuration name (CONFIG); or, select a different configuration name if you know the name of a specific HTTP server configuration being used.
  4. Scroll down the file and remove any HTTP directives beginning with the words InputTimeout, OutputTimeout and ScriptTimeout.
  5. Type 13 on any line to insert the following directives:
     - InputTimeout 120 mins
     - OutputTimeout 120 mins
     - ScriptTimeout 120 mins
  6. Press F3 to exit the utility.
- On Windows/NT – using the Domino Go Web Server:
  1. Edit the httpd.cnf file located in the WINNT or WTSRV directory.
  2. Change the following directives:
     - InputTimeout 30 mins
     - OutputTimeout 30 mins

- ScriptTimeout 30 mins

- On Windows/NT – using the Microsoft Internet Information Server:
  1. Note that the default setting for IIS is 15 minutes, so you may not need to update this setting. Start up Internet Service Manager: **Start**->**Programs**->**Windows NT 4.0 Option Pack**->**Microsoft Internet Information Server**->**Internet Service Manager**.
  2. Select the web server to be configured at **Console Root**->**Internet Information Server**->***Your Web Server Name***. You may have to **Connect** to it to see your server.
  3. Select properties of your web server and press the **Edit** button from the **Master Properties** section.
  4. Select the **Home Directory** tab and press the **Configuration** button.
  5. Select the **Process Options** tab.
  6. Change the **CGI Script Timeout** to the desired value.
  7. Save your settings. You do not have to restart any services for the change to take affect.
- On AIX:
  1. Edit the /etc/httpd.conf file
  2. Change the following directives:
     - InputTimeout 90 mins
     - OutputTimeout 90 mins
     - ScriptTimeout 90 mins
  3. Use the following commands to stop and start the http daemon:
     - stopsrc -s httpd
     - startsrc -s httpd

The amount of time required to build the flash image will vary depending on the server type and speed. If the problem continues, increase the time-out values.

Copying flash image to a CompactFlash card

There are two ways to copy the flash image to a new CompactFlash card (blank CompactFlash card - never been used before) on a Network Station:

1. Set up the Network Station to boot via a network server. This can be used only for triggering the creation of the flash image. In this case, you can use DHCP, BOOTP or NVRAM settings to specify the necessary Operating system and Network information required.
2. Setup the Network Station to boot and get the workstation configuration files first from the CompactFlash card (first Boot file server settings) and then from the network (second Boot file server settings).

   Note: If using DHCP, you must have PTF8 for this scenario to work properly.

The second method is probably the best. Once the image is created, you will likely reboot this network station from flash and it would therefore already be configured for that purpose. However, if you are DHCP based, you might have to use the first method if you have a PTF prior to PTF7.

At this point, boot the station. If it is configured to boot from flash first and network second, the following happens:

1. Looks for kernel on CompactFlash card - not found - boot fails
2. Tries second Boot file server - boots from network. With the Workstation configuration pointing to the server, the configure files must be set by NSM (on the server) for updating the CompactFlash card.
3. Flash is copied - also takes about 5 or 6 minutes on a 100 MB Ethernet LAN
4. The station reboots, and now boot from flash is successful.

See Updating the CompactFlash card for explanation on how the updates occur.

Configuring the Network Station for booting a CompactFlash card

There are multiple combinations for configuring the IBM Network Station with a CompactFlash card installed. The combinations consist of different KIOSK configurations, non-KIOSK configurations, multiple applications or single applications, desktop look and feel, launch bar configurations and allowing the CompactFlash to be updated. The Workstation configuration controls all the combinations.

This section deals with how the workstation configurations files are obtained. There are three common workstation configuration setups of the CompactFlash card.

1. All the configuration files are located on the CompactFlash card and the CompactFlash card cannot be updated via the network.
2. All the configurations files are located on the CompactFlash card but updates of the CompactFlash card can be done via the network.
3. All the configurations files are on a server with the capability of updating the CompactFlash.

Currently only NVRAM settings allow the user to create a boot-able CompactFlash card from a new (raw) or used (not boot-able) CompactFlash card. To use DHCP to create and update a card, you must change the DHCP options between creating the cards and updating the cards. This is not recommended and you should use NVRAM to create the card, then use DHCP during normal operations and updating the card. To simplify this, you can use a single Network Station to create the flash cards.

Note: This problem is solved in PTF8.

The following table maps out which of the following sections the user can use to configure based on how the workstation configuration files are obtained (a section is a description of the steps required to configure a DHCP server and/or the Network Station).

Table 27.

Workstation configuration obtained from:	**DHCP**	**NVRAM**
CompactFlash card without updates	Section 1	Section 4
CompactFlash card with updates via a server	Section 2	Section 5
A server with updates	Section 3	Section 6

Note: The term 'updates' refers to updating the CompactFlash card with a new flash image (or parts of the flash image). See Appendix G for the S/1000 configuration.

EXAMPLES:

1. A customer wants the Netscape browser to appear when the Network Station powers up as a standalone unit (no server dependency). A DHCP server provides the IP address of the Network only. Updates are handled by returning the unit to the I/S shop. To accomplish this, the following would be needed:
   a. A CompactFlash card with Netscape configured (proxy servers set) for KIOSK.
   b. The Network Station configured as outlined in Section 1 (using NS Boot Simple configuration) since no servers are required.
2. A customer requires that his users sign in (allowing their own desktop) to the Network Station using static IP addresses. In addition, updates to the CompactFlash card are required using a high speed connection where possible.
   a. A CompactFlash card with the required applications such as Netscape and a 5250 emulator.
   b. NSM on the central management server setup profiles for the users.
   c. The Network Station configured as outlined in Section 6 — since a single server controls all configuration files.

Section 1

The Network Station is booted using DHCP information that directs the Network Station to use the workstation configuration files from the CompactFlash card commonly used in the KIOSK mode.

There are two possible methods for obtaining the DHCP options: the first is from a DHCP server and the second is via the NS Boot utility by using defaults (only in the Simple configuration setup of the NS Boot utility) for all network station-required DHCP options except for the Network Station IP address.

1. **DHCP**

   The following table shows the DHCP options you must set (DHCP option 98 is only required for NON-KIOSK operation) on the DHCP server when the NS Boot utility is set in the Advanced configuration.

Table 28.

Option	Name	Default value
66	Boot file server IP	0.0.0.0
67	Boot file server name	/kernel.<*xxxx*>
98	Authentication server URL	rap://*IP address of server*
211	Boot file server protocol	LOCAL
212	Workstation configuration server IP	0.0.0.0
213	Workstation configuration server directory	/termbase/profiles
214	Workstation configuration server protocol	LOCAL

Note: DHCP 98 option is not required for KIOSK operation. The xxxx indicates the Network Station series, either 2200 for the S/2200 or 2800 for the S/2800.

The NS Boot utility Configure network settings menu (MENU06.x) must be set as shown in the following table:

Table 29. MENU06.x

Parameter	Value
Network priority: DHCP	First
Network priority: BOOTP	Disabled
Network priority: Local (NVRAM)	Disabled

2. **NS Boot utility**

   Using DHCP, the default for the NS Boot Utility is **Simple Configuration**. The boot process defaults the boot options if the DHCP server does not provide the information for the options. NS Boot CANNOT default the DHCP option 98 (authentication server IP address) — and if only defaults are used — then this is commonly used for KIOSK operation.

Table 30. A list of the DEFAULTS set by NS Boot

Option	Name	Default value
66	Boot file server IP address	0.0.0.0
67	Boot file server name	/kernel.<*xxxx*>
211	Boot file server protocol	LOCAL
212	Workstation configuration server IP	*<IP address of Network Station>*
213	Workstation configuration server directory	/termbase/profiles
214	Workstation configuration server protocol	LOCAL

Note: The <*xxxx*> indicates the Network Station series, either 2200 for S/2200 or 2800 for the S/2800.

To set the NS Boot utility to use Simple configuration allowing DHCP defaults do the following:

a. Press ESC during the boot process to enterthe NS Boot utility.
b. At the Advanced configuration menu (MENU03), select Simple configuration.
c. At the Simple Configuration menu (MENU04), select Configure IP settings.
d. At the Configure IP settings menu (MENU25), use the following table to make the selections.

Table 31. MENU25 Configure IP settings

Parameter	Value
DHCP	Enabled

Note: You MUST reboot from the Simple configuration menu to stay in the simple boot mode. Rebooting from the Advanced configuration menu will NOT use defaults when booting via DHCP. The Simple configuration will honor any DHCP option provided by the DHCP server — including overriding the DHCP defaults.

Section 2

V2R1 NSM PTF 8 or Higher: Added at PTF 8 is the capability to specify a second boot server protocol, IP address AND path in the DHCP option 219, so that this can now be used when creating a CompactFlash card. Previously, option 219 could only contain the IP address of a second backup boot server. The Network Station is booted using DHCP information that directs the Network Station to use the workstation configuration files from the CompactFlash card and to allow updates or copying (initial creation) to the CompactFlash card by using workstation configuration files (only used to allow updates/copies) from a server. If the Network Station is set up for KIOSK operation, then DHCP option 98 is not needed.

The following table shows the DHCP options to set on a DHCP server:

Table 32. DHCP options to set on a DHCP server

Option	Name	Value
66	Boot file server IP	127.0.0.1 (this must be set to allow updates/copies)
67	Boot file server name	/kernel.<*xxxx*>
98	Authentication URL	rap://*IP address of server*
211 Part A	Boot file server protocol (first)	LOCAL
211 Part B	Boot file server protocol (second)	AIX - NFS; AS/400 - TFTP; Windows NT - NFS
212 Part A	Workstation configuration server IP (first)	0.0.0.0
212 Part B	Workstation configuration server IP (second)	<*IP address of server*>
213 Part A	Workstation configuration server directory (first)	/termbase/profiles
213 Part B	Workstation configuration server directory (second)	AIX - /usr/NetworkStationV2/userbase/profiles AS/400 - /QIBM/Userdata/NetworkStationV2/profiles Windows NT - /NetworkStationV2/userbase/profiles
214 Part A	Workstation configuration server protocol (first)	LOCAL

Table 32. DHCP options to set on a DHCP server (continued)

214 Part B	Workstation configuration server protocol (second)	AIX - NFS AS/400 - RFS Windows NT - NFS
219	Second Boot file server in the URL form (protocol://IP address/path).	AIX - NFS://IP address of server /usr/NetworkStationV2/prodbaser/x86/kernel.xxxx AS/400 - TFTP://IP address of server /QIBM/ProdData/NetworkStationV2/x86/kernel.xxxx Windows NT - NFS://IP address of server /NetworkStationV2/prodbase/x86/kernel.xxxx

Note: Part A and Part B of the DHCP options means that two parameters can be typed into one DHCP option field. Separate them with a space when typing the information into the DHCP server.

Note: The second protocol in DHCP option 211 MUST be the same as the protocol in option 219 and must exist.

Note: The *xxxx* indicates the Network Station series, either 2200 for the S/2200 or 2800 for the S/2800.

NS Boot utility Configure network settings menu (MENU06.x) must be set as shown in the following table:

Table 33. MENU06.x

Parameter	**Value**
Network priority: DHCP	First
Network priority: BOOTP	Disabled
Network priority: Local (NVRAM)	Disabled

The Simple configuration of NS Boot utility set for DHCP can also be used.

The Network Station is booted using DHCP information that directs the Network Station to:

- Use the workstation configuration files from the CompactFlash card, and
- Allow updates (CompactFlash card must have a boot-able valid flash image) to the CompactFlash card by using workstation configuration files (only used to allow updates) from a server.

If the Network Station is setup for KIOSK operation, DHCP option 98 is not needed. The following table shows the DHCP options to set on a DHCP server:

Table 34. DHCP options to set on a DHCP server

Option	**Name**	**Value**
66	Boot file server IP	0.0.0.0
67	Boot file server name	/kernel.<*xxxx*>
98	Authentication server URL	rap://*IP address of server*
211	Boot file server protocol	LOCAL
212 Part A	Workstation configuration server IP (first)	0.0.0.0
212 Part B	Workstation configuration server IP (second)	*<IP address of server>*
213 Part A	Workstation configuration server directory (first)	/termbase/profiles
213 Part B	Workstation configuration server directory (second)	AIX - /usr/NetworkStationV2/userbase/profiles AS/400 - /QIBM/Userdata/NetworkStationV2/profiles Windows NT - /NetworkStationV2/userbase/profiles

Table 34. DHCP options to set on a DHCP server (continued)

214 Part A	Workstation configuration server protocol (first)	LOCAL
214 Part B	Workstation configuration server protocol (second)	AIX - NFS; AS/400 - RFS; Windows NT - NFS

Note: Part A and Part B of the DHCP options means that two parameters can be typed into one DHCP option field. Separate them with a space when typing the information into the DHCP server.

Note: A CompactFlash card that is new or one without a valid flash image CANNOT be created using DHCP; that is the initial creation/copying of the flash image via NVRAM settings, except if you are at PTF 8 or later (see the following information on PTF 8 or higher).

Note: The xxxx indicates the Network Station series, either 2200 for the S/2200 or 2800 for the S/2800.

NS Boot utility Configure network settings menu (MENU06.x) must be set as shown in the following table:

Table 35. MENU06.x

Parameter	**Value**
Network priority: DHCP	First
Network priority: BOOTP	Disabled
Network priority: Local (NVRAM)	Disabled

The Simple configuration of NS Boot utility set for DHCP can also be used.

Section 3

The Network Station is booted using DHCP information that directs the Network Station to use the workstation configuration files from a server allowing updates to the CompactFlash card (CompactFlash card must have a boot-able valid flash image) and managing all configurations from the server. If the Network Station is setup for KIOSK operation, DHCP option 98 is not needed.

To setup the DHCP server, set the DHCP options as shown in the following table:

Table 36. DHCP options for DHCP servers

Option	**Name**	**Value**
66	Boot file server IP	0.0.0.0
67	Boot file server name	/kernel.*<xxxx>*
98	Authentication server URL	rap://*IP address of server*
211	Boot file server protocol	LOCAL
212	Workstation configuration server IP	*<IP address of server>*
213	Workstation configuration server directory	AIX - /usr/NetworkStationV2/userbase/profiles AS/400 - /QIBM/Userdata/NetworkStationV2/profiles Windows NT - /NetworkStationV2/userbase/profiles
214	Workstation configuration server protocol	AIX - NFS; AS/400 - RFS; Windows NT - NFS

Note: A CompactFlash card that is new or one without a valid flash image CANNOT be created using DHCP unless using PTF8 or later. If using DHCP and a PTF prior to 8, one MUST create the flash image on the CompactFlash card via NVRAM settings. The xxxx indicates the Network Station series, either 2200 for the S/2200 or 2800 for the S/2800.

NS Boot utility Configure network settings menu (MENU06.x) must be set as shown in the following table.

Table 37. MENU06.x

Parameter	Value
Network priority: DHCP	First
Network priority: BOOTP	Disabled
Network priority: Local (NVRAM)	Disabled

The Simple configuration of NS Boot utility set for DHCP can also be used.

Section 4

The Network Station is booted using information store in NVRAM (static IP address, directories and etc.) that directs the Network Station to use the workstation configuration files from the CompactFlash card commonly used in the KIOSK mode.

With this setup the CompactFlash cannot be updated from the network. There are no servers required except on the initial copy (creation) from a server to the CompactFlash card of the flash image selected. The following four tables of NS Boot utility configurations are to be used to set the NS Boot parameters. The last is only needed if an authentication server is used.

Table 38. Change network settings (MENU06.x)

Parameter	Value
Network priority: DHCP	Disabled
Network priority: BOOTP	Disabled
Network priority: Local (NVRAM)	First
Boot file source	Flash
Thin client IP address	<IP address of the Network Station>
Gateway IP address	IP address of your gateway
Subnet mask	<*Your subnet mask for the network*>
Domain name server IP address	0.0.0.0

Table 39. Change boot file server settings (MENU08.x)

Parameter	Value
Boot file server IP address: First	0.0.0.0
Boot file server IP address: Second	0.0.0.0
Boot file server IP address: Third	0.0.0.0
Boot file server directory and file name: First	/kernel.xxxx
Boot file server protocol: TFTP	Disabled
Boot file server protocol: NFS	Disabled

Note: The <*xxxx*> indicates the Network Station series, either 2200 for the S/2200 or 2800 for the S/2800.

Table 40. Change workstation configuration server settings (MENU09)

Parameter	Value
Workstation configuration server IP address: First	0.0.0.0
Workstation configuration server IP address: Second	0.0.0.0
Workstation configuration directory: First	/termbase/profiles

Table 40. Change workstation configuration server settings (MENU09) (continued)

Workstation configuration protocol: First	Flash

Table 41. Change authentication server settings (MENU05)

Parameter	Value
Authentication server IP address: First	*<IP address of server>*
Authentication server IP address: Second	0.0.0.0

Note: If KIOSK operation, the authentication server settings are not required (set IP address of server to 0.0.0.0).

Section 5

The Network Station is booted using information stored in NVRAM (static IP addresses, directories, etc.) that directs the Network Station to:

- Use the workstation configuration files from the CompactFlash card, and
- Allow updates or copying (initial creation) to the CompactFlash card by using workstation configuration files (only used to allow updates/copies) from a server.

Use the following four NS Boot utility configurations tables to set the NS Boot parameters.

Table 42. Change Network settings (MENU06.x)

Parameter	Value
Network priority: DHCP	Disabled
Network priority: BOOTP	Disabled
Network priority: Local (NVRAM)	First
Boot file source	Flash
Thin client IP address	*<IP address of the Network Station>*
Gateway IP address	*<IP address of your gateway>*
Subnet mask	*<Your subnet mask for the network>*
Domain name server IP address	0.0.0.0

Table 43. Change boot file server settings (MEN08.x)

Parameter	Value
Boot file server IP address: First	0.0.0.0
Boot file server IP address: Second	*<IP address of server on which the flash image is located>*
Boot file server IP address: Third	0.0.0.0
Boot file server directory and file name: First	/kernel.*<xxxx>*
Boot file server directory and file name: Second	AIX - /usr/NetworkStationV2/prodbase/x86/kernel.xxxx AS/400 - /QIBM/ProdData/NetworkStationV2/x86/kernel.xxxx Windows NT - /NetworkStationV2/prodbase/x86/kernel.xxxx
Boot file server protocol: TFTP	AIX - Second AS/400 - First Windows NT - Disabled
Boot file server protocol: NFS	AIX - First AS/400 - Disabled Windows NT - First

Note: The *<xxxx>* indicates the Network Station series; either 2200 for the S/2200 or 2800 for the S/2800. To configure a backup boot file server, set the Boot file server IP address and Boot file server directory and file name of the third settings.

Table 44. Change workstation configuration server settings (MENU09)

Parameter	Value
Workstation configuration server IP address: First	0.0.0.0
Workstation configuration server IP address: Second	*IP address of server on which the flash image is located*
Workstation configuration directory: First	/termbase/profiles
Workstation configuration directory: Second	AIX - /usr/NetworkStationV2/userbase/profiles AS/400 - /QIBM/Userdata/NetworkStationV2/profiles Windows NT - /NetworkStationV2/userbase/profiles
Workstation configuration protocol: First	Flash
Workstation configuration protocol: Second	AIX - NFS AS/400 - RFS Windows NT - NFS

Table 45. Change authentication server settings (MENU05)

Parameter	Value
Authentication server IP address: First	*<IP address of server on which the flash image is located>*
Authentication server IP address: Second	0.0.0.0

Note: If KIOSK operation, then the authentication server settings are not required (set IP address of server to 0.0.0.0).

Section 6

The Network Station is booted using information stored in NVRAM (static IP addresses, directories, etc.) that directs the Network Station to use the workstation configuration files from a server:

- Allowing updates or copying (initial creation) to the CompactFlash card, and
- Managing all configurations from the server.

If the Network Station is setup for KIOSK operation then the authentication server IP address setting is not needed. Use the following four NS Boot utility configurations tables to set the NS Boot parameters.

Table 46. Change network settings (MEN06.x)

Parameter	Value
Network priority: DHCP	Disabled
Network priority: BOOTP	Disabled
Network priority: Local (NVRAM)	First
Boot file source	Flash
Thin client IP address	*<IP address of the Network Station>*
Gateway IP address	*<IP address of your gateway>*
Subnet mask	*<Your subnet mask for the network>*
Domain name server IP address	0.0.0.0

Table 47. Change boot file server settings (MEN08.x)

Parameter	Value
Boot file server IP address: First	0.0.0.0
Boot file server IP address: Second	*<IP address of server on which the flash image is located>*
Boot file server IP address:	0.0.0.0

Table 47. Change boot file server settings (MEN08.x) (continued)

Boot file server directory and file name: First	/kernel.<*xxxx*>
Boot file server directory and file name: Second	AIX - /usr/NetworkStationV2/prodbase/x86/kernel.xxxx AS/400 - /QIBM/ProdData/NetworkStationV2/x86/kernel.xxxx Windows NT - /NetworkStationV2/prodbase/x86/kernel.xxxx
Boot file server protocol: TFTP	AIX - Second AS/400 - First Windows NT - Disabled
Boot file server protocol: NFS	AIX - First AS/400 - Disabled Windows NT - First

Note: The <*xxxx*> indicates the Network Station series; either 2200 for S/2200 or 2800 for the S/2800. To configure a backup boot file server, use the third boot file server settings to set the Boot file server IP address and Boot file server directory and file name.

Table 48. Change workstation configuration server settings (MENU09)

Parameter	**Value**
Workstation configuration server IP address: First	*<IP address of server on which the flash image is located>*
Workstation configuration server IP address: Second	0.0.0.0
Workstation configuration directory: First	AIX - /usr/NetworkStationV2/userbase/profiles AS/400 - /QIBM/Userdata/NetworkStationV2/profiles Windows NT - /NetworkStationV2/userbase/profiles
Workstation configuration protocol: First	AIX - NFS; AS/400 - RFS; Windows NT - NFS

Table 49. Change authentication server settings (MENU05)

Parameter	**Value**
Authentication server IP address: First	*<IP address of server on which the flash image is located>*
Authentication server IP address: Second	0.0.0.0

Note: If KIOSK operation, then the authentication server settings are not required (set IP address of server to 0.0.0.0).

Additional CompactFlash card procedures

The following are additional CompactFlash card procedures.

Note: You may need to use the Advanced Diagnostics tool.

Updating a CompactFlash card using configuration files from a server

If the Network Station has: a) the first and second boot file server settings to boot from the CompactFlash card and then from the server via the Network and, b) the first workstation configuration is set to a server (installed with NSM), then the following events occur at power-on:

1. The Network Station attempts to locate the kernel file (kernel.<xxxx>) on the CompactFlash card. If the kernel file is not found on the CompactFlash card, the Network Station attempts to boot over the network. If the kernel file is found on the CompactFlash card, the Network Station continues to boot.
2. The check for flash image updates (boot-flash-update) flag is tested based on the workstation configuration settings. If the flag is set to yes, the flash image on the Network Station CompactFlash card is compared to the flash image pointed at by the workstation configuration settings (typically a server with NSM installed). If an update is required for the selected flash image name, the Network

Station compares the BOM file on the CompactFlash card (if it exists) with the BOM file located on the workstation configuration server. Then the Network Station updates the required files accordingly (or copies all files if a new card).

During the update process if an error occurs, a message states that the error information is logged to a file called update.err. This file is located in the root directory of the CompactFlash card. The Network Station would then continue to boot via the network after a key is pressed.

Updating a CompactFlash card using configuration files from the CompactFlash card and a server

If the Network Station has: a) the first and second boot file server settings to boot from the CompactFlash card and then from the server via the Network and, b) the first workstation configuration is set for the CompactFlash and, c) the second workstation configuration is set to a server (installed with NSM), the following events occur at power-on:

1. The Network Station attempts to locate the kernel file (kernel.<xxxx>) on the CompactFlash card. If the kernel file is not found on the CompactFlash card, the Network Station attempts to boot over the network. If the kernel file is found on the CompactFlash card, the Network Station continues to boot.
2. The CompactFlash card can be updated in one of the following manners:
   a. Updating an existing CompactFlash card:
      - If the CompactFlash card has a configuration file, the parameter boot-flash-update within the file must be set to true.
      - If the CompactFlash card contains a configuration file with the parameter boot-flash-path, the string value must match the flash image name that is located on the NSM server (specified by the second workstation configuration server setting).
      - If an update is required, the Network Station compares the BOM file on the CompactFlash card with the BOM file located on the workstation configuration server (specified by the second workstation configuration server setting) and updates the required files accordingly.

   b. The CompactFlash card is new or unusable:

      The following conditions must be met to copy the flash image from the server to a CompactFlash card (creation of the CompactFlash card with a flash image):
      - The value of the parameter boot-flash-update in the workstation configuration file (specified by the second workstation configuration setting) must be set to true on the server with NSM installed.
      - The value of the parameter boot-flash-path in the workstation configuration file (specified by the second workstation configuration setting) must contain the name of the valid flash image on the NSM server.

During the update process if an error occurs, a message states that the error information is logged to a file called update.err. This file is located in the root directory of the CompactFlash card. The Network Station would then continue to boot via the network after a key is pressed.

When running KIOSK mode, all of the configuration files are on the CompactFlash card but the update is controlled by the CompactFlash card configuration files and the NSM server configuration files.

Note: The equivalent NSM setting for the flag boot-flash-update is Hardware->Workstations->Boot Parameters->″Check for Flash Image update″, where true equals yes and false equals no. The equivalent NSM settings for the string boot-flash-path is Hardware->Workstations->Boot Parameters->Flash Image directory.

You can look in configuration files <userbase>/profiles/allncs.nsm **or** <userbase>/profiles/<ip>.nsm for the value of the parameters. You can use the ncregget command to verify the values of the parameters. In the advanced diagnostics window, run **ncregget /config** to display all the configuration parameters. Look through the list to find **boot-flash-path** and **boot-flash-update**.

Updating a File in the Flash Image, insuring it gets put onto the card

After an image has been created on the server and on a flash card, you may need to edit a file on the server image and want that file to be updated on the card. If you don't want to recreate the image (may result in more files updated that you need or want), you may change the file in the image (copy or edit, depending on your needs). However, since the BOM files have already been created and the time/date stamp in the BOM is what determines if an update needs to occur, you will need to edit the BOM. Edit the appropriate BOM (make a backup first), for the file that has been changed. Change the date or time to a later one than is listed. When the flash-booted NC reboots, it will detect the BOM change and the updated file will be copied to the flash card.

Mounting the CompactFlash card

Mounting a CompactFlash card allows the user access to the files on the CompactFlash card. If the user mounts it as read/write and the files are modified or deleted then the file system will need be to clean. See "Checking the file system on the CompactFlash memory card" on page 60.

1. Bring up an Advanced Diagnostics session. The session should have a # for the prompt. If a $ prompt appears, you do not have enough authority to mount the CompactFlash card (make sure you use the userid specified).
2. Type mount **-r /dev/wd0a /mnt** and press Enter

   Note: You should use the -r option so that the card is mounted read only.
3. If no errors appear, type **cd /mnt** and press Enter. Typing an **ls** command shows a list of what is on the CompactFlash card.
4. If you receive an error such as bad block then Checking the file system on the CompactFlash, repeat steps 2 and 3 for mounting the CompactFlash card.

WARNING: It is important to specify the **–r** option when mounting the card. This causes the flash card to be mounted in read-only mode instead of the default of read/write. When the card is mounted in write mode, the flash card is marked as 'dirty' - invalidating the contents of the card. When this happens, the boot code will see the kernel on the flash card and use it, but the operating system checks the 'dirty bit' and will not be able to use the flash card, causing flash boot to fail. If this happens, you must reconfigure the Network Station to boot over the network (not from flash) and then reboot. When it is rebooted over the network, the flash card will be cleared and the flash image will be put on the flash card again.

Un-mounting the CompactFlash card

You can un-mount the CompactFlash if the contains of the CompactFlash card have been modified. It is recommended to always un-mount the CompactFlash card after mounting it. To un-mount the CompactFlash card you must be in a different directory other then **/mnt** . Type in **cd /** and press Enter. Type **umount /mnt** and press Enter.

Displaying contents of the CompactFlash card

You can display the contents of the flash card once the flash card has been initialized (the Network Station client initializes the flash card prior to writing an image to the card). If the flash card has not been initialized, the operating system will not recognize it. This prevents the contents of the flash card from being seen (and since the card is not initialized, there isn't much to look at).

If the Network Station has booted from flash:

1. Select **Tool Kit->Advanced Diagnostics** from the launch bar.
2. When the Advanced Diagnostics application window comes up, the flash card is visible as the root directory (i.e.: /) .

If the Network Station has booted from the network:

1. You must logon with one of the following user ID's: **QSECOFR** (AS/400), **root** (AIX), or **nsm_nfsroot** (Windows/NT).
2. Select **Tool Kit->Advanced Diagnostics** from the launch bar.

3. From the Advanced Diagnostics display, issue the following command: **mount -r /dev/wd0a /mnt** to mount the flash card. You may view the contents of the flash card from the /mnt mount point.

Note: If you are running in kiosk mode, you may need to boot over the network in order to see the contents of the flash card. Most users of kiosk mode will not have the desktop available to launch the advanced diagnostics application.

Deleting all file(s) on the CompactFlash card

After booting over the network (with the flash card installed), mount the flash card (see previous section on viewing flash card contents). However, the –r parameter on the mount command must be omitted – so that the card may be modified. After mounting the flash card in write mode, issue the following commands:

Table 50.

Type in:	Action:
mount /dev/wd0a /mnt	mounts the CompactFlash card with read/write access
cd /mnt	sets flash card root file system as the current directory
rm .profile	removes the .profile file
rm –R *	removes all files from the flash card except .profile
cd /	
fsck_ffs /dev/wd0a	
umount /mnt	

At this point the card has an empty file system and will be rebuilt the next time the client is booted (assuming the appropriate client configuration).

Note: The above procedures assume you have access to the Advanced Diagnostic tool. If you do not have access to this tool, the CompactFlash card can be made unbootable (cleared) by setting jumpers within the Network Station. The following locations describe this procedure (called Creating a recovery CompactFlash card):
The publication 'IBM Network Station Service Information' (publication number SY44-0074 for the S/2200 and SY44-0073 for the S/2800). The publication 'N2200e Reference Information' and 'N2800e Reference Information'.

The IBM Support site has the prodecures. To located them:

1. Go to URL www.ibm.com/nc
2. Choose Thin Client, then choose your country and click Go.
3. In the search field, type compactflash.
4. Choose Support from the top drop down menu and click Go.
5. From the search results, look for the document called 'Creating a recovery CompatFlash card'.

Note: The CompactFlash card will have a copy of the firmware but this will look to the OS as a unusable CompactFlash card and will began copying the flash image to it.

Note: This information is good as of October 4, 2000.

Checking the file system on the CompactFlash memory card

If a mount CompactFlash card has been modified or erased (by deleting the files), use the **fsck_ffs** command to check the files system. This command will clear out the dirty flags and clear out the file system.

1. Type **fsck_ffs /dev/wd0a** and press Enter.
2. Once complete, a message will appear asking to mark the file system clean. Respond with y (yes) if no errors were found during the cleaning.

OS booting errors

Error --- [: true: unknown operand

This error message is received when a Network Station is booting and is unable to find the .profile file. This error is not particular to flash, but will occur regardless of flash or network boot. However, the error message is quite useless and so it is documented here in case (for some reason), the .profile file is missing on a flash card.

Peer booted Network Station solution

A CompactFlash card in one Network Station can be used to boot other Network Stations on a local area network (LAN) using the NFS protocol. This is known as peer booting. The other Network Stations must be set up as if they were booting from any other server. Peer booting can be done on the same hardware platform (x86 or PPC) only. The S/2200 and S/2800 are based on the x86 platform.

To create a peer booted Network Station solution, a Network Station with CompactFlash card installed/configured with the NFS Peer Boot daemon (referred to as flash-based Network Station) along with a Network Station configured to boot from the flash based Network Station is required. The workstation configuration files may come from the flash-based Network Station or from a server with NSM installed. The flash-based Network Station CompactFlash card should contain the NFS Peer Boot daemon (selected from the application list within the flash manager program when creating the flash image).

The flash-based Network Station will automatically startup the NFS Peer Boot daemon when booted. The Network Station (network-based Network Station) that boots from the flash-based Network Station can obtain the IP addresses, directories and other information from NVRAM settings or DHCP.

If DHCP is being used, you cannot use the same DHCP parameters for flash booted machines and peer booted machines. They will have different boot parameters. Recommendation is that the flash booted machines use NVRAM and the peer booted machines use DHCP.

To configure the network-based Network Station to boot from the flash-based Network use the following table to determine what section to use.

Table 51.

Workstation configuration obtain from:	DHCP	NVRAM
CompactFlash card	Section 7	Section 9
A server	Section 8	Section 10

Section 7

The Network Station is booted using DHCP information that directs the Network Station to use a Network Station that has a CompactFlash installed and NFS daemon running (flash-based Network Station) as the Boot file server and as the Workstation configuration server. If the Network Station is setup for KIOSK operation, DHCP option 98 is not needed.

The following table shows the DHCP options to set on a DHCP server:

Table 52. DHCP options to set on a DHCP server

Option	**Name**	**Default value**
66	Boot file server IP	*<IP address of a Network Station with CompactFlash card>*
67	Boot file server name	/kernel.*<xxxx>*
98	Authentication server URL	rap://*IP address of a server*
211	Boot file server protocol	NFS

Table 52. DHCP options to set on a DHCP server (continued)

212	Workstation configuration server IP	*<IP address of a Network Station with CompactFlash card>*
213	Workstation configuration server directory	/termbase/profiles
214	Workstation configuration server protocol	NFS

Note: The *xxxx* indicates the Network Station series, either 2200 for the S/2200 or 2800 for the S/2800.

NS Boot utility Configure network settings menu (MENU06.x) must be set as shown in the following table:

Table 53. MENU06.x

Parameter	**Value**
Network priority: DHCP	First
Network priority: BOOTP	Disabled
Network priority: Local (NVRAM)	Disabled

Section 8

The Network Station is booted using DHCP information that directs the Network Station to use a Network Station that has a CompactFlash installed and NFS daemon running (flash-based Network Station) as the Boot file server. Also the workstation configuration files would come from a different server (the server with NSM installed). If the Network Station is setup for KIOSK operation, DHCP option 98 is not needed.

The following table shows the DHCP options to set on a DHCP server:

Table 54. DHCP options to set on a DHCP server

Option	**Name**	**Default value**
66	Boot file server IP	*<IP address of a Network Station with CompactFlash card>*
67	Boot file server name	/kernel.*<xxxx>*
98	Authentication server URL	rap://*<IP address of a server>* (NSM)
211	Boot file server protocol	NFS
212	Workstation configuration server IP	*<IP address of server>* (NSM)
213	Workstation configuration server directory	AIX - /usr/NetworkStationV2/userbase/profiles AS/400 - /QIBM/Userdata/NetworkStationV2/profiles Windows NT - /NetworkStationV2/userbase/profiles
214	Workstation configuration server protocol	AIX - NFS; AS/400 - RFS; Windows NT - NFS

Note: The *xxxx* indicates the Network Station series, either 2200 for the S/2200 or 2800 for the S/2800.

NS Boot utility Configure network settings menu (MENU06.x) must be set as shown in the following table:

Table 55. MENU06.x

Parameter	**Value**
Network priority: DHCP	First
Network priority: BOOTP	Disabled
Network priority: Local (NVRAM)	Disabled

Section 9

The Network Station is booted using information stored in NVRAM (static IP addresses, directories and etc.) that directs the Network Station to use a Network Station that has a CompactFlash installed and NFS daemon running (flash-based Network Station) as the Boot file server and as the Workstation configuration server.

Use the following four NS Boot utility configurations tables to set the NS Boot parameters.

Table 56. Change Network settings (MENU06.x)

Parameter	**Value**
Network priority: DHCP	Disabled
Network priority: BOOTP	Disabled
Network priority: Local (NVRAM)	First
Boot file source	Network
Thin client IP address	*<IP address of the Network Station>*
Gateway IP address	*<IP address of your gateway>*
Subnet mask	*<Your subnet mask for the network>*
Domain name server IP address	0.0.0.0 *see note*

Table 57. Change boot file server settings (MEN08.x)

Parameter	**Value**
Boot file server IP address: First	*<IP address of a Network Station with CompactFlash card>*
Boot file server IP address: Second	0.0.0.0
Boot file server IP address: Third	0.0.0.0
Boot file server directory and file name: First	/kernel.*<xxxx>*
Boot file server protocol: TFTP	Disabled
Boot file server protocol: NFS	First

Note: The *xxxx* indicates the Network Station series, either 2200 for the S/2200 or 2800 for the S/2800. A backup boot file server can be configured by setting the Boot file server IP address and Boot file server directory and file name of the second or third settings (another flash-based Network Station could be used).

Table 58. Change workstation configuration server settings (MENU09)

Parameter	**Value**
Workstation configuration server IP address: First	*<IP address of a Network Station with CompactFlash card>*
Workstation configuration server IP address: Second	0.0.0.0
Workstation configuration directory: First	/termbase/profiles
Workstation configuration protocol: First	NFS

Table 59. Change authentication server settings (MENU05)

Parameter	**Value**
Authentication server IP address: First	*<IP address of server on which the flash image is located>*

Table 59. Change authentication server settings (MENU05) (continued)

Authentication server IP address: Second	0.0.0.0

Note: If KIOSK operation then the authentication server settings are not required (set IP address of server to 0.0.0.0).

Section 10

The Network Station is booted using information stored in NVRAM (static IP addresses, directories and etc.) that directs the Network Station to use a Network Station that has a CompactFlash installed and NFS daemon running (flash-based Network Station) as the Boot file server. Also the workstation configuration files would come from a different server (the server with NSM installed).

Use the following four NS Boot utility configurations tables to set the NS Boot parameters.

Table 60. Change Network settings (MENU06.x)

Parameter	**Value**
Network priority: DHCP	Disabled
Network priority: BOOTP	Disabled
Network priority: Local (NVRAM)	First
Boot file source	Network
Thin client IP address	*<IP address of the Network Station>*
Gateway IP address	*<IP address of your gateway>*
Subnet mask	*<Your subnet mask for the network>*
Domain name server IP address	0.0.0.0 *see note*

Table 61. Change boot file server settings (MEN08.x)

Parameter	**Value**
Boot file server IP address: First	*<IP address of a Network Station with CompactFlash card>*
Boot file server IP address: Second	0.0.0.0
Boot file server IP address: Third	0.0.0.0
Boot file server directory and file name: First	/kernel.*<xxxx>*
Boot file server protocol: TFTP	Disabled
Boot file server protocol: NFS	First

Note: The xxxx indicates the Network Station series; either 2200 for the S/2200 or 2800 for the S/2800. You can configure a backup boot file server by setting the Boot file server IP address and Boot file server directory and file name of the second or third settings (you could use another flash-based Network Station).

Table 62. Change workstation configuration server settings (MENU09)

Parameter	Value
Workstation configuration server IP address: First	*<IP address of a server>* (NSM)
Workstation configuration server IP address: Second	0.0.0.0

Table 62. Change workstation configuration server settings (MENU09) (continued)

Workstation configuration directory: First	AIX - /usr/NetworkStationV2/userbase/profiles AS/400 - /QIBM/Userdata/NetworkStationV2/profiles Windows NT - /NetworkStationV2/userbase/profiles
Workstation configuration protocol: First	AIX - NFS; AS/400 - RFS; Windows NT - NFS

Table 63. Change authentication server settings (MENU05)

Parameter	**Value**
Authentication server IP address: First	*<IP address of server on which the flash image is located>*
Authentication server IP address: Second	0.0.0.0

Note: If KIOSK operation, the authentication server settings are not required (set IP address of server to 0.0.0.0).

Chapter 6. Remote reboot using SNMP

It is possible to remotely reboot a Network Station using a simple network management protocol (SNMP) request:

1. Set the read/write community name using the IBM Network Station Manager program. The IBM Network Station Manager default value will not allow an SNMP set request to be performed.
2. Obtain an SNMP manager or SNMP MIB browser which allows you to issue an SNMP set command to the Network Station. For RS/6000 server platforms, the snmpinfo command can be used. For Windows NT platforms, Tivoli's IT Director (http://www.tivoli.com) or MG-Soft's MIB Browser (http://www.mg-soft.com/) can be used.
3. Obtain the Network Station MIB from the boot server at the following location and compile it using your MIB compiler.
   - $ProdBase/x86/usr/share/snmp/mibs/opengroupncmib-v1.mib″ - For version 1 MIB compilers
   - $ProdBase/x86/usr/share/snmp/mibs/opengroupncmib-v2.mib″ - For version 2 MIB compilers

   The same MIBs also exist in the ppc directory. Substitute ″ppc″ for ″x86″ in the above paths to locate them.
4. Issue an SNMP set to the following SNMP OID and set it to the value '5': ncSysStatusVitalState.0 (1.3.6.1.4.1.4396.1.2.3.2.0) - This object is of type integer.

RS/6000 server

To perform a remote reboot of your IBM Network Station from an RS/6000 server, follow these steps:

1. Verify that you have the SNMP function installed by running the following command:

   ```
   lspp -h bos.net.tcp.server
   ```
2. Place host names or IP addresses of the clients you wish to reboot into the **/usr/NetworkStationV2/bin/reboot_names** file.
3. Use the IBM Network Station Manager program (Hardware -> Workstation) to set the Read/Write Community Name.

   Note: If you are setting the Community Name for the first time, manually reboot your Network Station to make the remote reboot function take effect.
4. Once you have rebooted your Network Station to establish the Read/Write Community name, you may use the following command at your server to remotely reboot your IBM Network Station.

   ```
   /usr/NetworkStationV2/bin/nsreboot <community name>
   ```

Windows server

The MG-Soft MIB browser comes with a tool which allows SNMP sets to be issued from a command line (snmpping). This tool can be used in a DOS batch file to reboot a list of Network Stations. When used with scheduling software, the reboot batch file could be scheduled to reboot a set of Network Stations at a specific time.

Here is an example of how to reboot a Network Station using the MG-Soft 'snmpping' utility from a Window NT command prompt:

```
snmpping -c%1 -s1.3.6.1.4.1.4396.1.2.3.2.0 -mi5 %2
```

where %1 is the read/write community name set for the Network Station and %2 is the Network Station's IP address in dotted decimal format (DNS names are not allowed).

Chapter 7. IBM Network Station Manager command line utility

The IBM Network Station Manager command line utility is used to make changes to the IBM Network Station Manager download profiles. This utility:

- Is written in Java and requires Java Virtual Machine 1.1.6 or higher installed on the operating system where the utility is used.
- Requires the following authorities:
  - AS/400 - *SECADMIN and *ALLOBJ special authority required
  - Windows NT - Administrator authority required (use NSMAdmin)
  - RS/6000 - root user or read, write, and delete authority to all files in and below the $UserBase/profiles directory.
- Is located in the $ServBase/tools directory.

You can run the command line utility in one of three modes:

- NSM_CL - to start an interactive graphical user interface with an interactive command line and a text area for logging.
- SGCL scriptfile.txt - to run a script program (see “Script file” on page 72 for more information on script files)
- IBMCL (operating system command line prompt)

Several settings control how this utility operates. See “SGCL.ini” on page 73 for more information about run-time settings.

The command line utility must be run from the same server where the configuration preference files are stored. The AS/400 platform is an exception. The command line utility can be run from any supported platform client computer to any remote AS/400 server. The client computer must have access to the AS/400 file system where the configuration preference files are stored.

Only one instance of the command line utility should be run at a time. To minimize disruptions to users, the command line utility should be used after hours or at off peak times.

See the following sections for specific platform information:

- “AS/400 server”
- “Windows NT server” on page 70
- “RS/6000 server” on page 71
- “Windows-based client (AS/400 only)” on page 71
- “IBM Network Station client (AS/400 only)” on page 71

AS/400 server

The IBM Network Station command line utility runs on OS/400 V4R2 or later.

You must have Java installed. The following licensed program products must be installed:

- 57xx-JC1 AS/400 Toolbox for Java
- 57xx-JV1 AS/400 Developer Kit for Java

To run SGCL on the AS/400, do the following:

1. Set the current directory to the root of the AS/400 integrated file system. On the AS/400 command line type `cd /`.

2. Set the current directory to the command line utility directory. On the AS/400 command line type `cd '/QIBM/ProdData/NetworkStationV2/nsm/tools'`.
3. On the the AS/400 command line type `JAVA CLASS(com.ibm.nsm.cl.SGCL) PARM(scriptFile.txt) ClassPath('./ibmnsmcl.jar:./jt400.jar:./ibmxml.jar')`. Where scriptFile.txt is the name and path of a script file that you want to run.
4. The Java Shell Command Entry screen appears. After the Java Virtual Machine starts, the settings in SGCL.ini are listed. A message that the script file has started is displayed. A message that the script file has ended is displayed. Changes occur to download profiles only if COMMIT is in your script file. A log of activity is found at the location specified by the SGCL.ini settings PATH_TO_LOG and LOG_FILE_NAME.

To run NSMCL on the AS/400, do the following:

1. Set the current directory to the root of the AS/400 integrated file system. On the AS/400 command line type `cd /`.
2. Set the current directory to the command line utility directory. On the AS/400 command line type the following case-sensitive path to start NSMCL and run 'MyScript.txt': `cd '/QIBM/ProdData/NetworkStationV2/nsm/tools'`.
3. On the the AS/400 command line type `JAVA CLASS(com.ibm.nsm.cl.SGCL) PARM(MyScript.txt) CLASSPATH('/QIBM/ProdData/NetworkStationV2/nsm/tools/ibmnsmcl.jar: /QIBM/ProdData/NetworkStationV2/nsm/tools/ibmxml.jar: /QIBM/ProdData/NetworkStationV2/nsm/tools/jt400.jar')`.
4. The following command will produce the same results: `JAVA CLASS(com.ibm.nsm.cl.SGCL) PARM(MyScript.txt) CLASSPATH( 'ibmnsmcl.jar:ibmxml.jar:jt400.jar')`
5. The following command will start an interactive command line mode: `JAVA CLASS(com.ibm.nsm.cl.SGCL) CLASSPATH('ibmnsmcl.jar:ibmxml.jar:jt400.jar')` A prompt will appear (IBMCLI>) and you may enter any SGCL commands or settings. Type 'bye' or 'exit' to end an interactive command line session and return to the operating system prompt.
6. From the interactive command line prompt, type HELP to see help command syntax.

Note: If a script file name does not appear after SGCL in the AS/400 command, then a prompt (IBMCLI>) will appear and you may enter commands at the prompt. XML configuration changes will occur only if COMMIT is the last line in your script file or is entered at the IBMCLI> prompt.

Windows NT server

To run SGCL on a Windows NT server, do the following:

1. You must have Java Virtual Machine 1.1.6 or later installed. The Java Runtime Environment is available at http://java.sun.com/products/index.html.
2. Make the $ServBase/tools directory the current directory. For example:`c:\NetworkStationV2\servbase\tools`.
3. On the the command line type: `jre -cp<path1>\rt.jar;<path2>\ibmnsmcl.jar;<path2>\jt400.jar;<path2>\ibmxml.jar com.ibm.nsm.cl.SGCL scriptFile.txt`. Where:
   - jre is the command to call the Java Runtime Environment
   - <path1> is the path to the Java Runtime Environment rt.jar file
   - <path2> is the path to the IBM Network Station command line utility .jar files
   - scriptFile.txt is the name and path of a script file that you want to run
4. The settings in SGCL.ini are listed. A message that the script file has started is displayed. A message that the script file has ended is displayed. Changes occur to download profiles only if COMMIT is in your script file. A log of activity is found at the location specified by the SGCL.ini settings PATH_TO_LOG and LOG_FILE_NAME.

To run IBMCLI on a Windows NT server, do the following:

1. On the the command line type: `jre -cp /usr/jdk_base/lib/classes.zip:ibmnsmcl.jar:ibmxml.jar com.ibm.nsm.cl.SGCL`
2. A prompt will appear (IBMCLI>) and you may enter an SGCL commands or settings.
3. Type 'bye' or 'exit' to end an interactive command line session and return to the operating system prompt.
4. From the interactive command line prompt, type HELP to see help command syntax.

Note: XML configuration changes will occur only if COMMIT is the last line in your script file or is entered at the IBMCLI> prompt.

RS/6000 server

To run SGCL on an RS/6000 system, do the following:

1. You must have Java Virtual Machine 1.1.6 or later installed. The Java Runtime Environment is available on your AIX install CD.
2. Make the $ServBase/tools directory the current directory. For example, `/usr/NetworkStationV2/servbase/tools`.
3. On the the command line type `jre -cp <path1>/classes.zip:<path2>/ibmnsmcl.jar:<path2>/jt400.jar:<path2>/ibmxml.jar com.ibm.nsm.cl.SGCL scriptFile.txt`. Where:
   - jre is the command to call the Java Runtime Environment
   - <path1> is the path to the Java Runtime Environment classes.zip file (/usr/jdk_base/lib/)
   - <path2> is the path to the IBM Network Station .jar files
   - scriptFile.txt is the name and path of a script file that you want to run
4. The settings in SGCL.ini are listed. A message that the script file has started is displayed. A message that the script file has ended is displayed. Changes occur to download profiles only if COMMIT is in your script file. A log of activity is found at the location specified by the SGCL.ini settings PATH_TO_LOG and LOG_FILE_NAME.

Windows-based client (AS/400 only)

To run NSM_CL on a Windows-based computer, do the following:

1. You must have Java Virtual Machine 1.1.6 or later installed. The Java Runtime Environment is available at http://java.sun.com/products/index.html.
2. Make the $ServBase/tools directory the current directory. For example, `g:\ProdData\NetworkStationV2\nsm\tools`.
3. On the command line type `jre -cp <path1>\rt.jar;<path2>\ibmnsmcl.jar;<path2>\jt400.jar;<path2>\ibmxml.jar com.ibm.nsm.cl.NSM_CL`. Where:
   - jre is the command to call the Java Runtime Environment
   - <path1> is the path to the Java Runtime Environment rt.jar file.
   - <path2> is the path to the IBM Network Station command line utility .jar files
4. The IBM NetworkStation Manager command line utility GUI is displayed.

IBM Network Station client (AS/400 only)

To run NSM_CL on an IBM Network Station, do the following:

1. Set the file system mount point for the command line utility user. Using the IBM Network Station Manager program, do the following:

a. Set the preference level to **User** and select the user name. You can select **Return** to set the preference level.
b. Click **Environment**, then click **Network**.
c. Under **Additional mount points:**, set **Mount type** to `rfs`, set **Mount point** to `/QIBM`, and set **Local mount point** to `/tmp/QIBM`.
d. Click **Save**.

2. Logon the Network Station. If the Network Station is already logged on, you need to log off and then logon to see the new mount point.
3. From the Advanced Diagnostics command line type `cd /`.
4. Type `cd tmp`.
5. Type `ls -al` to see the new mount point.
6. Type `cd /QIBM/ProdData/NetworkStationV2/nsm/tools` to make the tools directory the current directory.
7. Type `echo $CLASSPATH` to make sure that java (/usr/local/java/J118/lib/classes.zip) and the current directory (.)are included in the classpath.
8. Type `export CLASSPATH= $CLASSPATH:ibmnsmcl.jar:ibmxml.jar:jt400.jar` to add the command line utility files to the classpath.
9. Type `java com.ibm.nsm.cl.NSM_CL` to start the command line GUI.

Script file

A script file is a plain text file that contains IBM Network Station Manager command line utility commands. Only one command may appear on each line. Each command must be completely contained on one line. Script files may also include comments. Any line starting with // is considered a comment and is ignored. Blank lines are ignored. See “Commands” on page 74 for information on commands.

All commands including `call` can appear in script files. Any number of call commands can appear in a script file and each call has the effect of adding all the commands in the called file to the calling file at the point in the calling file where the `call` command is located.

Attention: Using call has the potential of creating recursive calls. Recursive calls may put the system into an infinite loop.

The following example demonstrates the use of script files:

```
// begin demo.bp
// a call to run demo_insert.bp, changes or creates many NSM preferences
call demo_insert.bp
// a call to run demo_select.bp, prints out values that demo_insert.bp changed
call demo_select.bp
// end demo.bp

// begin demo_insert.bp
// this changes everyone in dept 10 to a left handed mouse
insert ibmnsm/user/list dept10.lst/workstation/pref-mouse-arrangement/ left-handed
// mary and karl are right handed
insert ibmnsm/user/mary/workstation/pref-mouse-arrangement/ right-handed
insert ibmnsm/user/karl/workstation/pref-mouse-arrangement/ right-handed
// changes are only written to disk with a commit command
COMMIT
// end demo_insert.bp

// begin demo_select.bp
// view our work
select ibmnsm/user/list dept10.lst/workstation/pref-mouse-arrangement/
// end demo_select.bp
```

```
// begin dept10.lst
// a list of all user names in dept10
ivan
mary
ching
joe
barry
karl
brenda
// end dept10.lst
```

NSMCL will automatically create script files from any select statement output. Set SELECT_MODE to 'script' and SELECT_FILE_NAME to some file name for the script to be created. The output of one or many select statements will be written to the file as valid SGCL insert statements. The file may then be run at any time to restore the values. The current state of a complete configuration or any part of a configuration may be saved and later restored.

SGCL.ini

When SGCL is started from the operating system command line or when the NSMCL GUI starts, a file named SGCL.ini is read. SGCL.ini must be in the same directory where the command line utiliy .jar files are located.

The following list describes some of the values that you may want to customize in SGCL.ini. All of these values may also be set in script files using the SET command.

PATH_TO_PROFILES
This value is the path to the $UserBase/profiles directory on the target server.

TARGET_OS
This value is either AS400, AIX, WIN_NT, or TEST. AS400 means that the target operating system is OS/400. AIX means that the target operating system is AIX. WIN_NT means that the target operating system is Windows NT. TEST means that local files are written for testing purposes (file authorities are not set).

TARGET_NAME
This value is the host name of the computer where the IBM Network Station configuration is located. Each time that a new TARGET_NAME is specified, a new server object is created. PATH_TO_PROFILES and TARGET_OS (if needed) must be changed before TARGET_NAME.

PATH_TO_SCRIPTS
This value is the path to the directory where script files are located. This value is used when there is no path specified in the script file names.

PATH_TO_LOG
This value is the name of the path where the log file is placed. The default is the current directory.

LOG_FILE_NAME
This value is the name of the log file. The default is SGCL-log.txt.

LOG_MODE
This value is either FILE, STREAM, or BOTH. FILE means log to the log file. STREAM means log to the screen (ignored if running from the command line). BOTH means log to the log file and to the screen. The default is BOTH.

LOG_APPEND
This value is either true or false. A value of true adds to the existing log file. A value of false replaces the existing log file at program start-up. The default value is true.

SELECT_FILE_NAME
This value is either LOG or the name of the path and name of the select file. LOG means send the select command output to the log file (specified in LOG_FILE_NAME). A file name or file name

and path means send the select command output to the specified file. This value may be any file path and name for select statement output. It will be created if needed. It defaults to the current directory if it has the name only without the path. The default file is 'select.txt' in the current directory. This value will be ignored if SELECT_MODE=log.

SELECT_APPEND
This value is either true or false. A value of true adds to the existing select file. A value of false replaces the existing select file. The default value is true. If SELECT_FILE_NAME=LOG, then SELECT_APPEND is ignored.

TIME_IN_SELECTS
This value is either true or false. A value of true means the timestamp is placed before each result in the select file. A value of false means a timestamp is not placed in the select file. When selects are sent to the log file, a timestamp always appears. The default value is true.

CONTINUE_ON_ERROR
This value is either true or false. A value of true means processing continues when errors are found. A file not found error always stops processing. A value of false stops processing on the first error. The default value is true.

DEFAULT _USER
This value is the name of the current user. DEFAULT_USER can be set to some IBM Network Station Manager user name. DEFAULT _USER can then be used in the name field of any command. For example, `SELECT IBMNSM/USER/DEFAULT_USER/WORKSTATION/ALL/`.

DEFAULT_WORKSTATION
This value is the name of the current workstation. DEFAULT_WORKSTATION can be set to some IBM Network Station Manager workstation name. DEFAULT _WORKSTATION can then be used in the name field of any command. For example, `SELECT IBMNSM/WORKSTATION/DEFAULT_WORKSTATION/WORKSTATION/ALL/`.

DEFAULT_USER_GROUP
This value is the name of the current usergroup. DEFAULT_USER_GROUP can be set to some IBM Network Station Manager usergroup name. DEFAULT _USER_GROUP can then be used in the name field of any command. For example, `SELECT IBMNSM/USERGROUP/DEFAULT_USER_GROUP/WORKSTATION/ALL/`.

SELECT_MODE
This value controls both the location and the format of a select statement output. A value of 'LOG' sends a select statement to the regular log. A value of 'FILE' sends a select statement output to the file (and path) named in SELECT_FILE_NAME. A value of 'SCRIPT' formats the select statement output into SGCL INSERT statements then sends them to SELECT_FILE_NAME. The file created is a valid script and may be used for full or partial backup and restore.

Commands

This section describes the purpose, format, parameters, and at least one example of each command. Commands and keywords can be entered in upper or lowercase. Variable names are shown in italics and are case sensitive. All command lines are checked for syntax before they are run. Errors are returned for syntax errors in commands and parameters. All commands can run:

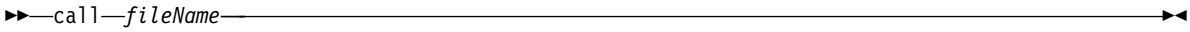
- From the GUI interface command line
- When included in script files
- When they appear as a parameter after `java SGCL` on the operating system command line (unless otherwise noted)
- From the IBMCLI> interactive command line prompt

CALL

Purpose

Runs script files. See “Script file” on page 72 for more information about script files.

Format



Parameters

fileName

Specifies the name of the script file. If the parameter contains any / or \ characters, then the parameter is assumed to contain the complete path to the file. If the paramter is a file name only, then it is appended to the PATH_TO_SCRIPTS value in the SGCL.ini file. See “Script file” on page 72 for more information about script files. See “SGCL.ini” on page 73 for more information about the SGCL.ini file.

Example

```
call demo1.bp
```

COMMIT

Purpose

Writes all pending (since last commit) changes to disk.

Format

Parameters

None.

Example

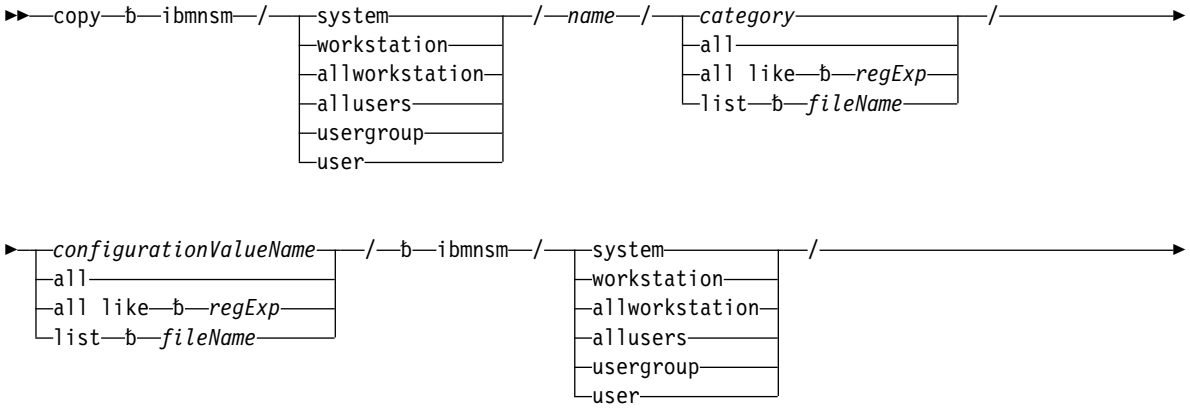
```
COMMIT
```

COPY

Purpose

Copies existing configuration values.

Format



Parameters

b A blank or space.

ibmnsm
Specifies the object. `ibmnsm` must be specified.

system
Specifies IBM Network Station Manager system-wide preferences. When the system parameter is specified, the *name* parameter is ignored.

workstation
Specifies a workstation's preferences. The *name* parameter must equal an IBM Network Station Manager defined workstation name.

usergroup
Specifies a usergroup's preferences. The *name* parameter must equal an IBM Network Station Manager defined group name.

user Specifies a user's preferences. The *name* parameter must equal an IBM Network Station Manager defined user name.

name Specifies the name of the workstation, usergroup, or user. A name of DEFAULT_USER, DEFAULT_WORKSTATION, or DEFAULT_USER_GROUP passes the current value of that setting.

all Specifies all values.

all like
Specifies a subset of existing values that match a pattern specified in the *regExp* parameter.

regExp
Specifies a pattern using letters, numbers, and wild card characters. Wildcard usage is in UNIX regular expression notation. See "Appendix E. Regular expression notation" on page 233 for more information on regular expressions.

list Specifies a list of values that are contained in the file that is specified in the *fileName* parameter.

fileName
Specifies the name of a file that contains a list of values. The file must contain one value per line. If fileName contains any / or \ characters, then it is assumed to be a complete path and file name. Otherwise fileName is added to the PATH_TO_SCRIPTS value.

category
Specifies the name of the category. See "Appendix D. Configuration values" on page 129 for a list of categories.

configurationValueName
Specifies the name of the configuration value to update. See "Appendix D. Configuration values" on page 129 for a list of configuration value names.

Example

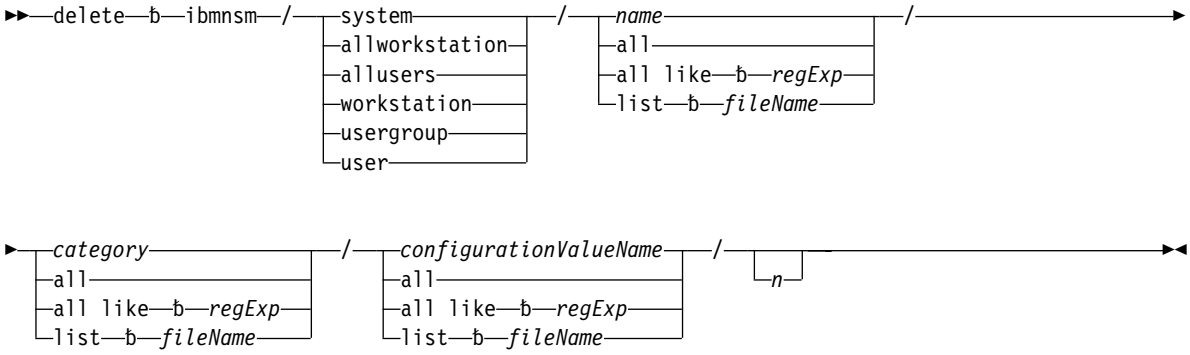
```
//Give everybody the same mouse setting as Joe
copy ibmnsm/user/joe/workstation/pref-mouse-arrangement ibmnsm/user/all
```

DELETE

Purpose

Removes existing configuration values.

Format



Parameters

b A blank or space.

ibmnsm
Specifies the object. `ibmnsm` must be specified.

system
Specifies IBM Network Station Manager system-wide preferences. When the system parameter is specified, the *name* parameter is ignored.

workstation
Specifies a workstation's preferences. The *name* parameter must equal an IBM Network Station Manager defined workstation name.

usergroup
Specifies a usergroup's preferences. The *name* parameter must equal an IBM Network Station Manager defined group name.

user Specifies a user's preferences. The *name* parameter must equal an IBM Network Station Manager defined user name.

name Specifies the name of the workstation, usergroup, or user. A name of DEFAULT_USER, DEFAULT_WORKSTATION, or DEFAULT_USER_GROUP passes the current value of that setting.

all Specifies all values.

all like
Specifies a subset of existing values that match a pattern specified in the *regExp* parameter.

regExp
Specifies a pattern using letters, numbers, and wild card characters. Wildcard usage is in UNIX regular expression notation. See "Appendix E. Regular expression notation" on page 233 for more information on regular expressions.

list Specifies a list of values that are contained in the file that is specified in the *fileName* parameter.

fileName
Specifies the name of a file that contains a list of values. The file must contain one value

per line. If fileName contains any / or \ characters, then it is assumed to be a complete path and file name. Otherwise fileName is added to the PATH_TO_SCRIPTS value.

category
Specifies the name of the category. See “Appendix D. Configuration values” on page 129 for a list of categories.

configurationValueName
Specifies the name of the configuration value to update. See “Appendix D. Configuration values” on page 129 for a list of configuration value names.

n Specifies the position in the list. Use the select command to view currently configured items and determine the list position.

Examples

```
// removes Joe's pref-mouse-arrangement
delete ibmnsm/user/joe/workstation/pref-mouse-arrangement/
// removes all values from list
delete ibmnsm/workstation/machine1/devices/print-lpr-servers/
// removes only the first value from the list
delete ibmnsm/workstation/machine1/devices/print-lpr-servers/ 1
// resets all values to the shipped values
delete ibmnsm/system/all/all/all
delete ibmnsm/workstation/all/all/all
delete ibmnsm/usergroup/all/all/all
delete ibmnsm/user/all/all/all
//Specific example for removing LAUNCHBAR folders
DELETE IBMNSM/USER/LAUNCHBAR/Folder/ -name -folder
```

EXEC

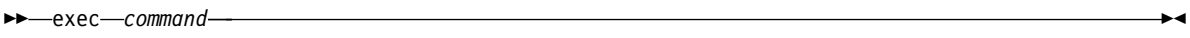
Purpose

Passes one operating system command to the operating system. You must have the correct authority for the command and the command must be accessible. The following SGCL.ini settings must be set correctly:

- TARGET_OS
- TARGET_NAME

OS/400 commands can be run on a local AS/400 or any remotely attached AS/400s. OS/400 commands may also be run from any AS/400 attached client. Windows NT and AIX commands are limited to running on the server where command line utility is running.

Format



Parameters

command
Specifies an operating system command and associated parameters.

Example

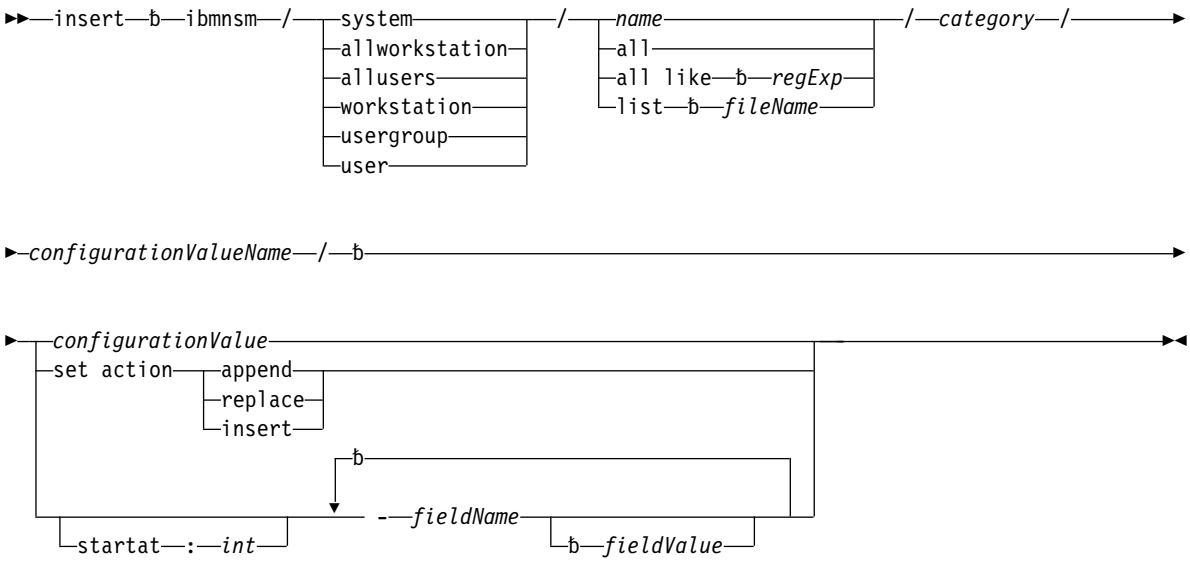
```
EXEC CRTUSRPRF USRPRF(XUSRA1) USRCLS(*SYSOPR) MAXSTG(*NOMAX)
```

INSERT

Purpose

Creates new or changes existing configuration values.

Format



Parameters

b A blank or space.

ibmnsm
Specifies the object. `ibmnsm` must be specified.

system
Specifies IBM Network Station Manager system-wide preferences. When the system parameter is specified, the *name* parameter is ignored.

workstation
Specifies a workstation's preferences. The *name* parameter is an IBM Network Station Manager workstation name.

usergroup
Specifies a usergroup's preferences. The *name* parameter is an IBM Network Station Manager group name.

user Specifies a user's preferences. The *name* parameter must equal an IBM Network Station Manager defined user name.

name Specifies the name of the workstation, usergroup, or user. The user or usergroup name must already be defined on the server that is named in TARGET_NAME. See "SGCL.ini" on page 73 for more information about how to specify TARGET_NAME. A name of DEFAULT_USER, DEFAULT_WORKSTATION, or DEFAULT_USER_GROUP passes the current value of that setting.

all Specifies all values.

all like
Specifies a subset of existing values that match a pattern specified in the *regExp* parameter.

regExp
Specifies a pattern using letters, numbers, and wild card characters. Wildcard usage is in UNIX regular expression notation. See "Appendix E. Regular expression notation" on page 233 for more information on regular expressions.

list Specifies a list of values that are contained in the file that is specified in the *fileName* parameter.

fileName
Specifies the name of a file that contains a list of values. The file must contain one value per line. If fileName contains any / or \ characters, then it is assumed to be a complete path and file name. Otherwise fileName is added to the PATH_TO_SCRIPTS value.

category
Specifies the name of the category. See “Appendix D. Configuration values” on page 129 for a list of categories.

configurationValueName
Specifies the name of the configuration value to record. See “Appendix D. Configuration values” on page 129 for a list of configuration value names.

configurationValue
Specifies the actual value to record. See “Appendix D. Configuration values” on page 129 for a list of configuration values.

set action
Specifies an action for fieldNames and fieldValues. Used with the serial-interfaces-table and serial-daemons-table values.

append
Specifies that the values are appended to exisiting values (additive).

replace
Specifies that the values replace exisiting values (overrides values at other levels).

insert Specifies that the values are inserted into exisiting values (additive, but orderable).

start at
Specifies that values should be inserted starting at the relative position specified in the *int* value. Only used for serial-interfaces-table and serial-daemons-table.

int Specifies the relative position to insert the value. Only used for serial-interfaces-table and serial-daemons-table.

fieldName
Specifies the name of the field to record. See “Appendix D. Configuration values” on page 129 for a list of field names. Field names always start with a ’-’.

fieldValue
Specifies the actual value to record. See “Appendix D. Configuration values” on page 129 for a list of field values.

Examples

```
// Start simple example
insert ibmnsm/user/joe/workstation/pref-mouse-arrangement/ left-handed
// End simple example

// Start print-lpr-servers list example
// Note: The text for this insert command is shown on multiple lines for clarity.
//       To work correctly, the command must be contained on one line.
INSERT IBMNSM/workstation/LIST mycompany_machines.lst/DEVICE/print-lpr-servers/
-server local -queue-name nil -datastream-type ps -description small printer
-transform-file nil -dbcs-type nil -print-resolution nil -dbcs-font-encoding nil
-request-banner-page false -use-as-default true
// End print-lpr-servers list example

// Start print-lpr-servers insert list example
INSERT IBMNSM/WORKSTATION/machine1/DEVICE/print-lpr-servers/ SET ACTION APPEND
// After this command there will be no print-lpr-servers defined for
// WORKSTATION/machine1. When values are added to the print-lpr-servers list (in
// WORKSTATION/machine1) then both those values and the values defined in
// SYSTEM/DEF/DEVICE/print-lpr-servers (the next lower level) will be part of the
// configuration for machine1.
```

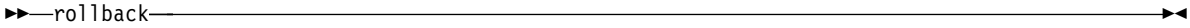
```
// Note: The text for these insert commands are shown on multiple lines for clarity.
//      To work correctly, the commands must be contained on one line.
INSERT IBMNSM/SYSTEM/DEFAULTS/DEVICE/serial-daemons-table/ SET ACTION INSERT
INSERT IBMNSM/SYSTEM/DEFAULTS/DEVICE/serial-daemons-table/
    STARTAT:2 -port-number 1 -use-serial-protocol true -tcp-port 1050
INSERT IBMNSM/SYSTEM/DEFAULTS/DEVICE/serial-daemons-table/
    STARTAT:3 -port-number 2 -use-serial-protocol true -tcp-port 1051
INSERT IBMNSM/SYSTEM/DEFAULTS/DEVICE/serial-daemons-table/
  STARTAT:1 -port-number 3 -use-serial-protocol true -tcp-port 1052
// End print-lpr-servers insert list example

//Start Launch Bar example
INSERT IBMNSM/USER/DEFAULT_USER/LAUNCHBAR/5250 Emulator/ -name -folder -command
//End Launch Bar example
//Start Launch Bar (startup) example
INSERT IBMNSM/USER/DEFAULT_USER/startup/5250 Emulator/ -name -folder -command
//End Launch Bar (startup) example
```

ROLLBACK

Purpose

Discards all pending (since last commit) changes.

Format



Parameters

None.

Example

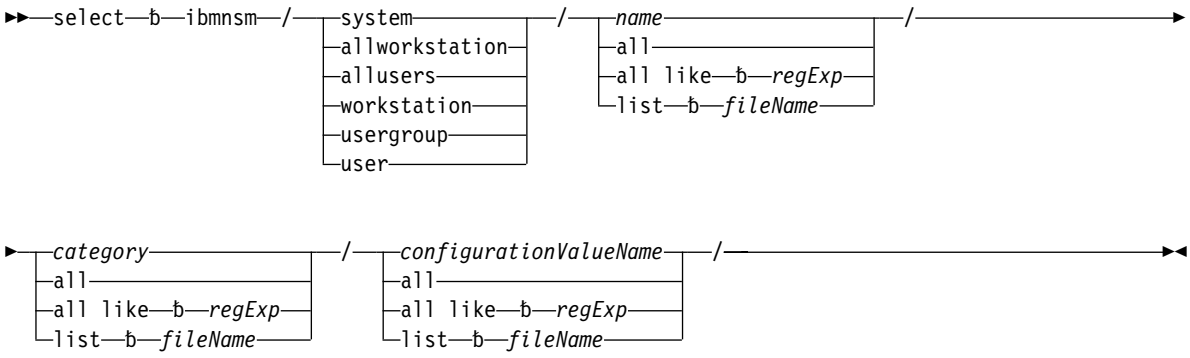
```
rollback
```

SELECT

Purpose

Returns existing configuration values. For information on output processing see “SGCL.ini” on page 73. The values returned get logged in sequence with all other messages in the log if the SELECT_MODE setting is LOG. If hte SELECT_MODE setting is file (or script) all (and only) select statement results get written to the file named in SELECT_FILE_NAME. If SELECT_MODE is script then the format written to SELECT_FILE_NAME will be SGCL INSERT statements. See SET command.

Format



Parameters

b A blank or space.

ibmnsm
Specifies the object. `ibmnsm` must be specified.

system
Specifies IBM Network Station Manager system-wide preferences. When the system parameter is specified, the *name* parameter is ignored.

workstation
Specifies a workstation's preferences. The *name* parameter must equal an IBM Network Station Manager defined workstation name.

usergroup
Specifies a usergroup's preferences. The *name* parameter must equal an IBM Network Station Manager defined group name.

user Specifies a user's preferences. The *name* parameter must equal an IBM Network Station Manager defined user name.

name Specifies the name of the workstation, usergroup, or user. A name of DEFAULT_USER, DEFAULT_WORKSTATION, or DEFAULT_USER_GROUP passes the current value of that setting.

all Specifies all values.

all like
Specifies a subset of existing values that match a pattern specified in the *regExp* parameter.

regExp
Specifies a pattern using letters, numbers, and wild card characters. Wildcard usage is in UNIX regular expression notation. See "Appendix E. Regular expression notation" on page 233 for more information on regular expressions.

list Specifies a list of values that are contained in the file that is specified in the *fileName* parameter.

fileName
Specifies the name of a file that contains a list of values. The file must contain one value per line. If fileName contains any / or \ characters, then it is assumed to be a complete path and file name. Otherwise fileName is added to the PATH_TO_SCRIPTS value.

category
Specifies the name of the category. See "Appendix D. Configuration values" on page 129 for a list of categories.

Examples

```
// Set Joes's mouse to be left-handed
insert ibmnsm/user/joe/workstation/pref-mouse-arrangement/ left-handed
// Check to see if Joes's mouse is left handed
select ibmnsm/user/joe/workstation/pref-mouse-arrangement/
```

The following line is returned to the GUI or the log:

```
Thu - Sep 2 1999 08.42.11.313 - IBMNSM/USER/joe/WORKSTATION/pref-mouse-arrangement/ = left-handed
```

```
// Display all system settings
select ibmnsm/system/all/all/all/
```

Data that is similar to the information below is returned to the GUI or the log:

```
Thu - Sep 2 1999 09.38.35.980 - IBMNSM/SYSTEM/DEFAULT/DEVICE/serial-access-control-enabled/ = true
Thu - Sep 2 1999 09.38.35.980 - IBMNSM/SYSTEM/DEFAULT/DEVICE/serial-access-control-list/ =
{ -host localhost }
{ -host system1 }
{ -host system2 }
Thu - Sep 2 1999 09.38.36.420 - IBMNSM/SYSTEM/DEFAULT/DEVICE/serial-daemons-table/ =
```

```
{ -port-number 1 -use-serial-protocol false -tcp-port 87 }
{ -port-number 2 -use-serial-protocol false -tcp-port 5962 }
{ -port-number 3 -use-serial-protocol   -tcp-port }
Thu - Sep 2 1999 09.38.37.140 - IBMNSM/SYSTEM/DEFAULT/DESKTOP/show_logout_button/ = yes
Thu - Sep 2 1999 09.38.37.140 - IBMNSM/SYSTEM/DEFAULT/DESKTOP/current_theme/ = plum
Thu - Sep 2 1999 09.38.37.140 - IBMNSM/SYSTEM/DEFAULT/DESKTOP/icon_placement/ = 0
Thu - Sep 2 1999 09.38.37.140 - IBMNSM/SYSTEM/DEFAULT/DESKTOP/winmgr_font_size/ = 10
Thu - Sep 2 1999 09.38.38.070 - IBMNSM/SYSTEM/DEFAULT/NS5250/NS5250*KeyRemap/ = disable
Thu - Sep 2 1999 09.38.38.070 - IBMNSM/SYSTEM/DEFAULT/NS5250/NS5250*KeymapPath/ = 0
Thu - Sep 2 1999 09.38.38.070 - IBMNSM/SYSTEM/DEFAULT/NS5250/NS5250*ColorMap/ = basic
Thu - Sep 2 1999 09.38.38.070 - IBMNSM/SYSTEM/DEFAULT/NS5250/NS5250*ColorMapPath/ = 0
Thu - Sep 2 1999 09.38.38.070 - IBMNSM/SYSTEM/DEFAULT/NS5250/NS5250*DefaultColorMapPath/ = 0
Thu - Sep 2 1999 09.38.38.070 - IBMNSM/SYSTEM/DEFAULT/NS5250/NS5250*PlayBack/ = enable
Thu - Sep 2 1999 09.38.38.290 - IBMNSM/SYSTEM/DEFAULT/NS5250/NS5250*PlayBackPath/ = 0
Thu - Sep 2 1999 09.38.38.290 - IBMNSM/SYSTEM/DEFAULT/NS5250/NS5250*KeyPad/ = enable
Thu - Sep 2 1999 09.38.38.290 - IBMNSM/SYSTEM/DEFAULT/NS5250/NS5250*Command/ = enable
Thu - Sep 2 1999 09.38.38.290 - IBMNSM/SYSTEM/DEFAULT/NS5250/NS5250*Option/ = enable
Thu - Sep 2 1999 09.38.38.290 - IBMNSM/SYSTEM/DEFAULT/NS5250/NS5250*Help/ = enable
Thu - Sep 2 1999 09.38.38.290 - IBMNSM/SYSTEM/DEFAULT/NS5250/NS5250*MiscPref/ = enable
Thu - Sep 2 1999 09.38.38.290 - IBMNSM/SYSTEM/DEFAULT/NS5250/NS5250*ChangeIPAddress/ = enable
Thu - Sep 2 1999 09.38.38.290 - IBMNSM/SYSTEM/DEFAULT/NS5250/NS5250*Edit/ = enable
Thu - Sep 2 1999 09.38.38.290 - IBMNSM/SYSTEM/DEFAULT/NS5250/NS5250*LocalPrint/ = enable
Thu - Sep 2 1999 09.38.38.290 - IBMNSM/SYSTEM/DEFAULT/NS5250/NS5250*Control/ = enable
Thu - Sep 2 1999 09.38.38.290 - IBMNSM/SYSTEM/DEFAULT/NS5250/NS5250*FontMenu/ = enable
Thu - Sep 2 1999 09.38.38.730 - IBMNSM/SYSTEM/DEFAULT/NS5250/NS5250*ColumnSeparator/ = disable
Thu - Sep 2 1999 09.38.38.730 - IBMNSM/SYSTEM/DEFAULT/NS5250/NS5250*27x132/ = enable
Thu - Sep 2 1999 09.38.38.730 - IBMNSM/SYSTEM/DEFAULT/NS5250/NS5250*ImageView/ = disable
Thu - Sep 2 1999 09.38.40.270 - IBMNSM/SYSTEM/DEFAULT/NETSCAPE/lockPref.network.proxy.type/ = 1
Thu - Sep 2 1999 09.38.40.430 - IBMNSM/SYSTEM/DEFAULT/ENVVARS/TRACE/ = ON
Thu - Sep 2 1999 09.38.40.820 - IBMNSM/SYSTEM/DEFAULT/ENVVARS/RUNWM/ = YES
Thu - Sep 2 1999 09.38.40.820 - IBMNSM/SYSTEM/DEFAULT/ENVVARS/TZ/ = CST
Thu - Sep 2 1999 09.38.41.040 - IBMNSM/SYSTEM/DEFAULT/INTERNET/FTP_PROXY_HOST/ = proxy.ibm.com
Thu - Sep 2 1999 09.38.41.040 - IBMNSM/SYSTEM/DEFAULT/INTERNET/FTP_PROXY_PORT/ = 80
Thu - Sep 2 1999 09.38.41.040 - IBMNSM/SYSTEM/DEFAULT/INTERNET/HTTP_PROXY_PORT/ = 0
Thu - Sep 2 1999 09.38.41.040 - IBMNSM/SYSTEM/DEFAULT/INTERNET/GOPHER_PROXY_HOST/ = proxy.ibm.com
Thu - Sep 2 1999 09.38.41.040 - IBMNSM/SYSTEM/DEFAULT/INTERNET/GOPHER_PROXY_PORT/ = 80
Thu - Sep 2 1999 09.38.41.040 - IBMNSM/SYSTEM/DEFAULT/INTERNET/NSM_HTTP_PORT/ = 80
Thu - Sep 2 1999 09.38.41.420 - IBMNSM/SYSTEM/DEFAULT/INTERNET/HOME_PAGE/ = http://www.ibm.com
Thu - Sep 2 1999 09.38.41.420 - IBMNSM/SYSTEM/DEFAULT/INTERNET/HTTPS_PROXY_PORT/ = 0
Thu - Sep 2 1999 09.38.41.420 - IBMNSM/SYSTEM/DEFAULT/INTERNET/SOCKS_PORT/ = 0
Thu - Sep 2 1999 09.38.41.800 - IBMNSM/SYSTEM/DEFAULT/USERGROUP/admin/ = cgrp
Thu - Sep 2 1999 09.38.41.860 - Command completed: select ibmnsm/system/all/all/all/
```

SET

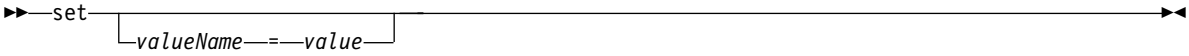
Purpose

Temporarily sets any value in the SGCL.ini file. Changes are not made to the SGCL.ini file. This command can be used on the interactive GUI command line or in a script file. Changed values exist until they are set again or the program exits. See “SGCL.ini” on page 73 for more information about the SGCL.ini file. Type SET without any parameters to list the current settings in the log.

The following commands must be used in the following order when used in scripts:

1. SET PATH_TO_PROFILES
2. SET TARGET_OS
3. SET TARGET_NAME

Format



Parameters

valueName
See“SGCL.ini” on page 73 for more information about the SGCL.ini file

value See“SGCL.ini” on page 73 for more information about the SGCL.ini file

Example

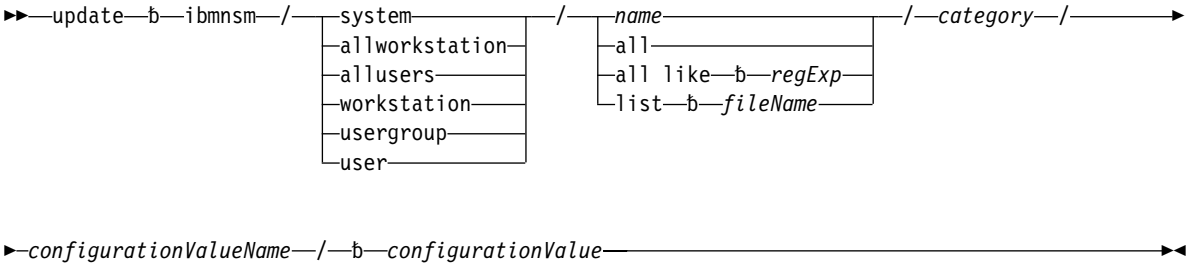
```
set TARGET_NAME=SYSTEM1
```

UPDATE

Purpose

Changes existing configuration values.

Format



Parameters

b A blank or space.

ibmnsm
Specifies the object. `ibmnsm` must be specified.

system
Specifies IBM Network Station Manager system-wide preferences. When the SYSTEM parameter is specified, the *name* parameter is ignored.

workstation
Specifies a workstation’s preferences. The *name* parameter must equal an IBM Network Station Manager defined workstation name.

usergroup
Specifies a usergroup’s preferences. The *name* parameter must equal an IBM Network Station Manager defined group name.

user Specifies a user’s preferences. The *name* parameter must equal an IBM Network Station Manager defined user name.

name Specifies the name of the workstation, usergroup, or user. A name of DEFAULT_USER, DEFAULT_WORKSTATION, or DEFAULT_USER_GROUP passes the current value of that setting.

all Specifies all values.

all like
Specifies a subset of existing values that match a pattern specified in the *regExp* parameter.

regExp
Specifies a pattern using letters, numbers, and wild card characters. Wildcard usage is in UNIX regular expression notation. See “Appendix E. Regular expression notation” on page 233 for more information on regular expressions.

list Specifies a list of values that are contained in the file that is specified in the *fileName* parameter.

fileName
Specifies the name of a file that contains a list of values. The file must contain one value per line. If fileName contains any / or \ characters, then it is assumed to be a complete path and file name. Otherwise fileName is added to the PATH_TO_SCRIPTS value.

category
Specifies the name of the category. See “Appendix D. Configuration values” on page 129 for a list of categories.

configurationValueName
Specifies the name of the configuration value to record. See “Appendix D. Configuration values” on page 129 for a list of configuration value names.

configurationValue
Specifies the actual value to record. See “Appendix D. Configuration values” on page 129 for a list of configuration values.

Examples

```
// update Joe's mouse to be left-handed
update ibmnsm/user/joe/workstation/pref-mouse-arrangement/ left-handed
// update all users that are listed in the lefty.lst file to use a left handed mouse
update ibmnsm/user/list lefty.lst/workstation/pref-mouse-arrangement/ left-handed
// update all users that have a name that starts with "left" to use a left handed mouse
update ibmnsm/user/all like ^left/workstation/pref-mouse-arrangement/ left-handed
```

HELP

Purpose

Typing HELP at the GUI or interactive command line prompt (IBMCLI>) will display the following description of help syntax.

Format

Parameters

HELP Syntax for IBM Network Station Manager is;

HELP SGCL
List of SGCL command names.

HELP <SGCL command name>
Description and example of the SGCL command.

HELP SET
Description of SET command and a list of all possible settings.

HELP CATEGORY
List of category names.

HELP <category name>
List of preference names in the category.

HELP <preference name>
Preference description, valid values and levels.

Example

```
HELP
```

Configuring the Launch Bar

You may create and remove launch bar folders and program icons with the Network Station Manager Command Line Utility. Command syntax is like the list property command line syntax. The property name for folders is 'Folder'. The property names for all configurable types of programs are listed in “Appendix D. Configuration values” on page 129. The required fields for each folder or type of program icon are also listed there.

The 'command' field is required for several types of programs. The value of the command field is the startup command for that program. See “Appendix D. Configuration values” on page 129 and “Chapter 8. Customizing additional values” on page 87 for program startup command syntax. You must enclose program startup commands that use '-valueName value' syntax in single quotes.

You may not update existing launch bar folders or icons. Delete, then insert a new changed folder or icon. See the example in “DELETE” on page 77 for special launch bar syntax.

Errors

The following table lists corrections for ccommon problems.

Problem	Description
IncorrectCommandException	Wrong command syntax, value, or value combination. Possible problems include: • Level value does not exist. • Property name does not exist. • Category name and property name combination are not valid. • The value is out of range.
NSMCLFileException	File not found, not readable, or no file authority. Stops processing of the current command or script file. If the message says no authority, the user may not be the Administrator.
NSMCLSystemException	Unexpected program error.

Chapter 8. Customizing additional values

The IBM Network Station Manager program and the IBM Network Station command line utility allow you to modify many desktop and application configuration values. This section explains additional values that can be customized.

Note: Essentially, the Network Station is a Unix system and a Unix shell is used to start commands. The shell does so by processing the command line. This includes the optional parameters. Blanks are used as the parameter separator field. So you need to enclose these blanks with quotes. There are additional special characters that also need to be quoted, e.g., \, <, >, | and #.

Note: If any backslash (\) characters are used in any input fields you need to use two (2). If your program needs to use 2 backslashes (\\) you must enter 4 backslashes. The reason for the extra backslash is that when the command is processed, one backslash is stripped out.

Java

IBM Network Station Manager allows for two Java application environments:

1. The Netscape Java virtual machine environment (JVM) provides a standard Netscape Java environment (Netscape JVM 1.1.5).
2. The IBM Network Station Java virtual machine environment provides the latest IBM enhanced Sun JVM (IBM JVM 1.1.8). The IBM Network Station JVM environment (available from IBM) also allows for the support of the latest beta level of JVM from Sun (using the $JAVA_LEVEL environment variable).

Java applications can be run:

- as an applet from the browser in the JVM that is shipped with Netscape Communicator
- as an applet from the browser in the JVM that is shipped with the IBM Network Station. See “Using the Runtime Plug-in for the Network Station, Java Edition” on page 88.
- as a standalone Java application

For more information about Java, see http://www.ibm.com/java.

Configuring a Java application

To configure a Java application to run from the IBM Network Station desktop, you must complete the following steps. For example we have an application called JavaTest that is going to be placed on an AS/400 system.

1. Create a directory to place the Java application. For example: `\Root\test`.
2. Allow the directory to be accessed by the Network Station through the file system. On an AS/400 system use Client Access to verify the correct permissions are set. On RS/6000 and Windows NT (use the eNetwork On Demand Server) define an NFS export or alias.
3. Configure a mount point using the IBM Network Station Manager program (**Environment->Network**). For example:
   - Mount type: `RFS` - AS/400 file system
   - Server address: `10.1.2.3` - address of the server where the Java application is located
   - Remote mount point: `/test` - the export or alias of the directory where the Java application is located
   - Local mount point: `/tmp/test` - the name of the Network Station mount point
   - Read blocksize: `1024`
   - Write blocksize: `1024`
   - Access permission: `Read only`

4. Configure an icon on the desktop launch bar using the IBM Network Station Manager program (**Desktop->Launch Bar**). For example:
   - Icon label `MyJavaTest`
   - Application (class) name: `JavaTest`
   - Class path: `/tmp/test/JavaTest1.jar:/tmp/test/JavaTest2.jar`

See “IBM Network Station client (AS/400 only)” on page 71 for another example of how to configure a Java application.

Configuring a Java applet

To configure a Java applet to run from the IBM Network Station desktop, you must complete the following steps. For example we have an applet called JavaTest that is going to be placed on an AS/400 system.

1. Create a directory to place the Java applet and HTML source. For example: `\Root\test`. If your applet is being served from an HTTP server, skip to step 4.
2. Allow the directory to be accessed by the Network Station through the file system. On an AS/400 system use Client Access to verify the correct permissions are set. On RS/6000 and Windows NT (use the eNetwork On Demand Server) define an NFS export or alias.
3. Configure a mount point using the IBM Network Station Manager program (**Environment->Network**). For example:
   - Mount type: `RFS` - AS/400 file system
   - Server address: `10.1.2.3` - address of the server where the Java application is located
   - Remote mount point: `/test` - the export or alias of the directory where the Java application is located
   - Local mount point: `/tmp/test` - the name of the Network Station mount point
   - Read blocksize: `1024`
   - Write blocksize: `1024`
   - Access permission: `Read only`
4. Configure an icon on the desktop launch bar using the IBM Network Station Manager program (**Desktop->Launch Bar**). For example:
   - Icon label `MyJavaTest`
   - URL: `/tmp/test/JavaTest.htm` (Use `http://10.1.2.3/test/JavaTest.htm` or `file:///tmp/test/JavaTest.htm` with an HTTP server.)
5. If you need to specify a class path, use the IBM Network Station Manager program to set the class path of the applet viewer (**Applications->Applet Viewer**). For example, User classpath: /tmp/test/JavaTest1.zip:/tmp/test/JavaTest2.zip

Changing levels of the JVM for Java applications

It is possible to change which level of JVM is available for your Network Stations. This is handy for developers who would like to test or develop applications on new versions of JVM. Using the IBM Network Station Manager program, set the $JAVA_LEVEL environment variable to the path for the different level of JVM. You should consider only changing the JVM for an individual user or a small group of users until you verify that the different level of JVM is stable enough for your needs.

Using the Runtime Plug-in for the Network Station, Java Edition

The Runtime Plug-in for the Network Station, Java Edition provides the capability of redirecting Java applets from Netscape Communicator to a JVM that is external to the browser (the IBM Network Station JVM). The IBM Network Station licensed program includes the Runtime Plug-in for the Network Station, Java Edition. You can enable and disable the the plug-in by using the IBM Network Station Manager program.

Java Media Framework 1.1

The IBM Network Station Manager licensed program includes Java Media Framework (JMF) 1.1 for Network Computers. This is an ennhanced version of JMF 1.1 from JavaSoft. For details on how to develop Java applications using JMF 1.1, see http://www.javasoft.com.

Applet viewer command line syntax

The applet viewer command line has the following syntax:

```
appletviewer <parameter>
```

Where <parameter> is the URL of the applet.

Netscape Communicator

It is possible to configure the Netscape preferences that the IBM Network Station Manager program or the IBM Network Station command line program does not configure by using an overides file. The overides file is not shipped from IBM. You must create a file called overrides.js and place the file in $ProdBase/usr/local/netscape. You can create this file manually or by using Netscape's Mission Control software. If you use the Mission Control software, make sure that you save the file as a plain text file. JavaScript configuration preferences are placed in this file.

For an overview of Netscape Communicator configuration, see http://developer.netscape.com/docs/manuals/deploymt/config.htm For more information on JavaScript configuration preferences, see http://developer.netscape.com/docs/manuals/deploymt/jsprefs.htm

Launching local applications from Netscape Communicator

It is possible to launch local Network Station applications from an HTML page. This provides the ability to use an HTML page as a desktop from which local Network Station applications can be launched. In order to do this, you need to do the following:

1. Configure the URL protocol using the netscape.cfg or overrides.js files. The netscape.cfg file is a text file and can be found in the $ProdBase/usr/local/netscape directory. (See "Netscape Communicator" for more information on the overrides.js file.) The following syntax is added to define a local application:

   ```
   lockPref("applications.<scheme>", <command>);
   locPref("applications.<scheme>.active", <true|false> );
   ```

   Where:

   - scheme is the name of the scheme
   - true|false indicates if the application is active (launched) or inactive

   For example, the following is a portion of an netscape.cfg file:

   ```
   lockPref( "applications..X-5250", "ns5250 %h");
   lockPref( "applications..X-5250.active",  true);
   lockPref( "applications..X-ICA", "/usr/lib/ICAClient/wfica");
   lockPref( "applications..X-ICA.active",  true);
   lockPref( "applications..X-ICAMgr", "/usr/lib/ICAClient/wfcmgr");
   lockPref( "applications..X-ICAMgr.active",  true);
   lockPref( "applications..X-java", "/usr/bin/java %h");
   lockPref( "applications..X-java.active",  true);
   lockPref( "applications..X-appletviewer", "/usr/bin/appletviewer %h");
   lockPref( "applications..X-appletviewer.active",  true);
   lockPref( "applications..X-nsterm", "nsterm %h");
   lockPref( "applications..X-nsterm.active",  true);
   lockPref( "applications..X-Real", "rvplayer %h");
   lockPref( "applications..X-Real.active",  false);
   lockPref( "applications..X-FileMgr", "ncdocmgr %h");
   lockPref( "applications..X-FileMgr.active",  false);
   lockPref( "applications..X-ncedit", "ncedit %h");
   ```

```
lockPref( "applications..X-ncedit.active",  false);
lockPref( "applications..X-Calc", "nccalc %h");
lockPref( "applications..X-Calc.active",  false);
lockPref( "applications..X-Audio", "ncaudio %h");
lockPref( "applications..X-Audio.active",  true);
lockPref( "applications..X-Video", "ncxanim %h");
lockPref( "applications..X-Video.active",  false);
lockPref( "applications..X-Paint", "ncpaint %h");
lockPref( "applications..X-Paint.active",  false);
lockPref( "applications..X-Diag", "xterm -sh -sl 1000 -rv -name Advanced_Diagnostics ");
lockPref( "applications..X-Diag.active", false);
lockPref( "applications..X-PrintMon", "ncprmonitor");
lockPref( "applications..X-PrintMon.active",  false);
```

2. Code a link into your Web page with the following syntax:

```
<a href="<scheme>://<target><parameters>">Link text goes here</a>
Where:
target is the target of the application (optional)
parameters are the parameters of the local application (optional)
```

   For example, the following presents a 5250 emulator signon screen to the mycompany.com AS/400 system:

```
<a href="X-5250://mycompany.com">Signon to MyCompany</a>
```

Netscape Communicator command line syntax

The Netscape Communicator command line has the following syntax:

```
run_netscape <URL> <parameter>
```

Where:

- <URL> is the URL of the page to display.
- <parameter> is a Netscape Communicator UNIX version command line parameter. The Netscape Communicator command line parameters can be found at http://developer.netscape.com/docs/manuals/deploymt/options.htm.

Login

It is possible to configure the login dialog by editing and changing values in the following files that are associated with the login function:

- The actlogin.conf file is found in the $PRODBASE/x86/etc/ and $PRODBASE/ppc/etc/ directories.
- The Login file is found in the $PRODBASE/x86/nls/<locale>/ and $PRODBASE/ppc/nls/<locale>/ directories.

Note: Before you make changes to any file, you should make a backup copy of the original.

Login graphic

To change the IBM graphic on the login dialog to another graphic, change the following line in the actlogin.conf file:

```
Login*TopForm*PixmapDisplay.labelPixmap: /usr/local/nc/boot/login/ibmlogo.xbm
```

to

```
Login*TopForm*PixmapDisplay.labelPixmap: /usr/local/nc/boot/login/another.xbm
```

To change the IBM graphic on the login dialog to no graphic, change the following line in the actlogin.conf file:

```
Login*TopForm*PixmapDisplay.labelPixmap: /usr/local/nc/boot/login/ibmlogo.xbm
```

to

```
Login*TopForm*PixmapDisplay.labelPixmap:
```

X bitmap (.xbm) files can be created with a variety of UNIX image programs. On a Windows platform you could use an image program such as Image Alchemy (ftp://ftp.simtel.net/pub/simtelnet/msdos/graphics/alch18.zip) to create X bitmap files.

Colors

To change colors of any of the login dialog widgets, change the foreground and background resources. For example to change the background window's background color to red change the following line:

```
Login*PlaneFrame.background: #006699
```

to

```
Login*PlaneFrame.background: #ff0000
```

See "Appendix C. Colors" on page 127 for a list of common colors.

Title

To change the title of the login dialog to xxx, change the following line in the Login file:

```
Login*OuterFrame.InnerFrame.LoginForm.Title.labelString: IBM Network Station Login
```

to

```
Login*OuterFrame.InnerFrame.LoginForm.Title.labelString: xxx
```

Roam button

To remove the Roam button from the login dialog, uncomment the following lines in the actlogin.conf file:

```
Login*OuterFrame.InnerFrame.LoginForm.ButtonForm.Roam.mappedWhenManaged: False
Login*OuterFrame.InnerFrame.LoginForm.ButtonForm.fractionBase: 3
Login*OuterFrame.InnerFrame.LoginForm.ButtonForm.Ok.bottomPosition: 3
Login*OuterFrame.InnerFrame.LoginForm.ButtonForm.StartOver.bottomPosition: 3
Login*OuterFrame.InnerFrame.LoginForm.ButtonForm.Help.leftPosition: 2
Login*OuterFrame.InnerFrame.LoginForm.ButtonForm.Help.rightPosition: 3
Login*OuterFrame.InnerFrame.LoginForm.ButtonForm.Help.bottomPosition: 3
```

Note: If you remove the Roam button, you may also want to modify the Login*MainHelp*messageString in the Login file.

Error messages

To add additional text to the following error messages, uncomment and edit the Login.syerr lines of text in the actlogin.conf file. For example to change message `NSC3008 Server not responding.` to `NSC3008 Server not responding. Call help desk, 555-1234`, change:

```
! Displayed with message NSC3008
!Login.syerr.808: Call help desk, 555-1212
```

to

```
! Displayed with message NSC3008
Login.syerr.808: Call help desk, 555-1234
```

ICA

ICA command line parameters

There are two executable programs in the IBM Network Station ICA package:

- The ICA Remote Application Manager program, **wfcmgr**, is a graphical user interface for selecting ICA servers or Windows applications for connection. It presents connection records that it creates and connection records created by Network Station Manager. When a connection is initiated, the ICA Client program is fork'ed and exec'ed.
- The ICA Client program, **wfica**, connects to a Citrix application server and establishes a session. The application window is presented within an X11 window on the Network Station.

ICA Remote Application Manager — wfcmgr command line syntax

There is a small set of command line parameters for the ICA Remote Application Manager. The -description, -icaroot and -file parameters came with the Citrix source code. The others have been added to provide addition value to the IBM Network Station.

The ICA Remote Application Manager program, **wfcmgr** command line has the following syntax:

```
wfcmgr <parameter>
```

Where <parameter> is:

-help The usage text is sent to the console.

-noupdate
When this option is specified, updates to the connection file and/or the configuration file are not allowed.

-desc[ription] <string>
The full text from the Description field of the connection definition dialog. If this argument is not specified, then the first description in the [ApplicationServers] section of the appsrv.ini file will be used.

-icaroot <directory>
The fully qualified directory where the ICA client package was installed. If not specified, then the ICAROOT environment variable is accessed to get the directory. If neither the `-icaroot` argument nor the ICAROOT environment variable are used to define the install directory, then by default it is `/usr/lib/ICAClient`

-file <filename>
The fully qualified file name of the file that contains the connection description to be used. If the HOME environment variable is defined then the default file name is `$HOME/.ICAClient/appsrv.ini`. Otherwise, the default file name is `/usr/lib/ICAClient/config/appsrv.ini`

-g[eometry] <WxH+X+Y>
The X11 window Width, Height, X offset and Y offset. All values are in pixels. Positive X offsets are from the top of the screen, negative from the bottom. Positive Y offsets are from the left side of the screen, negative from the right. Variations of this specification include <WxH> and <+X+Y>. By default, the **wfcmgr** window is centered on the screen. To position the **wfcmgr** window in the upper left corner of the screen, specify `-geometry +0+0`.

-UseFullScreen [<bool>]
When this option is set to True the **wfcmgr** window is full screen. Allowable values are True and False. Default value is False.

-NoWindowManager [<bool>]
When this option is set to True the **wfcmgr** window will not have borders or a title bar. Allowable values are True and False. Default value is False.

-log Enables ASSERT logging. ASSERTs are program sanity tests that **wfcmgr** can make. Typically these test are not enabled because they impact performance.

ICA client command line syntax

The ICA client program, **wfica** command line has the following syntax:

```
wfica [ica_parameters] [ns_parameters [-- <application>]
```

Where [ica_parameters] are:

-help The usage text is sent to the console.

-version
The following message is sent to the console:

IBM Network Station ICA Client

Version 2.0 (Build dd/mm/yyyy - hh:mm:ss)

Copyright International Business Machines Corp. 1999

All rights reserved

Citrix ICA Client for Unix

Version 3.00.15

Copyright 1998-1999 Citrix Systems, Inc.

All rights reserved

-quiet Connection dialogs will not be presented to the user. By default, the ICA client will present a ″connecting to″ dialog followed by a ″connected to″ dialog. Both of these dialogs are informational and require no response from the user.

-desc[ription] <text>
The full text from the Description field of the connection definition dialog. Either **-description** or **-server** or **-- <application>** must be specified. If neither of these parameters are specified then the user will be prompted for a server name.

-file <name>
The fully qualified file name of the file that contains the connection description to be used. If the HOME environment variable is defined then the default file name is `$HOME/.ICAClient/appsrv.ini`. Otherwise, the default file name is `/usr/lib/ICAClient/config/appsrv.ini`.

-protocolfile <name>
The fully qualified file name of the file that contains the protocols supported by the ICA client. By default, the file name is `/usr/lib/ICAClient/config/module.ini`. This is a system configuration file and modification is not allowed.

-clientfile <name>
The fully qualified file name of the file that contains the options and defaults for all connection descriptions. If the HOME environment variable is defined then the default file name is `$HOME/.ICAClient/wfclient.ini`. Otherwise, the default file name is `/usr/lib/ICAClient/config/wfclient.ini`.

-icaroot <directory>
The fully qualified directory where the ICA client package was installed. If not specified then the ICAROOT environment variable is accessed to get the directory. If neither the `-icaroot` argument nor the ICAROOT environment variable are used to define the install directory, then by default, it is `/usr/lib/ICAClient`.

Where [ns_options] are:

-s[erver] <name>
Specifies the ICA application server to connect. The name can be a fully qualified network host name, an abbreviated network hostname, or a dotted decimal network address. Either -description, -server, or --<application> must be specified, -server and -browser are mutually exclusive.

-server1
Indirectly specifies -server <name> where <name> is the first boot host parameter specified in the NS Boot utility or Setup Utility.

Note: Supports flash boot.

-server2
Indirectly specifies -server <name> where <name> is the second boot host parameter specified in the NS Boot utility or Setup Utility.

Note: Supports flash boot.

-server3
Indirectly specifies -server <name> where <name> is the third boot host parameter specified in the NS Boot utility.

Note: Supports flash boot.

-b[rowser] <namelist>
Specifies the name of a master browser. The master browser is an ICA server that tells the ICA client what ICA application server to connect and what application to run. A colon separated list of master browsers can be specified. Each browser name can be a fully qualified network host name, an abbreviated network hostname, or a dotted decimal network address. If -server or -browser are specified and -- <application> is specified, then the ICA client broadcasts to the local subnet to get a master browser name. Either -description, -server, or --<application> must be specified, -server and -browser are mutually exclusive.

Note: The ICA client and ICA Remote Application Manager only support multiple hosts to specify a list of master browsers. Multiple hosts to support a list of ICA application servers is not supported.

-browser1
Indirectly specifies -browser <namelist> where <namelist> is the first boot host parameter specified in the NS Boot utility or Setup Utility.

Note: Supports flash boot.

-browser2
Indirectly specifies -browser <namelist> where <namelist> is the second boot host parameter specified in the NS Boot utility or Setup Utility.

Note: Supports flash boot.

-browser3
Indirectly specifies -browser <namelist> where <namelist> is the third boot host parameter specified in the NS Boot utility.

Note: Supports flash boot.

-nvram <fieldname>

Note: Supports flash boot.
Specifies the name of a text field in nvram. The text field will be analyzed and, if the first non-blank character is a dash (-), then the text will be used to replace the **-nvram <fieldname>** specification. Use the Boot Monitor to enter text in selected fields. The table below gives the NVRAM filed name for selected Boot Monitor fields which may be available.

Series 2xxx Boot Monitor Field Name	NVRAM Field Name
Boot file server dir and file name (second)	second-boot-path

Series 2xxx Boot Monitor Field Name	NVRAM Field Name
Boot file server dir and file name (third)	third-boot-path
Workstation directory (second	config-unix-directory2
Series 1xxx Boot Monitor Field Name	**NVRAM Field Name**
Configuration file	config-custom-file

For example, to specify multiple ICA browsers on a Series 2800, the following text could be entered in the Boot Monitor field called **Boot file server dir and file name (third)**: `-b 9.8.7.201:9.8.7.104:server2 -- MyApplication` Then the command **wfica -nvram third-boot-path** will actually be interpreted as **wfica -b 9.8.7.201:9.8.7.104:server2 -- MyApplication**

-u[sername] <name>
Specifies the Windows NT server user name.

-p[assword] <password>
Specifies the Windows NT server login password.

-do[main] <name>
Specifies the Windows NT server domain.

-na[me] <clientname>
Specifies the client name to be used by the ICA application server. If the client name is longer than 20 characters, it is truncated to 20 characters.

-c[olor] <16|256>
Specifies the number of colors that the ICA application server should use to generate application graphics. 16 or 256 can be specified.

-en[cryption] <level>
Specifies the level of encryption. Encryption levels are:

- basic - simple encryption (default)
- login - 128–bit RSA encryption for login only
- 40 - 40–bit RSA encryption
- 56 - 56–bit RSA encryption
- 128 - 128–bit RSA encryption

If any level of encryption other than basic is specified, then the user is forced to login through the Windows NT login dialog.

-WorkingDirectory <path>
Specifies the NT working directory path.

-g[eometry] <WxH±X±Y>
Specifies the window width(W), height (H), X offset(X), and Y offset(Y). All values are in pixels. Positive X offsets are from the top of the screen and negative are from the bottom of the screen. Positive Y offsets are from the left side of the screen and negative are from the right side of the screen. Variations of this parameter include <WxH> and <±X±Y>.

-UseFullScreen [<bool>]
When this option is set to True, the **wfica** window is full screen. Allowable values are True and False. Default value is False.

-NoWindowManager [<bool>]
When this option is set to True then the **wfica** window will not have borders or a title bar. Allowable values are True and False. Default value is False.

-t[itle] <text>
Specifies the text that should be displayed in the X11 window title bar.

-ca[che] <size>
The internal ICA Client transient cache size in kilobytes.

-shm <size>
The size in kilobytes of shared memory for allocation. If this size is greater than zero then the X11 Shared Memory extension is enabled.

-log Enables ASSERT logging. ASSERTs are program sanity tests that **wfica** can make. Typically these test are not enabled because they tend to impact performance.

- <keyword> <value>
Any unrecognized arguments will be analyzed to see if they qualify as a command line `keyword=value` pair. Any such `keyword=value` pairs are assumed to be valid .INI file entries and will be concatenated with the `keyword=value` pairs extracted from the .INI files.

`keyword=value` pairs are not checked for validity. Hence, the ability for the ICA client to detect and report command line errors is limited.

-- <application>
Specifies the program to run on the ICA application server. If the -server parameter is specified, then the application is run from that server. If the -server parameter is not specified, then a master browser is contacted to find the application server. This parameter must be the last parameter. Either -description, -server, or -- <application> must be specified, or a default description must exist in an accessible connection file.

-NumLockSync<bool>
When this option is set to False, the ICA server controls the NumLock state of the **wfica** window. Default value is True.

Key mapping

There can be keystroke interference between the IBM Network Station Manager windows manager and the Windows NT window manager. The table below identifies some typical key sequences that overlap.

Key Sequence	IBM Network Station Manager window manager	Windows NT window manager
Alt + F4	Close current X11 window	Close current Windows NT window
Alt + F10	Display X11 root menu	Delete Windows NT macro definitions
Alt + Space	Display X11 window menu	Display Windows NT program's system menu
Alt + Tab	Switch X11 windows forwards	Switch Windows NT windows forwards
Alt + Shift + Tab	Switch X11 windows backwards	Switch Windows NT windows backwards
Ctrl + Alt + Delete	Kill X11 active window	Display NT security menu
Print Screen	Capture X11 screen image	Capture Windows NT screen image
Alt + Print Screen	Capture X11 active window image	Capture Windows NT active window image

Listed below are some possible workarounds to keystroke interference problems:

1. Redefine the conflicting IBM Network Station Manager windows manager key sequences using the IBM Network Station Manager command line utility.
2. Use the ICA Remote Application Manager's HotKey dialog to define a set of alternative key sequences.

3. Use the Alt + Shift + Ctr + F11 key sequence to toggle off and on the IBM Network Station Manager window manager's ability to process key sequences.
4. Run Windows NT applications in separate ICA sessions rather than in the Windows NT desktop. Each Windows application then has its own X11 window.

Printer mapping

You can redirect printing jobs from applications you are running on a Citrix server and print them to a printer connected to your IBM Network Station. The ICA Client supports any spooled printer available from your IBM Network Station, as long as the associated printer driver is installed on the Citrix server.

If a Network Station printer has been defined with an associated NT printer device driver name, the ICA client will:

- automatically create the printer on the ICA server during session logon
- automatically delete the printer when the session ends.

Also, you can use the NT Printer Wizard to add one or more printers for use during the ICA session.

SOCKS

ICA connections can use the SOCKS networking proxy protocol to enable hosts on one side of a SOCKS server to gain full access to hosts on the other side of the SOCKS server without requiring direct IP connectivity. The ICA Remote Application Manager allows the user to specify the SOCKS server address and port number.

Emulators

VT emulator command line syntax

The VT emulator command line has the following syntax:

```
nsterm <parameters>
```

Where <parameters> are:

-host <hostname>
Specifies the name of the system where you want to establish a session.

-geometry <WxH±X±Y>

Note: VT emulator support of -geometry is different than 3270 and 5250.

Specifies the window width(W), height(H), X offset(X), and Y offset(Y). Width specifies the number of columns in the VT emulator window. Height specifies the number of rows in the VT emulator window. X and Y offsets are in pixels. Positive X offsets are from the top of the screen and negative X offsets are from the bottom of the screen. Positive Y offsets are from the left side of the screen and negative Y offsets are from the right side of the screen. Variations of this parameter include <WxH> and <±X±Y>.

-fullscreen
Specifies that the VT emulator should use the entire screen.

-title <text>
Specifies the text that should be displayed in the window title bar.

-132 Specifies that the 132 column screen size is enabled.

-bg <color>
Specifies the background color.

-cr <color>
Specifies the cursor color. The default is black.

-fg <color>
Specifies the foreground color. The default is black.

-ms <color>
Specifies the mouse pointer color. The default is black.

-n <name>
Specifies the icon title.

-ti <type>
Specifies the terminal type. Valid types are: xterm, vt320, vt300, vt220, vt200, vt102, vt100, and ansi.

3270 emulator command line syntax

The 3270 emulator command line has the following syntax:

```
ns3270 <system> <parameters>
```

Where <system> is the name of the system where you want to establish a session.

Where <parameters> are:

-geometry <WxH±X±Y>
Specifies the window width(W), height (H), X offset(X), and Y offset(Y). All values are in pixels. Positive X offsets are from the top of the screen and negative are from the bottom of the screen. Positive Y offsets are from the left side of the screen and negative are from the right side of the screen. Variations of this parameter include <WxH> and <±X±Y>.

-rows <number>
Specifies the number of rows on the screen. The supported rows x columns combinations are 24 x 80, 32 x 80, 43 x 80, and 27 x 132.

-cols <number>
Specifies the number of columns on the screen. The supported rows x columns combinations are 24 x 80, 32 x 80, 43 x 80, and 27 x 132.

-title <text>
Specifies the window title text. The default window title text is ″3270″. You can change this text. The title text should start and end with a double quote (″title text″). The default 3270 window title window title has title text and the Session ID (typically one letter, starting with the letter A).

-DISPLAY_NAME <name>
Specifies the LU display name for 3270 sessions using the IBM Network Station Manager program.

Note: TN3270 Enhancements (TN3270E) is required on your server to specify LU display names for 3270 sessions.

-DISPLAY_NAME also controls the number of 3270 sessions that can be started on the target System/390. The rules for System/390 display names are:

- Each active 3270 session must have a unique session name (virtual display name).
- Display names must be 2 to 8 characters in length.
- The first character must be an alpha character, @, #, or $.
- All characters must be alpha, numeric, @, #, or $.
- All alpha characters must be upper case.

There are 9 types of the display name parameters. The first 5 parameter types follow the user, independent of the IBM Network Station used. The last 4 parameter types are associated with a specific IBM Network Station.

1. XXXXXX where XXXXXX is a 2 to 8 character name of the 3270 session. The user is limited to a single session. ////In the paragraph below, ″XXXXXX+n″, ″XXXXXX″, ″n″, ″JUAN+3″, ////″JUAN1″, ″JUAN2″, and ″JUAN3″ must not be translated.
2. XXXXXX+n where XXXXXX is a 1 to 7 character name of the 3270 session. The user is limited to n sessions. n is a number from 2 and 9. For example: JUAN+3 would allow the user to start three 3270 sessions where the first session would be JUAN1, the second JUAN2, then JUAN3.
3. ″XXXXX YYYYYYYY ZZZZ″ is a list of possible display names separated by a space. The starting and ending quotes are required. Each name must be 2 to 8 characters in length. The maximum number of names is determined by the size of Other parameters in IBM Network Station Manager (256 characters).
4. USE_USER_ID allows the user to start a single 3270 session where the session name is the same as the user's User ID (2 to 8 characters).
5. USE_USER_ID+n allows the user to start n 3270 sessions where the session name is the same as the user's User ID (limited to 7 characters) with the number n appended to the end. n is a number from 2 to 9. For example: USE_USER_ID+3 and a User ID of JUAN would have session names of JUAN1, JUAN2, and JUAN3. ////In the paragraph below, ″USE_HOST_NAME″ must not be translated.
6. USE_HOST_NAME allows the user to start a single 3270 session where the session name is the TCP/IP Host Name of the Network Station. The Host Name is read from the DNS (Domain Name Server) at Network Station login time. Lower case characters are converted to upper case by the 3270 emulator. If the Host Name exceeds 8 characters, the session name is truncated starting from the end, up to a period. For example, a Network Station with a Host Name of ns23.newyork.ibm.com would have a session name of NS23.
7. USE_HOST_NAME+n is also supported. n is a number from 2 to 9.
8. USE_MAC_ADDRESS allows the user to start a single 3270 session where the session name is created starting with an alpha character which indicates the type of communication card (T for token ring or E for Ethernet) followed by the lower three and one half bytes of the MAC address. For example: USE_MAC_ADDRESS with a token ring Network Station and MAC address of 00.00.E5.68.D5.99 would result in a session name of T568D599.
9. USE_MAC_ADDRESS+n allows the user to start n 3270 sessions where the session name is created from the lower three bytes of the MAC address, with n appended to the end. n is a number from 2 to 9. For example: USE_MAC_ADDRESS+2 with a token ring Network Station and MAC address of 00.00.E5.68.D5.99 would result in session names of T68D5991 and T68D5992.

-playback <filename>

Specifies the name of a playback file. Use the following procedure to create an auto-logon playback file (playback file that automatically starts at 3270 session start time). An auto-logon playback file can substitute the user's User ID and Password during playback. An auto-logon playback file is created as follows:

1. Start a 3270 session.
2. Click **Option**, **Record...**, and then **Start**.
3. If the cursor is not in the User ID entry field, move the cursor to the User ID entry field.
4. Click **Pause** (you may need to move the Record Pause Options window to see the 3270 session User ID and Password entry fields).
5. Select **Insert User ID at this point**.
6. Click on the 3270 session window title to enable the cursor in the 3270 session.

7. Enter your User ID in the User ID entry field (your User ID is not recorded). Note on steps 7 and 13: during playback, the User ID and Password (step 13) that were used on the user's initial 'IBM Server Login' are used during system logon. If the Authentication Server is different than the system providing this 3270 session, the user's User ID and Password should be the same. If not the same, you could select **Pause playback at this point** to allow the user to enter their User ID or Password on this system.
8. Click **Continue Recording**.
9. Move the cursor to the Password entry field: click the mouse in the first Password entry field position or press the Home key and then the Tab key as necessary to move the cursor to the Password entry field (this positions the cursor in the Password entry field correctly for a User ID that fills the User ID entry field).
10. Click **Pause**.
11. Select **Insert Password at this point**.
12. Click on the 3270 session window title to enable the cursor in the 3270 session.
13. Enter your Password (your Password is not recorded).
14. Click **Continue Recording**. Note: Your 'IBM Server Login' Password will be used during auto-logon playback.
15. Press the Enter key. You may need to press other keys to remove system messages after the Enter key.
16. If you wish, you can add to the playback file. For example, you can start a specific system application.
17. Click **Stop Recording**.
18. Enter a name for this auto-logon playback file and click **Save**.
19. Now, start the IBM Network Station Manager program. If you are creating an auto-logon playback file for yourself, you can skip steps 20 through 23.
20. Select **System**, **Group**, or **User** to determine who has access to this auto-logon playback file.
21. Click **Applications** and click **3270** to change 3270 preferences.
22. Select the desired auto-logon playback file name from the list of playback sequences to make available.
23. Click **Save**.
24. Click **Desktop** and click **Launch Bar**.
25. Edit the Launch Bar Content for the 3270 session. Note: When using the Launch Bar for auto-logon, the user's IBM Network Station will not be secure unless locked or logged out. If an IBM Network Station is left unlocked and a Launch Bar does auto-logon, anybody can log on to the system by clicking on the Launch Bar icon. An alternative is to change step 9 to select **Pause playback at this point**. This will require the user to enter their Password when starting the 3270 session.
26. Add the parameter of -playback followed by one space and the (case sensitive) playback file name. If your playback file name contains any spaces, use double qoutes around the file name (for example, -playback ″playback file name″).
27. Click **OK**, then **Save**.
28. If you are setting up the auto-logon playback file for multiple User defaults, repeat steps 20 through 27 for each user.

    Notes:

    a. If the auto-logon playback file does not work correctly, you can re-record the playback file and replace the existing playback file.

    b. If you playback this auto-logon playback file using the 3270 **Playback...** pull down, you will be required to enter your password.

Note: An administrator can create a system or group default auto-logon playback file. Individual users could create their own auto-logon playback file (starting their programs) with the same playback file name. These users must exclude the system or group default playback file in their 3270 preferences, so the user-level playback file is found.

-port <number>
Specifies the telnet port number. If SSL is not specified, the default port is 23. If SSL is specified, the default port is 992.

-SSL <keyringfile>
Specifies the path and name of the keyring file. The sufix .kyr is appended to the keyring file name.

Refer to the 3270 emulator help text for more command line parameters.

5250 emulator command line syntax

The 5250 emulator command line has the following syntax:

```
ns5250 <system> <parameters>
```

Where <system> is the name of the system where you want to establish a session.

Where <parameters> are:

-geometry <WxH±X±Y>
Specifies the window width(W), height (H), X offset(X), and Y offset(Y). All values are in pixels. Positive X offsets are from the top of the screen and negative are from the bottom of the screen. Positive Y offsets are from the left side of the screen and negative are from the right side of the screen. Variations of this parameter include <WxH> and <±X±Y>.

-rows <number>
Specifies the number of rows on the screen. The supported rows x columns combinations are 24 x 80 and 27 x 132.

-cols <number>
Specifies the number of columns on the screen. The supported rows x columns combinations are 24 x 80 and 27 x 132.

-title <text>
Specifies the window title text. The default window title text is ″5250″. You can change this text. The title text should start and end with a double quote (″title text″). The default 3270 window title window title has title text and the Session ID (typically one letter, starting with the letter A).

-DISPLAY_NAME <name>
Specifies the virtual display name for 5250 sessions using the IBM Network Station Manager program. -DISPLAY_NAME also controls the number of 5250 sessions that can be started on the target AS/400. The target AS/400 must be at Version 3/Release 2, Version 3/Release 7, Version 4/Release 1 or later. The rules for AS/400 display names are:

- Each active 5250 session must have a unique session name (virtual display name).
- Display names must be 2 to 10 characters in length.
- The first character must be an alpha character.
- The first character must be an alpha character.
- All characters must be alpha, numeric, a period, or an underscore.
- All alpha characters must be upper case.

There are 11 types of the display name parameters. The first 7 parameter types follow the user independent of the IBM Network Station used. The last 4 parameter types are based on the IBM Network Station hardware.

1. XXXXXX where XXXXXX is a 2 to 10 character name of the 5250 session. The user is limited to a single session.
2. XXXXXX+n where XXXXXX is a 1 to 9 character name of the 5250 session. The user is limited to n sessions. n is a number from 2 and 9. For example: JUAN+4 would allow the user to start four 5250 sessions where the first session would be JUAN1, the second JUAN2, then JUAN3 and JUAN4.
3. ″XXXXX YYYYYYYY ZZZZ″ is a list of possible display names separated by a space. The starting and ending quotes are required. Each name must be 2 to 10 characters in length. The maximum number of names is determined by the size of Other parameters in IBM Network Station Manager (256 characters).
4. USE_USER_ID allows the user to start a single 5250 session where the session name is the same as the user's Network Station User ID (2 to 10 characters).
5. USE_USER_ID+n allows the user to start n 5250 sessions where the session name is the same as the user's Network Station User ID with the number n appended to the end. n is a number from 2 to 9. For example: USE_USER_ID+4 and a User ID of JUAN would have session names of JUAN1, JUAN2, JUAN3, and JUAN4. Note: If the User ID is 10 characters, the last character is replaced by the number n.

   USE_USER_ID+99 is supported. This option allows multiple users to share the same User ID. Up to 99 5250 sessions can be started; however, for performance reasons, 40 or fewer 5250 sessions is recommended. Session numbers from 1 to 99 are chosen randomly and appended to the User ID. If the User ID is 9 characters, the last character is removed before the 1 or 2 digit number is added. Two characters are removed for a 10 character User ID.

   USE_USER_ID+999 is supported. Up to 999 5250 sessions can be started. Session numbers from 1 to 999 are chosen randomly and appended to the User ID. If the User ID is 8 characters, the last character is removed before the 1 to 3 digit number is added. Two characters are removed for a 9 character User ID and three characters are removed for a 10 character User ID.
6. text+USE_USER_ID is another variation of USE_USER_ID. The 'text' are characters that preceed the user's User ID. For example, DSP+USE_USER_ID and a User ID of JUAN would have a session name of DSPJUAN. The text can be from 1 to 8 characters.
7. text+USE_USER_ID+n is also supported. n is a number from 2 to 9. text+USE_USER_ID+99 and text+USE_USER_ID+999 are supported; see display name type 5 above for more information.
8. USE_HOST_NAME allows the user to start a single 5250 session where the session name is the Host Name of the Network Station. The Host Name is read from the DNS (Domain Name Server) at Network Station login time. Lower case characters are converted to upper case by the 5250 emulator. If the Host Name exceeds 10 characters, the session name is truncated starting from the end, up to a period delimitor. For example, a Network Station with a Host Name of ns23.newyork.ibm.com would have a session name of NS23.
9. USE_HOST_NAME+n is also supported. n is a number from 2 to 9.
10. USE_MAC_ADDRESS allows the user to start a single 5250 session where the session name is created starting with an alpha character which indicates the type of communication card (T for token ring or E for Ethernet) followed by the lower four bytes of the MAC address. For example: USE_MAC_ADDRESS with a token ring Network Station and MAC address of 00.00.E5.68.D5.99 would result in a session name of TE568D599.
11. USE_MAC_ADDRESS+n allows the user to start n 5250 sessions where the session name is created as above but with n appended to the end. n is a number from 2 to 9. For example: USE_MAC_ADDRESS+3 with a token ring Network Station and MAC address of 00.00.E5.68.D5.99 would result in session names of TE568D5991, TE568D5992, and TE568D5993.

-playback <filename>

Specifies the name of a playback file. Use the following procedure to create an auto-logon playback file (playback file that automatically starts at 5250 session start time). An auto-logon playback file can substitute the user's User ID and Password during playback. An auto-logon playback file is created as follows:

1. Start a 5250 session.
2. Click **Option**, **Record...**, and then **Start**.
3. If the cursor is not in the User ID entry field, move the cursor to the User ID entry field.
4. Click **Pause** (you may need to move the Record Pause Options window to see the 5250 session User ID and Password entry fields).
5. Select **Insert User ID at this point**.
6. Click on the 5250 session window title to enable the cursor in the 5250 session.
7. Enter your User ID in the User ID entry field (your User ID is not recorded). Note on steps 7 and 13: during playback, the User ID and Password (step 13) that were used on the user's initial 'IBM Server Login' are used during system logon. If the Authentication Server is different than the system providing this 5250 session, the user's User ID and Password should be the same. If not the same, you could select **Pause playback at this point** to allow the user to enter their User ID or Password on this system.
8. Click **Continue Recording**.
9. Move the cursor to the Password entry field: click the mouse in the first Password entry field position or press the Home key and then the Tab key as necessary to move the cursor to the Password entry field (this positions the cursor in the Password entry field correctly for a User ID that fills the User ID entry field).
10. Click **Pause**.
11. Select **Insert Password at this point**.
12. Click on the 5250 session window title to enable the cursor in the 5250 session.
13. Enter your Password (your Password is not recorded).
14. Click **Continue Recording**. Note: Your 'IBM Server Login' Password will be used during auto-logon playback.
15. Press the Enter key. You may need to press other keys to remove system messages after the Enter key.
16. If you wish, you can add to the playback file. For example, you can start a specific system application.
17. Click **Stop Recording**.
18. Enter a name for this auto-logon playback file and click **Save**.
19. Now, start the IBM Network Station Manager program. If you are creating an auto-logon playback file for yourself, you can skip steps 20 through 23.
20. Select **System**, **Group**, or **User** to determine who has access to this auto-logon playback file.
21. Click **Applications** and click **5250** to change 5250 preferences.
22. Select the desired auto-logon playback file name from the list of playback sequences to make available.
23. Click **Save**.
24. Click **Desktop** and click **Launch Bar**.
25. Edit the Launch Bar Content for the 5250 session. Note: When using the Launch Bar for auto-logon, the user's IBM Network Station will not be secure unless locked or logged out. If an IBM Network Station is left unlocked and a Launch Bar does auto-logon, anybody can log on to the system by clicking on the Launch Bar icon. An alternative is to change step 9 to select **Pause playback at this point**. This will require the user to enter their Password when starting the 5250 session.

26. Add the parameter of -playback followed by one space and the (case sensitive) playback file name. If your playback file name contains any spaces, use double qoutes around the file name (for example, -playback ″playback file name″).
27. Click **OK**, then **Save**.
28. If you are setting up the auto-logon playback file for multiple User defaults, repeat steps 20 on page 103 through 27 for each user.

    Notes:

    a. If the auto-logon playback file does not work correctly, you can re-record the playback file and replace the existing playback file.

    b. If you playback this auto-logon playback file using the 5250 **Playback...** pull down, you will be required to enter your password.

Note: An administrator can create a system or group default auto-logon playback file. Individual users could create their own auto-logon playback file (starting their programs) with the same playback file name. These users must exclude the system or group default playback file in their 5250 preferences, so the user-level playback file is found.

-port <number>
Specifies the telnet port number. If SSL is not specified, the default port is 23. If SSL is specified, the default port is 992.

-SSL <keyringfile>
Specifies the path and name of the keyring file. The sufix .kyr is appended to the keyring file name.

Refer to the 5250 emulator help text for more command line parameters.

Secure sockets layer

The 3270 and 5250 emulator applications contain secure sockets layer (SSL) support through the use of telnet-SSL. This provides greater security for data (including user IDs and passwords) that is sent over the network.

An overview of what you need to do to enable SSL connections are outlined below:

Client side

1. Enable the emulator application to use SSL by specifying the -port and -SSL parameters for the emulator sessions. See “3270 emulator command line syntax” on page 98 or “5250 emulator command line syntax” on page 101 for more information.
2. The public key of the certificate authority who signed the server’s certificate must be in the keyring used by the client. The default shipped keyring or database file is $UserBase/profiles/nsmdef.kyr (note that the file extension is .kyr not .kdb). This file contains public keys for the following certificate authorities:
   - Integrion Certification Authority Root
   - IBM World Registry Certification Authority
   - Thawte Personal Premium CA
   - Thawte Personal Freemail CA
   - Thawte Personal Basic CA
   - Thawte Premium Server CA
   - Thawte Server CA
   - Verisign Test CA Root Certificate
   - RSA Secure Server Certification Authority
   - Verisign Class 1 Public Primary Certification Authority

- Verisign Class 2 Public Primary Certification Authority
- Verisign Class 3 Public Primary Certification Authority
- Verisign Class 4 Public Primary Certification Authority

If you have a certificate that was signed by a certificate authority that is not in the default list, the certificate authority will either need to be added to the shipped keyring or a keyring that you create using a key management utility. The password for the shipped keyring is `nsm` and it is stored in the stash file. The default stash file is $UserBase/profiles/nsmdef.sth. A stash file (prefix.sth) with the same file prefix as the keyring file (prefix.kry) must be used to contain the keyring password.

The following applications provide key management utilities:

- Make Key File Utility (MKKF) - this utility is found in the following products:
  - OS/390 TCP (for more information see *OS/390 eNetwork Communications Server IP Configuration*, SC31–8513)
  - Lotus Domino Go Webserver for Windows NT (comes shipped with IBM Network Station Manager) The mkkf.exe file is found in the \www\bin\ directory.
- IBM Key Management Utility (IKEYMAN) - this utility is found in the following products:
  - AS/400 Client Access (for more information see http://www.as400.ibm.com/infocenter)
  - IBM HTTP Server, a part of the WebSphere product
  - Lotus Domino Go Webserver
  - IBM Personal Communications
  - IBM Host On-Demand
- gskkeyman, a part of the OS/390 Cryptographic Services System SSL product. For more information see *OS/390 System SSL Programming Guide and Reference*, SC24-5877.

Server side

1. Import or create a system certificate. For example on the AS/400 use AS/400 Digital Certificate Manager (for more information see http://www.as400.ibm.com/infocenter).
2. The telnet-SSL server application must be installed and the application must be associated with the certificate. For example on the AS/400 associate the telnet-SSL application (QIBM_QTV_TELNET_SERVER).

Help viewer

It is possible to call the local Help viewer application and display HTML coded help text.

Use the local Text Editor application to create the HTML help text. The Text Editor can be configured as a desktop application.

The Help viewer command line has the following syntax:

```
nchelp <helpfile>
```

Where <helpfile> is the path and name of the html file.

The Help viewer application is located in $ProdBase/<x86|ppc>/usr/local/nc/nchelp.

If nchelp is invoked without specifing the <helpfile> parameter, then the NC_DEFAULT_HELP_FILE environment variable is used.

Creating custom desktop themes

IBM ships several desktop themes that can be enabled or disabled through the IBM Network Station Manager program. IBM Network Station users select from the list of enabled themes. If you want to add your own theme, do the following:

1. Each theme is a file in the $ProdBase/<x86 | ppc>/usr/local/nc/registry/desktop/themes directory. Find a theme that is shipped from IBM that is similar to the theme that you want to create. Copy the theme file into the same directory and give it a new name.
2. Edit the new theme file and set the attributes. Many of the atributes are color definitions. See “Appendix C. Colors” on page 127 for more information on color. Some of the attributes are .xpm (X Pixmap) file definitions. X Pixmap files can be created with a variety of UNIX image programs. On a Windows platform you could use an image program such as Image Alchemy (ftp://ftp.simtel.net/pub/simtelnet/msdos/graphics/alch18.zip).
3. The theme file that you create in the $ProdBase/<x86|ppc>/usr/local/nc/registry/desktop/themes directory is selectable through the IBM Network Station Manager program.

Chapter 9. Migrating from V1R3

The information in this section is meant to be a supplement to the migration information that is provided in your *Installing IBM Network Station Manager* book.

V1R3 configuration preferences that are not migrated by the migration utility include:

- Hand-edited configuration files (see “Hand-edited configuration files”)
- User-created mount points.
- Configuration values that are no longer supported

Java class path information is migrated from V1R3, but Java applications require additional configuration to work correctly in V2R1. For more information, see “Java applets and applications” on page 108

The file $ProdBase/nsm/defaults/preflist.nsm is a list of all the IBM Network Station Manager program preferences that are migrated. Additionally :

- Any preferences starting with the string **NS3270*** within the /NS3270/pref file are migrated.
- Any preferences starting with the string **NS5250*** within the /NS5250/pref file are migrated.

S/390 platforms

If you have an S/390 server platform that is at V1R3 and you want more information on how to migrate to V2R1 on an AS/400, Windows NT, or RS/6000 platform, do the following:

1. Go to this web site: http://www.ibm.com/nc.
2. Select your country and click **Go**.
3. In the left frame, click on **Support**.
4. In the **Search** field enter `S/390 Migration Considerations`.

Hand-edited configuration files

The migration utility reads the following hand-editable V1R3 configuration files:

- $USERBASEr3/StationConfig/defaults.dft ($USERBASEr3/configs/defaults.dft for Windows NT)
- $USERBASEr3/StationConfig/″name″.trm ($USERBASEr3/configs/″name″.trm for Windows NT)
- $USERBASEr3/SysDef/pref.dft
- $USERBASEr3/groups/″groupname″/″groupname″.grp
- $USERBASEr3/users/″username″/″username″.usr

Where:
$USERBASEr3 on AS/400 = /QIBM/UserData/NetworkStation/
$USERBASEr3 on RS/6000 = /usr/netstation/nsm/
$USERBASEr3 on Windows NT = <float>\nstation\userbase\ (where <float> is the default installation drive and path)

The migration utility makes an attempt to migrate the preferences to a script file. It is possible that some of the values in these files will not be migrated. If a value cannot be migrated because it is no longer valid, a message is issued.

The following syntax restrictions apply in order for the migration utility to read the defaults.dft, ″name″.trm, ″groupname″.grp, and ″username″.usr files:

- All lines in these files must end with a line-feed (LF or CRLF).
- Only set commands are processed. All other commands (including read) are ignored.

- Preference name and value must be in lower case. Values can be in mixed case if they represent a string.
- Comments are ignored. If a comment appears on the same line as a preference setting, the comment is taken as part of the setting.
- The value ″nil″ should be used to specify that a preference has no value. The value ″null″ should not be used.
- Integer values should be specified in decimal.
- The value of ″default″ should not be used to set a value to its default value.
- Boolean values should be specified with a ″true″ or ″false″ value (not ″on″ or ″off″, or ″yes″ or ″no″).
- Preferences in the format of pref-name[index] where index is greater than 0 are not migrated. Preferences with an index of -1 (pref-name[-1]), are migrated.

The pref.dft file must be in ASCII format to be read by the migration utility.

The script file is created as $UserBase/profiles/migrate.scr (in the V2R1 directory structure). If the script file already exists, it is appended with new commands. You must review the script file to make sure that it contains the configuration values that you want. See “Chapter 7. IBM Network Station Manager command line utility” on page 69 for more information. Run the IBM Network Station Manager command line utility against the script file to update the IBM Network Station Manager download profiles.

Note: Not all V1R3 configuration values are migrated to V2R1.

The following files are not migrated by the migration utility:
- $USERBASE/StationConfig/local.nsm
- $USERBASE/StationConfig/nsl.dft
- $USERBASE/SysDef/startup.dft
- $USERBASE/SysDef/NAV/pref.dft

Obsolete configuration preferences

config-load-initial-file	Loading of configuration preferences is handled by ncreginit.
config-unit-ethernet-address-file	See NSM_NC_NAME_TYPE as an alternative.
config-unit-ip-address-file	See NSM_NC_NAME_TYPE as an alternative.
config-unit-name-file	See NSM_NC_NAME_TYPE as an alternative.
config-use-decimal-ip-address-notation-as-filename	In V2R1, the Network Station IP address is used in decimal dotted notation (for example 192.43.154.4), when used as the file name of the initial configuration file.

Java applets and applications

Java information is migrated from V1R3 to V2R1, including the class path information. After the migration you will need to do the following:

1. Organize your Java applications and applets using the IBM Network Station Manager program.

   The migration utility creates a new folder named Old Applications. This folder contains applets and applications that were defined on your V1R3 desktop. If the applications or applets were defined for a user, then an Old Applications folder is created for that user. If the applications or applets were defined for the system, then an Old Applications folder is created for the system.
2. Mount the directory where your Java applets or applications are located using the IBM Network Station Manager program.

In order for the Network Station to access the directory where the Java application or applet is located, a mount point must be established from the Network Station to the server. This is new in V2R1.

3. Update the classpath of the Java application or URL of the Java applet to refect the new mount point using the IBM Network Station Manager program.

   If you have an application, edit the class path. If you have an applet with a URL that points to a directory, edit the applet URL. Your new mount point begins with `/tmp/`.

Note: It is also possible to move your Java application or applet to the $UserBase/home/<userid>/ directory instead of establishing a new mount point.

Chapter 10. Diagnostic information

Use the information in this section as an aid to solving Network Station environment problems.

Front-to-end start up description

The following events occur when a Network Station is powered-on:

1. The Network Station power-on self test (POST) runs.
2. The Network Station determines how to obtain its IP address from values stored in its non volatile memory. See “DHCP” on page 112, “BOOTP” on page 113, or “NVRAM” on page 113.
3. The kernel is downloaded.
4. The kernel initializes. The hardware is probed to detect the type of network interface. If a network interface adapter card is present, it is used. Otherwise the base network interface is used. There are no parameters to allow switching back and forth.

   The kernel also probes for a flash interface. If flash is found, it is used as the boot source.

   The kernel creates a root file system and mounts root in one of the following ways:

   - on the flash card (/local)
   - as RFS
   - as NFS

   The kernel attempts to mount RFS first, then NFS. The RFS startup sequence rejects the connect instantly if the host doens not use RFS. NFS will retry and timeout after about 100 seconds.

   The kernel finishes initialization by running the /sbin/init and /sbin/makedevices programs.
5. The operating system initilizes. The /sbin/init program runs and the file .profile is processed. The file .profile is a script that launches the operating system (NetBSD UNIX) and the IBM software stack. If you want to edit the file .profile, make sure that you use an editor that does not write extra end of line characters such as the vi editor. Most Windows editors should not be used because they add extra end of line characters.

   Shortly after the kernel is downloaded, the IBM copyright is displayed. This indicates that the kernel has mounted the file system and started to run the initialization programs.

   The ncboot program runs. This program loads the information in the DHCP Ack block, the UIB, and other network information into the registry. The registry is the master repository for the configuration values. You can query the registry for information. For example to retrieve DHCP information, type `ncregget /boot/dhcp` on the Advanced Diagnostics or telnet command line. You may also want to retrieve `/boot/unique` and `/boot/nvram`. The configuration values listed in “Appendix D. Configuration values” on page 129 each specify to which registry object they belong. You can also use the ncregget command to retreive those registry object values.

   The program ncreginit runs. This program loads the system and workstation configuration profiles (shipped.nsm, allncs.nsm, and <ncid>.nsm) into the registry.
6. The operating system starts daemons. The following daemons may be started through the file .profile:

   syslog
   : The system log daemon logs messages that applications send to it. See “System log” on page 114 for more information about the system log.

   snmpd
   : The snmp daemon allows the Network Station can respond to SNMP requests.

   ncsetcore and coreserver
   : The ncsetcore and coreserver daemons allow core dump files to be routed to a central file space. See “Dump files” on page 114 for more information about dump files and routing dump files.

nctelnetd
The telnet daemon enables telnet sessions to the Network Station. See “Using telnet to access a Network Station” on page 113 for more information about how to make use of the telnet daemon.

ncprd The printer daemon handles printing services for the Network Station.

seriald
The serial daemon handles input and output to the serial port.

ncleased
The lease daemon allows the Network Station to communicate with the DHCP server to keep the lease of the IP address active.

7. The window system (Xwindows) starts. The window system is started in the color depth, screen size, and resolution specified by the boot code. The file xinitrc is processed. This file does some initial setup and starts the Login program.
8. The Login program is loaded. System environment variables are set based upon registry entries.
9. The Login dialog is presented to the user. The user enters a userid and password. The user can optionally specify the authentication server by using the roam button. The authentication server can also be set using DHCP option 98. If the kiosk mode is set or suppresson of login is used, the Login dialog is not displayed.
10. If authentication is successful, the server returns user credentials, environment variables, mount points, and the address of the configuration server.
11. The registry reads the user configuration profiles (allusers.nsm, <group>.nsm, and <user>.nsm).
12. User environment variables are set based upon registry entries. The user’s file system is mounted, the window manager is launched, and user applications are started.
13. At logout, the user file system is unmounted, the path is reset, user data is cleared from the registry, the login program exits, and the file xinitrc is processed again.

DHCP

1. Network Station sends a request onto the network with a vendor class string.
2. The DHCP server validates the request and responds with the client IP address and the following DHCP options:

Option number	Option name	Used by type 8361 and 8362	Used by type 8363 and 8364
1	Subnet mask	Yes	Yes
3	Gateway	Yes	Yes
6	DNS	Yes	Yes
15	Domain name	Yes	Yes
17	Root path	No	Yes
26	MTU	No	Yes
66	Base code (boot) server	Yes	Yes
67	Boot file	Yes	Yes
98	Authentication server	No	Yes
211	Boot protocol	Yes	Yes
212	Workstation configuration server	Yes	Yes
213	Workstation configuration path	Yes	Yes

Option number	Option name	Used by type 8361 and 8362	Used by type 8363 and 8364
214	Workstation configuration protocol	Yes	Yes
219	Second base code server	No	Yes

BOOTP

1. The Network Station sends a BOOTP request on to the network along with a MAC address.
2. The BOOTP server looks up the MAC address in the BOOTP table. If a match is found the BOOTP server replies with an IP address.

NVRAM

The following information can be stored in the Network Station's nonvolatile memory:

Description	Available on type 8361 and 8362	Available on type 8363 and 8364
IP address	Yes	Yes
Subnet mask	Yes	Yes
Gateway	Yes	Yes
DNS	No	Yes
Base code (boot) server	Yes	Yes
Boot file and path	Yes	Yes
Boot protocol	Yes	Yes
Workstation configuration server	Yes	Yes
Workstation configuration server path	Yes	Yes
Workstation configuration server protocol	Yes	Yes
Authetication server	No	Yes
Authentication server protocol	No	Yes

Using telnet to access a Network Station

It is possible to access a running Network Station for the purpose of diagnosing problems.

When you telnet to the Network Station, you are presented with a login and password prompt. The user id is authenticated through the Network Station's normal authentication server. By default the user id must be one of the following:

- administrator
- qsecofr
- root

You can change the list of user ids by editing the auth file in the $ProdData/<x86|ppc>/usr/local/nc/boot/login/ directory. Specifying a user id of **all** allows anyone to telenet into any Network Station.

If the administator password (or unit-global-password) is set, then you are only prompted for the administrator password.

Once authenticated a shell runs in the telnet session. By default this shell is restricted to running command in the directory specified by the RPATH environment variable. By default the RPATH environment variable is set to /usr/diag. By default this directory is empty. You can copy the files associated with the commands that you want to make available into this directory. If you want to have access to all commands in the telnet session, comment out the following line in the file .profile.

System log

The system log can be displayed by typing `dmesg` on the advanced diagnostics or telnet command line. Up to 100 messages can be stored in the system log. The system log can be routed to a file. For example, typing `dmesg > ~/output` routes the information to a file named output in the user's home directory.

Dump files

If a application produces a core dump, the dump file is written to the user's home directory. A network administrator trying to determine if there are problems may want to enable the ncsetcore and coreserver daemons. The ncsetcore and coreserver daemons are enabled by uncommenting and configuring the appropriate statements in the .profile. The ncsetcore statement tells the Network Station to send the dump file to the IP address specified. The coreserver statement allows the Network Station to receive core dumps from other Network Stations and write them to a server. The following example shows how to send core dumps to the /service export on the main1 server throught the 192.168.10.4 Network Station:

```
# The coreserver can store/process core dumps
if [ $IPADDRESS = "192.168.10.4" ]; then
mount main1:/service /mnt
coreserver --coreroot /mnt --allow-all
fi
#Config everybody to send their cores to 192.168.10.4
ncsetcore 192.168.10.4
```

Helpful commands

The following commands can be helpful to use on the Advanced Diagnostics or telnet command line.

as400auth
Sets AS/400 permissions. For AS/400 only. See "Setting permissions for AS/400" on page 115.

cat Displays the contents of a file.

cd Changes the current working directory.

chmod
Changes the permissions of files.

clear Clears the screen.

df Displays file system statistics.

dmesg
Displays the system log, see "System log".

ftp Transfers files.

id Displays the uid and gid.

ifconfig -a
Displays network interface information.

iostat Displays input/output (I/O) and central processing unit (CPU) statistics.

kill Stops processes.

ls Lists files in the current directory.

more Allows you to view a file.

mount
Displays file system mount information.

mount_rfs
Establishes a Remote File System (RFS) connection between the Network Station and the AS/400 server.

ncregget
Extracts and displays registry objects. For example `ncregget /boot/dhcp`.

netstat
Displays network statistics and information.

nfsstat
Displays information about NFS.

ping Allows you to verify TCP/IP connections between hosts.

ps Displays the processes running running on the Network Station.

pstat Displays information about the system data structures.

pwd Displays the current directory.

reboot
Re-starts the Network Station. This command only works when you are signed on as **qsecofr** on an AS/400 platform or **root** on an RS/6000 platform.

rlogin Allows you to logon to another host.

set Displays all environment variables.

set -o emacs
Allows the up and down keys to retrieve previous commands.

tar Tape archiving program. Useful for combining sets of files for distribution.

traceroute
Displays the route IP packets take to a network host.

vmstat
Displays virtual memory statistics.

Setting permissions for AS/400

On OS/400 V4R2, V4R3, and V4R4, you must set permissions on certain commands to allow users other than QSECOFR to use them. These commands are:

- df
- ps
- rcmd
- dmesg
- mount_rfs
- ping
- netstat
- nfsstat
- rlogin
- vmstat
- iostat
- pstat
- traceroute

To set the permissions for this list of commands, do following:

1. Boot your Network Station from your AS/400 server.
2. Sign on as QSECOFR.
3. From the desktop, click **Tool Kit** =>**Advanced Diagnostics**.
4. In the Advanced Diagnostics window, type **as400auth**.

The AS/400 sets the special permissions on the set of commands. You need to run the **as400auth command** only once.

Flash boot problems/solutions

The following sections discuss known problems/limitations associated with the flash boot function. It also provides some helpful advice/techniques for working with and managing flash-based clients.

All platforms

1. **Flash creation utility cannot find file x86.NLS_xx_xx.BOM**

   The flash configuration manager displays all national languages – regardless of whether or not they have been installed on the server. On Windows/NT, only US English files are installed when the defaults are taken. In order to install additional national languages, a custom install must be performed. Once a national language has been installed, itÆs BOM file will be installed on the server. On AIX and AS/400 the default is for all languages to be installed.

2. **Server Based Flash Image Delete**

   System Administrators may want to delete flash images that are no longer needed or contain incomplete/incorrect flash images. The flash configuration utility does not currently support the ability to delete flash images on the server. To completely remove a flash image from an NSM server, perform the following steps:

   - Remove the image entry from the images.lst file in the $Userbase/flash/ImageConfigs/ directory
   - Remove the image's .log and .fls files in $Userbase/flash/ImageConfigs/ directory
   - Remove the image directory from the $Userbase/flash/Images/ directory

3. **Updating Flash Images Removes Customizations**

   Using the æUpdateÆ button for any flash image will cause the entire contents of the flash image directory to be re-written. All files in the directory are erased, and then the image is re-written. This means that any customization to the flash image after it was initially created will be lost.

4. **Coordinating the Desktop With the Flash Image**

   The default desktop contains icons for all applications that are available to a Network Station client when it boots over the network. However, the flash card will not contain all of those applications due to size limitations. If a user selects an icon whose code is not installed on the flash card, one of two things will happen: an error message stating the application could not be found will be popped up, or nothing will happen. This means that the desktop must be customized for users running as a flash-based user.

   To do this you will need to go into NSM and remove applications that are not on the flash card from the default system level desktop. If there is a mix of what is available on the flash card the customization will need to be made on a per user or per group basis.

5. **Extras**

   Due to the size of the extra applications (Audio Player, Calculator, Calendar, File Manager, Paint, Real Player, Text Editor, and Video Player), they were not included in the default flash image. To add these applications to the flash image, you must edit the x86.Base_OS.BOM file and mark the files found in Appendix B to be included in the flash image. For more information on how to edit the BOM files, see appendix A on editing BOM files.

6. **Viewing Flash Card Contents**

The contents of the flash card can be displayed once the flash card has been initialized (the Network Station client initializes the flash card prior to writing an image to the card). If the flash card has not been initialized, it will not be recognized by the operating system, preventing the contents of the flash card from being seen (and since the card is not initialized, there isnÆt much to look at).

If the Network Station has booted from flash:

- Select ôTool Kit->Advanced Diagnosticsö from the launch bar.
- When the Advanced Diagnostics application window comes up, the flash card is visible as the root directory (i.e. /)

If the Network Station has booted from the network:

- You must logon with one of the following user IDÆs: QSECOFR (AS/400), root (AIX), or nsm_nfsroot (Windows/NT)
- Select ôTool Kit->Advanced Diagnosticsö from the launch bar.
- From the Advanced Diagnostics display, mount the flash card by issuing the following command: mount -r /dev/wd0a /mnt

  Note: It is important to specify the –r option. This causes the flash card to be mounted in read-only mode, instead of the default of read/write. When the card is mounted in write mode, the flash card is marked as ædirtyÆ - invalidating the contents of the card. When this happens, the boot code will see the kernel on the flash card and use it, but the operating system checks the ædirty bitÆ and will not be able to use the flash card, causing flash boot to fail. If this ever happens, the Network Station must be reconfigured to boot over the network (not from flash) and then rebooted. When it is rebooted over the network, the flash card will be cleared and the flash image will be put on the flash card again.
- The contents of the flash card may be viewed from the /mnt mountpoint.

Note: If you are running in kiosk mode, you may need to boot over the network in order to see the contents of the flash card (most users of kiosk mode will not have the desktop available to launch the advanced diagnostics application).

7. **Erasing Flash Cards**

   After booting over the network (with the flash card installed), mount the flash card (see previous section on viewing flash card contents). However, the –r parameter on the mount command must be omitted – so that the card may be modified. After mounting the flash card in write mode issue the following commands:

   - cd /mnt (sets flash card root file system as the current directory)
   - rm –R * (removes all files from the flash card except .profile)
   - rm .profile (removes the .profile file)
   - At this point the card has an empty file system and will be rebuilt the next time the client is booted (assuming the appropriate client configuration).

8. **Ensuring That Flash Images Will Contain Customized Files**

   If a text file that is part of a flash image is changed, updating the flash image will not cause the changed file to become part of the updated flash image. For example, assume the default flash image is already created and then the system administrator changes ProdBase/x86/.profile (as was previously discussed - to direct the output of the flashmgr utility to appear on the Network Station display). The updated .profile file would not be copied into the default flash image when the update request because the NSM flash configuration utility uses the date/timestamps in the system Bill Of Material (BOM) files to determine which files have been updated. NSM does not use the date/timestamp associated with each file on the server.

   If a text file that is part of a flash image is changed, the BOM file (more than likely ProdBase/x86.Base_OS.BOM) that the file belongs to must be changed so that the date/timestamp

for the changed file reflect the date/time the file was changed. Once the BOM file is updated the system administrator may use NSM to update the flash images which use that file and they will be copied into the flash image.

You can also edit a flash image once it has been created. Do this by editing the BOM file in the userbase/flash/images/image_name directory. If changes are made to the flash image directory in this fashion, and the image is updated using the NSM tool, the changes you make will be lost.

Note: On Windows/NT you should only use the WordPad editor. DonÆt use NotePad or any other editors.

9. **2200 systems with 32 MB RAM cannot update flash image**

   A boundary condition has been reached on 32MB 2200 systems. When trying to load the Server Image BOM the Network Station will hang and not continue with the flash card update. The hang usually occurs with the following message displayed: **Loading server bom file: /mnt/BOM**

   The only solution at this point is to install more memory, development is working on a patch and will make it available as soon as possible.

10. **Kiosk Mode**

    When creating flash cards, it is important to understand how kiosk mode works, as well as which configuration files are actually used. The advanced userÆs guide describes kiosk mode. The configuration file used when in kiosk mode is allncs.nsm (in addition to the <ip_address>.nsm, <host_name>.nsm, or <mac_address>.nsm kiosk file). The allusers.nsm files are not used.

11. **ERROR_BAD_CLIENT and ERROR_PARSE_RESULTS**

    The NSM flash configuration utility may return an error message **ôERROR_BAD_CLIENTö** or **ôERROR_PARSE_RESULTSö** when creating a flash image – and the timeout values on the NSM Web server are set too low.

    To correct this you need to increase the timeout values for the Web server:

    - **On AS/400:**
      a. Enter CFGTCPHTTP command from the command line.
      b. Select option 2 from the menu and press enter.
      c. Press Enter to select the default configuration name (CONFIG); or, select a different configuration name if you know the name of a specific HTTP server configuration being used.
      d. Scroll down the file and remove any HTTP directives beginning with the words **InputTimeout, OutputTimeout**, and **ScriptTimeout**.
      e. Insert the following directives by typing 13 on any line: ⌂ InputTimeout xx mins ⌂ OutputTimeout xx mins ⌂ ScriptTimeout xx mins
      f. Press F3 to exit the utility.
    - **On Windows/NT – using the Domino Go Web Server:**
      a. Edit the httpd.cnf file located in the WINNT or WTSRV directory.
      b. Change the following directives:
         – InputTimeout xx mins
         – OutputTimeout xx mins
         – ScriptTimeout xx mins
    - **On Windows/NT – using the Microsoft Internet Information Server:**
      a. Note that the default setting for IIS is 15 minutes, so you may not need to update this setting. Start up Internet Service Manager (Start->Programs->Windows NT 4.0 Option Pack->Microsoft Internet Information Server->Internet Service Manager).
      b. Select the Web Server to be configured at Console Root->Internet Information Server->″Your Web Server Name″. You may have to ″Connect″ to it to see your server.
      c. Select properties of your Web Server and press the Edit button from the ″Master Properties″ section.

d. Select the ″Home Directory″ tab and press the ″Configuration″ button.
e. Select the ″Process Options″ tab.
f. Change the ″CGI Script Timeout″ to the desired value.
g. Save your settings. You do not have to restart any services for the change to take affect.

- **On AIX:**
  a. Edit the /etc/httpd.conf file.
  b. Change the following directives:
     – InputTimeout xx mins
     – OutputTimeout xx mins
     – ScriptTimeout xx mins
  c. Stop and start the http daemon by using the following commands:
     – stopsrc -s httpd
     – startsrc -s httpd

The amount of time required to build the flash image will vary – depending on the server type and speed. If the problem continues, increase the timeout values.

12. **[: true: unknown operand**

    This error message is received when a Network Station is booting and is unable to find the .profile file. This error is not particular to flash, but will occur regardless of flash or network boot. However, the error message is quite useless and so it is documented here in case, for some reason, the .profile file is missing on a flash card.

AS/400 considerations

1. **Need to copy applications.lst files**

   Copy the ProdBase/x86.applications.lst to UserBase/flash/ImageConfigs/x86.applications.lst. Note that the file may already exist, but needs to be copied anyways.

2. **Flash image creation ends in error indicating files could not be found**

   Some files that are included on other platforms (but are not needed) are not installed on the AS/400. However, the BOM files for the AS/400 were not updated to reflect this. The flash image creation software will detect that these files were part of the BOM, but could not be found on the AS/400 and log this as an error. This will not cause problems with the flash image - the error message can be ignored for these files in the /QIBM/ProdData/NetworkStationV2/x86/ directory:

emul/	emul/linux/
nchome/	nls/ja_JP.eucJP/
nls/ja_JP.eucJP/img/	root/
usr/X11R6/lib/de_DE	usr/X11R6/lib/de_DE/netscape/
usr/X11R6/lib/es_ES/	usr/X11R6/lib/es_ES/netscape/
usr/local/nc/admin/	usr/local/nc/admin/desktop/
usr/local/nc/registry/desktop/media/	usr/local/nc/registry/kids/
usr/local/nc/registry/kids/documents.nc	usr/local/nc/registry/kids/word_processor.nc
usr/local/nc/registry/mime/	usr/local/nc/registry/mime/audio.nc
usr/local/nc/registry/mime/audio_minimized.xpm	usr/local/nc/registry/mime/download.nc
usr/local/nc/registry/mime/download_minimized.xpm	usr/local/nc/admin/desktop/netscape_minimized.xpm
usr/local/nc/registry/mime/help.nc	usr/local/nc/registry/startup/
usr/local/nc/registry/x3270fonts/	usr/share/locale/C/
usr/share/locale/de_AT.ISO_8859-1/	usr/share/locale/en_AU.ISO_8859-1/

usr/share/locale/en_CA.ISO_8859-1/	usr/share/locale/hu_HU.ISO_8859-2/
usr/share/locale/ko_KR.EUC/	usr/share/locale/ru_SU.CP866/
usr/share/locale/ru_SU.KOI8-R/	usr/share/locale/sl_SI.ISO_8859-2/

AIX considerations

1. **File system consideration**

   When NSM is installed, the /usr/NetworkStationV2/userbase file system is created with an initial size of 32 MB. The NSM flash configuration utility creates flash images into the userbase directory, so before creating any flash images the size of the userbase file system must be increased. The size of the increase depends on the number and size of the flash images you will be creating. Currently, flash image sizes will range be between 48 and 80 Megabytes.

Appendix A. Directory structure

This section describes the important files, directories, and client mount points found in the server directory structure.

Table 64. Substitution variables

Substitution variables	Value
$ProdBase (AS/400)	/QIBM/ProdData/NetworkStationV2
$HttpBase (AS/400)	/QIBM/ProdData/HTTP/Protect/NetworkStationV2
$ServBase (AS/400)	/QIBM/ProdData/NetworkStationV2/NSM
$UserBase (AS/400)	/QIBM/UserData/NetworkStationV2/
$ProdBase (RS/6000)	/usr/NetworkStationV2/prodbase
$ServBase (RS/6000)	/usr/NetworkStationV2/servbase
$UserBase (RS/6000)	/usr/NetworkStationV2/userbase
$ProdBase (Windows NT)	<float>\NetworkStationV2\prodbase
$ServBase (Windows NT)	<float>\NetworkStationV2\servbase
$UserBase (Windows NT)	<float>\NetworkStationV2\userbase
<float> (Windows NT)	directory where IBM Network Station Manager is installed
<user>	user name from login
<group>	group name
<ncid>	IBM Network Station host name, IP address, or MAC address
<locale>	specific locale for cultural conventions
<application>	application name
<x86|ppc>	indicates x86 or ppc directory

Table 65. Directory/file table

Directory/file	Description
$ProdBase/	Base directory for shipped files.
$ProdBase/x86	Base directory for hardware types 8363 and 8364 (Series 2200 and 2800).
$ProdBase/ppc	Base directory for hardware type-models: 8361-110, 8361-210, 8362-A22, 8362-A23, 8362-A52, and 8362-A53 (Series 300 and 1000).
$HttpBase/	Base directory for HTML files (AS/400 only).
$HttpBase/<locale>/	Directory for locale specific HTML files (AS/400 only).
$ServBase/	Base directory for IBM Network Station Manager.
$ServBase/defaults/	Directory for shipped profiles and kiosk template files.
$ServBase/defaults/<application>.ksk	Kiosk template files.
$ServBase/tools	Directory for IBM Network Station Manager command line utility files.
$UserBase/	Base directory for updated user data.
$UserBase/profiles/	Directory for download profiles.
$UserBase/profiles/shipped.nsm	Shipped profile for all Network Stations and users.

Table 65. Directory/file table (continued)

Directory/file	Description
$UserBase/profiles/allncs.nsm	IBM Network Station Manager managed system-wide profile for all Network Stations.
$UserBase/profiles/allusers.nsm	IBM Network Station Manager managed system-wide profile for all users.
$UserBase/profiles/ncs/	Directory for terminal (workstation) specific download profiles.
$UserBase/profiles/ncs/<ncid>.nsm	IBM Network Station Manager managed workstation specific profile.
$UserBase/profiles/users/	Directory for user specific download profiles.
$UserBase/profiles/users/<user>.nsm	IBM Network Station Manager managed user specific profile.
$UserBase/profiles/groups/	Directory for group specific download profiles.
$UserBase/profiles/groups/<group>.nsm	IBM Network Station Manager managed group specific profile.
$UserBase/home/	Network Station home directory.
$UserBase/home/<user>/	User's home directory.
$UserBase/nsmshared/	IBM Network Station Manager home directory for shared files. Since $UserBase/profiles/<user> may be restricted to be read by one user, use this directory structure to share files in a less restrictive environment.
$UserBase/nsmshared/<user>/	User's IBM Network Station Manager home directory for shared files.
$UserBase/nsmshared/<user>/NS3270/	Directory for shared 3270 key mapping, key pad, color mapping, and playback files. Customer defined emulator profiles are placed here and can be shared by multiple users.
$UserBase/nsmshared/<user>/NS5250/	Directory for shared 5250 key mapping, key pad, color mapping, and playback files. Customer defined emulator profiles are placed here and can be shared by multiple users.
$UserBase/nsmshared/<user>/NSTERM/	Directory for shared VT emulator key mapping files. Customer defined emulator profiles are placed here and can be shared by multiple users.
$UserBase/flash	Base directory for flash management.

Table 66. Server exports and client mount points

Server export	Client path	Description
$ProdBase/<x86|ppc>	/	Provides read-only access to the architecture-specific root file system. It is exported through RFS and TFTP, or NFS and TFTP. This mount point lasts for the life of the machine session.
$UserBase/profiles	/termbase/profiles	Provides read-only access to workstation specific configuration data. It is exported through RFS or NFS. This is a transient mount point for reading terminal profiles and is only established during the boot sequence.

Table 66. Server exports and client mount points (continued)

Server export	Client path	Description
$UserBase/profiles	/userbase/profiles	Provides read-only access to user and group specific configuration data. It is exported through RFS or NFS. The directories within this export must have appropriate permissions set to allow or limit client access as needed. This mount point lasts for the life of the user session.
$UserBase/home	/userbase/home	Provides read-write access to the user's home directory on the authentication server. It is exported through RFS or NFS. The directories within this export must have appropriate permissions set to allow or limit client access as needed. This mount point lasts for the life of the user session.
$UserBase/nsmshared	/userbase/nsmshared	Provides read-write access to the user's shared directory. It is exported through RFS or NFS. The directories within this export must have appropriate permissions set to allow or limit client access as needed. This is a transient mount point that is only established as needed by client applications.

Table 67. Windows NT exports

Directory	NFS export	TFTP export
x:\<float>\NetworkStationV2\prodbase	/NetworkStationV2/prodbase	<float>/NetworkStationV2/prodbase
x:\<float>\NetworkStationV2\userbase	/NetworkStationV2/userbase	Not exported by TFTP

Appendix B. Environment variables

Table 68 contains a list of some common environment variables. Environment variables can be used in IBM Network Station Manager and as parameters on some command line commands. The syntax is ${EnvironmentVariableName}. For example, to substitute the user ID of the person logged onto the IBM Network Station in a command, you would specify ${USER}.

Type `set | more` on the Advanced Diagnostics or telenet command line for a list of all the environment variables that are currently set. Type `echo $EnvironmentVariableName` on the Advanced Diagnostics or telenet command line to display the current value of the environment variable.

Table 68. Common environment variables

Environment Variable Name	Description
BOOT_GATEWAY	The IP address of the gateway to other subnets.
BOOT_HARDWARE_ADDRESS	The hardware MAC address of the Network Station.
BOOT_KERNEL	The name of the kernel that was used to boot the Network Station.
BOOT_NETMASK	The subnet mask of the Network Station.
BOOT_NETWORK_INTERFACE	The name of the IP network interface.
CLASSPATH	The path that the JVM searches for Java classes.
EMAIL_USERID	The user's E-mail address.
FTP_PROXY_HOST	The FTP proxy host name.
FTP_PROXY_OVERRIDES	The FTP proxy exceptions.
FTP_PROXY_PORT	The FTP proxy TCP/IP port.
FULL_NAME	The user's E-mail name.
GID	The group ID.
GOPHER_PROXY_HOST	The Gopher proxy host name.
GOPHER_PROXY_OVERRIDES	The Gopher proxy exceptions.
GOPHER_PROXY_PORT	The Gopher porxy TCP/IP port.
HOME	The path to the user's home directory.
HOME_PAGE	The browser's home page.
HOSTNAME	The name of the Network Station.
HTTP_PROXY_HOST	The HTTP proxy host name.
HTTP_PROXY_OVERRIDES	The HTTP proxy exceptions.
HTTP_PROXY_PORT	The HTTP proxy TCP/IP port.
HTTPS_PROXY_HOST	The HTTPS proxy host name.
HTTPS_PROXY_PORT	The HTTPS proxy TCP/IP port.
IPADDRESS	The IP address of the Network Station.
JAVA_LEVEL	The path to the JVM.
JAVA_HOME	The path from where the JVM is loaded.
LANG	The default locale.
LC_CTYPE	The locale to use for character use and sorts.
LC_MESSAGES	The locale to use for messages.
LC_MONETARY	The locale to use for monetary format.

Table 68. Common environment variables (continued)

Environment Variable Name	Description
LC_NUMERIC	The locale to use for numeric format.
LC_TIME	The locale to use for time and date format.
MASTER_SERVER (AUTHENTICATION_HOST)	The IP address of the authentication server.
NETSCAPE_JAVA_ARGS	The path that the Netscape JVM searches for Java classes.
NNTP_SERVER	The NNTP (News) server name.
NNTP_SERVER_PORT	The NNTP (News) server port.
NSM_HTTP_PORT	The HTTP server TCP/IP port where the Network Station Manager program is served.
POP3_SERVER	The POP3 (Incomming Mail) server name.
REPLY_TO	The E-mail reply to address.
SERVER_ADDRESS (BOOTHOST)	The IP address of the server that the Network Station booted from.
SMTP_SERVER	The SMTP (Outgoing Mail) server name.
SOCKS_HOST	The SOCKS server name.
SOCKS_PORT	The SOCKS server TCP/IP port.
TZ	The time zone.
UID	The user ID.
USER	The userid of the authenticated user.

Appendix C. Colors

The following table describes some standard colors from the browser color palette. Use these numeric values to specify colors. For example, use 0000ff to specify blue. Using colors from the browser color palette minimizes the possibility of color flash.

Color	Red	Green	Blue
Bisque	ff	cc	99
Black	00	00	00
Blue	00	00	ff
Blue - login	00	66	99
Chocolate	66	00	00
Coral	ff	99	66
Cyan	00	ff	ff
Cyan - light	99	ff	cc
Gray - light	cc	cc	cc
Gray - medium/light	99	99	99
Gray - medium/dark	66	66	66
Gray - dark	33	33	33
Green	00	ff	00
Lavender	ff	99	ff
Magenta	ff	00	ff
Orange	ff	66	00
Red	ff	00	00
White	ff	ff	ff
Yellow	ff	ff	00

Appendix D. Configuration values

This section contains a list of configuration values that can be set through the use of the IBM Network Station command line utility. For more information on the command line utility see “Chapter 7. IBM Network Station Manager command line utility” on page 69.

For each configuration value there is a table that lists several properties associated with that configuration value. The following table contains an explanation of these properties.

Takes Effect	Shows when the configuration value is applied.
Retained in Client Memory	
User Interface Path	If the configuration value can be set using the IBM Network Station Manager program, the navigation through the user interface is shown here. If the configuration value cannot be set using the IBM Network Station Manager program, the word None is shown here.
Registry Object	The registry object is shown here. You can use the **ncregget** command to display registry objects. For example to retrieve the /config registry object information, type `ncregget /config` on the Advanced Diagnostics command line.
Category	The category is shown here.
Valid Preference Levels	The preference level is shown here. The preference level determines to what scope or level that this configuration value is applied..
Value Type	The configuration value type is shown here.
Shipped Default Value	The shipped configuration value (if any) is shown here.
Allowable Values	Valid configuration values are listed here.

Boot Settings

boot-automatically

Specifies whether the terminal automatically boots or stops with the > prompt.

Takes Effect	At boot
Retained in Client Memory	Yes
User Interface Path	None
Registry Object	/config
Category	EXTERNAL
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Boolean
Shipped Default Value	true
Allowable Values	true, false

boot-desired-source

Specifies the desired source of the server code on the next boot of the workstation.

'Local' describes a number of options including PROM's, Flash Memory cards. 'prom' is an alias for 'local' provided for backwards compatibility. 'tcpip' is an alias for 'tftp' provided for backwards compatibility.

Takes Effect	At boot
Retained in Client Memory	Yes
User Interface Path	None
Registry Object	/config
Category	EXTERNAL
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Choice
Shipped Default Value	tcpip
Allowable Values	tcpip tftp nfs local prom

boot-enable-broadcast-boot

Enable broadcast boot during server download.

Takes Effect	At boot
Retained in Client Memory	Yes
User Interface Path	Hardware->Workstation:Boot Parameters: Enable Broadcast boot
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Boolean
Shipped Default Value	false
Allowable Values	true, false

boot-flash-update

Enables the check for flash image updates function. This allows the Network Station to check for and (if necessary) receive a new flash image from the boot server. If the boot server detects that the image on the Network Stationis current, no flash image is downloaded to the Network Station.

Takes Effect	At boot
Retained in Client Memory	No
User Interface Path	Hardware->Workstation:Boot Parameters: Check for Flash Image update
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Boolean
Shipped Default Value	false
Allowable Values	true, false

boot-flash-path

Specifies the directory to find the flash image. A single directory name may be specified.

Takes Effect	At boot
Retained in Client Memory	No
User Interface Path	Hardware->Workstation:Boot Parameters: Flash Image directory
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	String
Shipped Default Value	Default
Allowable Values	

boot-persistent-retry-count

Specifies the number of times to retry loading the operating system.

Takes Effect	At boot
Retained in Client Memory	Yes
User Interface Path	Hardware->Workstation:Boot Parameters: Number of times to retry loading operating system
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Integer
Shipped Default Value	0
Allowable Values	0-4294967295

boot-prom-force-update

If true, force the unit to accept the boot prom update file specified in boot-prom-update-file (even if it is a back level).

Takes Effect	At boot

Retained in Client Memory	No
User Interface Path	None
Registry Object	/config
Category	EXTERNAL
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Boolean
Shipped Default Value	false
Allowable Values	true, false

boot-prom-language

Specifies the language to use during the boot sequence.

Takes Effect	At boot
Retained in Client Memory	Yes
User Interface Path	Hardware->Workstation:Boot Parameters: Language to be used during boot sequence
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	CHOICE
Shipped Default Value	english
Allowable Values	english, french, german, italian, spanish

boot-prom-update-file

When a non-null path is specified the Network Station attempts to update the boot prom to the image specified.

Attention: Do NOT turn off power to the Network Station while the boot prom is being updated.

Takes Effect	At boot
Retained in Client Memory	No
User Interface Path	None
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	String
Shipped Default Value	nil
Allowable Values	Any valid pathname

boot-second-source

Specifies a fallback source of the server code on the next boot of the terminal.

Takes Effect	At boot
Retained in Client Memory	Yes

User Interface Path	None
Registry Object	/config
Category	EXTERNAL
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Choice
Shipped Default Value	not shipped, defaults to ″none″
Allowable Values	none, tcpip, tftp, nfs, local, prom

boot-tcpip-broadcast-boot-request

Specifies that the boot monitor should broadcast download file requests. Note that this option can produce a lot of network traffic.

Takes Effect	At boot
Retained in Client Memory	Yes
User Interface Path	None
Registry Object	/config
Category	EXTERNAL
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Boolean
Shipped Default Value	true
Allowable Values	true, false

boot-tcpip-desired-server

Specifies the IP address of the boot server when the desired boot source is TCP/IP or NFS.

Takes Effect	At boot
Retained in Client Memory	Yes
User Interface Path	None
Registry Object	/config
Category	EXTERNAL
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	String
Shipped Default Value	not shipped
Allowable Values	Any ip address in dotted notation

boot-tcpip-second-server

Specifies the IP address of the secondary boot server when the desired boot source is TCP/IP, TFTP, or NFS.

Takes Effect	At boot
Retained in Client Memory	Yes
User Interface Path	None
Registry Object	/config

Category	EXTERNAL
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	String
Shipped Default Value	not shipped, default is 0.0.0.0
Allowable Values	Any IP Address in dotted notation

boot-tcpip-third-server

Specifies the IP address of the tertiary boot server when the desired boot source is TCP/IP, TFTP, or NFS.

Takes Effect	At boot
Retained in Client Memory	Yes
User Interface Path	None
Registry Object	/config
Category	EXTERNAL
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	String
Shipped Default Value	not shipped
Allowable Values	Any IP Address in dotted notation

boot-test-ram

Specifies whether RAM self tests are performed at power up. It is suggested that this self test not be disabled.

Takes Effect	At boot
Retained in Client Memory	Yes
User Interface Path	Hardware->Workstation: Boot Parameters: Enable memory test
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Boolean
Shipped Default Value	true
Allowable Values	true, false

boot-third-source

Specifies a fallback source of the server code on the next boot of the terminal.

Takes Effect	At boot
Retained in Client Memory	Yes
User Interface Path	None
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation

Value Type	Choice
*shipped default value	no shipped value; boot code defaults to none
Allowable Values	none, tcpip, tftp, nfs, local, prom

boot-token-ring-update-file

When a non-null path is specified the terminal attempts to update the token ring prom to the image specified.

Attention: Do NOT turn off power to the terminal while the token ring prom is being updated.

Takes Effect	At boot
Retained in Client Memory	No
User Interface Path	None
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	String
*shipped default value	nil
Allowable Values	any valid file name

File Parameters

file-initial-protocol-1

Specifies the file service protocol to be used in conjunction with the primary initial file server.

Takes Effect	At boot
Retained in Client Memory	Yes
User Interface Path	None
Registry Object	/config
Category	EXTERNAL
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Choice
Shipped Default Value	not shipped
Allowable Values	tftp, nfs, local, use-boot-protocol

file-initial-protocol-2

Specifies the file service protocol to be used in conjunction with the secondary initial file server.

Takes Effect	At boot
Retained in Client Memory	Yes
User Interface Path	None
Registry Object	/config
Category	EXTERNAL

Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Choice
Shipped Default Value	not shipped
Allowable Values	tftp, nfs, local, use-boot-protocol

file-initial-server-1

Specifies the host to be used as the primary file server at boot time to load the initial config file. A value of 0.0.0.0 implies that the boot server should be used for this value.

Takes Effect	At boot
Retained in Client Memory	Yes
User Interface Path	None
Registry Object	/config
Category	EXTERNAL
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	IP Address
Shipped Default Value	not shipped
Allowable Values	Valid IP address in dotted decmial notation

file-initial-server-2

Specifies the host to be used as the secondary file server at boot time to load the initial config file. A value of 0.0.0.0 implies that the boot server should be used for this value.

Takes Effect	At boot
Retained in Client Memory	Yes
User Interface Path	None
Registry Object	/config
Category	EXTERNAL
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	IP Address
Shipped Default Value	not shipped
Allowable Values	Valid IP address in dotted decmial notation

IP Parameters

ip-address-at-next-boot

Specifies the IP address for the unit the next time it is booted.

Note that if the current IP address is 0.0.0.0, the value of this parameter is used immediately as the current IP address. Otherwise, the current IP address cannot be modified while the unit is running because this would lead to unexpected behaviors on both the unit and any connected hosts.

Takes Effect	At boot
Retained in Client Memory	Yes

User Interface Path	None
Registry Object	/config
Category	EXTERNAL
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	IP Address
Shipped Default Value	No shipped default; boot code defaults to 0.0.0.0
Allowable Values	Valid IP addrss in dotted decimal notation.

ip-initial-default-gateway-1

Specifies the primary default IP gateway to be used initially in the IP routing table. The IP routing table can change over time due to normal operation and various management events.

Takes Effect	At boot
Retained in Client Memory	Yes
User Interface Path	None
Registry Object	/config
Category	EXTERNAL
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	IP Address
Shipped default value	not shipped
Allowable Values	IP Address in dotted decimal notation

ip-initial-default-gateway-2

Specifies the secondary default IP gateway to be used initially in the IP routing table. The IP routing table can change over time due to normal operation and various management events.

Takes Effect	At boot
Retained in Client Memory	Yes
User Interface Path	None
Registry Object	/config
Category	EXTERNAL
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	IP Address
Shipped default value	not shipped
Allowable Values	IP Address in dotted decimal notation

ip-subnet-mask

Specifies the IP subnet mask that is used to determine which portion of the unit's IP address corresponds to the network number and which portion to the host number.

Takes Effect	At boot
Retained in Client Memory	Yes
User Interface Path	None

Registry Object	/config
Category	EXTERNAL
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Integer
Shipped default value	not shipped
Allowable Values	

ip-use-address-discovery

Specifies that IP addresses supplied via DHCPor BOOTP should be used, if available.

Takes Effect	At boot
Retained in Client Memory	Yes
User Interface Path	Hardware->Workstation: Boot Parameters: Enable Boot using BOOTP or DHCP
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Boolean
Shipped default value	not shipped
Allowable Values	true, false

Parallel

parallel-daemons-table

Specifies the table of parallel daemon parameters.

Takes Effect	At Workstation Init
Retained in Client Memory	No
User Interface Path	None
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Table
Shipped default value	See the following tables
Allowable Values	See the following tables

port-number

The name of the parallel port.

Value Type	Integer
Shipped default value	1
Allowable Values	1 to 2

use-parallel-protocol

Specifies that the parallel daemon control protocol should be used. Note that this could cause some data loss if enabled with old host software.

Value Type	Boolean
Shipped default value	false
Allowable Values	true, false

tcp-port

Specifies the TCP port on which the terminal listens for raw TCP connections to the parallel daemon.

Value Type	Integer
Shipped default value	5,964
Allowable Values	1 - 65535

Hardware preference related parameters

anti-aliasing

Indicates if smooth scaling of fonts should be enabled.

Takes Effect	At Workstation Init
Retained in Client Memory	No
User Interface Path	Hardware->Workstation: Monitor Settings: Smooth Character Drawing (anti-aliasing)
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Choice
Shipped default value	on
Allowable Values	on, off

monitor-resolution

Takes Effect	At Workstation Init
Retained in Client Memory	
User Interface Path	Hardware->Workstation: Monitor Settings: Preferred monitor resolution
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Choice
Shipped default value	default
Allowable Values	default, 640x480, 800x600, 1024x768, 1280x1024, 1600x1200

monitor-type

Indicates the type of monitor that is attached to the network station. Primarily used to signal if the calibration utilities is to be started on the client.

Takes Effect	At boot
Retained in Client Memory	No
User Interface Path	Hardware->Workstation: Monitor Settings: Type of monitor
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Choice
Shipped default value	default
Allowable Values	default, elotouchscreen, ibmtouchscreen, lightpen

pref-mouse-acceleration

Specifies the percentage by which physical mouse motion past the mouse threshold has been passed should be multipled to obtain the distance traveled by the pointer cursor. A value of less than 100 makes the mouse slower; a value over than 100 makes it faster.

Takes Effect	At Workstation Initialization, At Login
Retained in Client Memory	No
User Interface Path	Hardware->Workstation:Mouse Settings: Pointer Speed
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Integer
Shipped default value	300
Allowable Values	10 - 1000

pref-mouse-arrangement

Specifies whether the mouse buttons are mapped with Button1 at the right or left

Takes Effect	At Workstation Init, At Login
Retained in Client Memory	No
User Interface Path	Hardware->Workstation:Mouse Settings: Button Configuration
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Choice
Shipped default value	right-handed
Allowable Values	right-handed, left-handed

pref-power-manage-powerdown-time

How long the terminal needs to be idle (in minutes) before the transition to the power down.

Takes Effect	At workstation Initialization
Retained in Client Memory	No
User Interface Path	Hardware->Workstation: Monitor Settings: Minutes before monitor power down
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Integer
*shipped default value	60
Allowable Values	0-240

pref-power-manage-standby-time

How long the terminal needs to be idle (in minutes) before the transition to the standby state.

Takes Effect	At workstation Initialization
Retained in Client Memory	No
User Interface Path	Hardware->Workstation: Monitor Settings: Minutes before monitor standby
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Integer
*shipped default value	20
Allowable Values	0-240

pref-power-manage-suspend-time

How long the terminal needs to be idle (in minutes) before the transition to the suspend state.

Takes Effect	At Workstation Initialization
Retained in Client Memory	No
User Interface Path	Hardware->Workstation: Monitor Settings: Minutes before monitor suspend
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Integer
Shipped default value	40
Allowable Values	0-240

pref-screen-color-depth

Determines the number of colors available to applications that use color support. The Network Stations support 8–bit or 16–bit colors per pixel. 8–bit indicates 256 colors are available to use. 16–bit indicates that 65,536 colors are available to use.

Takes Effect	At Workstation Init
Retained in Client Memory	No
User Interface Path	Hardware->Workstation: Monitor Settings: Color depth configuration
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Choice
Shipped default value	not shipped, 8
Allowable Values	8, 16

pref-screen-background-bitmap-background

Specifies the color to use for the background of the screen background bitmap. Specifying a color using this preference will override the color specified in the current theme. See “Appendix C. Colors” on page 127 for more information on how to specify colors.

Takes Effect	At Workstation Init
Retained in Client Memory	No
User Interface Path	Hardware->Workstation: Monitor Settings: Desktop background color
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	String
Shipped default value	not shipped, defaults from theme
Allowable Values	000000 - ffffff

pref-screen-background-bitmap-file

The name of an XBM image to tile on the screen background if the background type is ″bitmap″. Overrides desktop background specified in the current theme.

Takes Effect	At Workstation Init: At Login
Retained in Client Memory	No
User Interface Path	Hardware->Workstation: Monitor Settings: Desktop background: Custom background image path
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, usergroup, user, workstation
Value Type	String
Shipped default value	not shipped

Allowable Values	

pref-screen-background-bitmap-foreground

The foreground color to use with tiling the background if the background type is ″bitmap″. See “Appendix C. Colors” on page 127 for more information on how to specify colors.

Takes Effect	At Workstation Initialization,At Login
Retained in Client Memory	No
User Interface Path	Hardware->Workstation: Monitor Settings: Desktop background: Foreground color
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, usergroup, user, workstation
Value Type	String
*shipped default value	no shipped value; default from theme
Allowable Values	000000 - ffffff

pref-screen-background-color

The background color to use when tiling the background if the background type is ″bitmap″. See “Appendix C. Colors” on page 127 for more information on how to specify colors.

Takes Effect	At Workstation Initialization,At Login
Retained in Client Memory	No
User Interface Path	None
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, usergroup, user, workstation
Value Type	String
Shipped default value	no shipped value; default from theme
Allowable Values	000000 - ffffff

pref-screen-background-type

The type of background image to display. Specifying ″bitmap″ or ″solid-color″ will override the value set by the current theme.

Takes Effect	At Workstation Initialization,At Login
Retained in Client Memory	No
User Interface Path	None
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, usergroup, user, workstation
Value Type	Choice

*shipped default value	not shipped, default from theme
Allowable Values	default, bitmap, solid-color

pref-screensaver-bitmap-file

Specifies the bitmap file to use if the screen saver is using Bitmap mode.

Takes Effect	At Workstation Initialization,At Login
Retained in Client Memory	No
User Interface Path	Hardware->Workstation: Monitor Settings: Screen saver: Custom screen saver path
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	String
*shipped default value	nil
Allowable Values	Valid filename to bitmap file

pref-screensaver-enable

Enable or disable the screen saver. This is the value that is consulted for the default screen saver setting. The user can override this setting using the ″Enable Screen Saver″ or ″Disable Screen Saver″ option on the root menu. Once the user makes a change, it is stored as ″screen_saver″ within the ″desktop/preferences″ registry item.

Takes Effect	At Workstation Init;, At Login
Retained in Client Memory	No
User Interface Path	None
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, user, usergroup
Value Type	Boolean
*shipped default value	true
Allowable Values	true, false

pref-screensaver-interval

Specifies how many seconds the screen saver waits before modifying its pattern.

Takes Effect	At Workstation Init, At Login
Retained in Client Memory	No
User Interface Path	None
Registry Object	/config
Category	EXTERNAL
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Integer
Shipped default value	3

Allowable Values	0-3000

pref-screensaver-style

The style of screen saver to be displayed.

Takes Effect	At Workstation Initialization, At Login
Retained in Client Memory	No
User Interface Path	Hardware->Workstation: Monitor Settings: Screen Saver
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Choice
Shipped default value	bitmap (IBM)
Allowable Values	blank, bitmap, ball

pref-screensaver-time

The time in seconds to wait before the screen saver activates due to no input activity.

Takes Effect	At Workstation Initialization, At Login
Retained in Client Memory	No
User Interface Path	Hardware->Workstation: Monitor Settings: Minutes before screen saver turns on
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Integer
Shipped default value	600 (10 minutes)
Allowable Values	0 - 3000

Serial Device Settings

serial-access-control-enabled

Specifies whether xhost-style access control is on or off for requests to connect to the serial or parallel port daemon.

Takes Effect	At Workstation Init
Retained in Client Memory	No
User Interface Path	Hardware->
Registry Object	/config
Category	DEVICE
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Boolean
Shipped default value	false

Allowable Values	true, false

serial-access-control-list

Specifies the host access control list for the serial or parallel port daemon.

Takes Effect	At Workstation Init
Retained in Client Memory	No
User Interface Path	Hardware->
Registry Object	/config
Category	DEVICE
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Table
Shipped default value	See the following tables
Allowable Values	See the following tables

The following are valid attributes for each row entry in the table:

host

Specifies the network name/address of a node granted permission to remotely access the serial or parallel port daemon.

Value Type	String
Shipped default value	localhost
Allowable Values	Valid host name or IP Address

family

Specifies the type of network connection for which this entry applies.

Value Type	Choice
Default Value	tcpip
Allowable Values	tcpip

serial-daemons-table

Specifies the table of serial daemon parameters.

Takes Effect	At Workstation Init
Retained in Client Memory	No
User Interface Path	Hardware->Serial Devices or Hardware->Printers
Registry Object	/config
Category	DEVICE
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Table
Shipped default value	See the following tables

Allowable Values	See the following tables

The following are valid attributes for each row entry in the table:

port-number

The name of the serial port.

Retained in Client Memory	No
Value Type	Integer
Allowable Values	1 to 18

use-serial-protocol

Specifies that the new serial daemon control protocol should be used. Note that this could cause some data loss if enabled with old host software.

Retained in Client Memory	No
Value Type	Boolean
Allowable Values	true, false

tcp-port

Specifies the TCP port on which the terminal listens for raw TCP connections to the serial

daemon.

Retained in Client Memory	No
Value Type	Integer
Allowable Values	1 to 65535

The following are the table entries that are shipped as defaults for the IBM Network Station Manager program:

port-number	use-serial-protocol	tcp-port
1	false	87
2	false	5962
3	false	5963
4	false	5966
5	false	5967
6	false	5968
7	false	5969
8	false	5970
9	false	5971
10	false	5972
11	false	5973
12	false	5974

13	false	5975
14	false	5976
15	false	5977
16	false	5978
17	false	5979
18	false	5980

serial-interfaces-table

Specifies the table of serial port parameters.

Takes Effect	At Workstation Init
Retained in Client Memory	Yes
User Interface Path	Hardware->Serial Devices or Hardware->Printers
Registry Object	/config
Category	DEVICE
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Table
Shipped default value	See the following tables
Allowable Values	See the following tables

The following are valid attributes for each table row entry:

port-number

The name of the serial port.

Retained in Client Memory	No
Value Type	Integer
Allowable Values	1 to 18

mode

Specifies what the serial port should be used for, but takes effect the next time the unit

is booted. The choices 'Printer' and 'Serial Daemon' are equivalent.

Retained in Client Memory	Yes
Value Type	Choice
Allowable Values	terminal, printer, serial-daemon, slip, console, input-device, xremote, ppp

current-mode

Specifies what the serial port should be used for. Any change takes effect immediately, but the value of this parameter is ignored at boot time in favor of the 'mode' value.

Retained in Client Memory	No

Value Type	Choice
Allowable Values	terminal, printer, serial-daemon, slip, console, input-device, xremote, ppp

baud-rate

Specifies the baud rate of the serial port. Many of the baud rates are provided for historical reasons and may not all be supported directly on the hardware.

Retained in Client Memory	Yes
Value Type	Choice
Allowable Values	50, 75, 110, 134.5, 150, 200, 300, 600, 1050, 1200, 1800, 2000, 2400, 4800, 7200, 9600, 14400, 19200, 38400, 57600, 76800, 115200

data-bits

Specifies the number of data bits per character of the serial port.

Retained in Client Memory	Yes
Value Type	Choice
Allowable Values	8, 7

stop-bits

Specifies the number of stop bits per character of the serial port.

Retained in Client Memory	Yes
Value Type	Choice
Allowable Values	1, 2

parity

Specifies the form of parity generated by and expected by the serial port.

Retained in Client Memory	Yes
Value Type	Choice
Allowable Values	none, odd, even, space, mark

handshake

Specifies the type of flow control of the serial port.

Retained in Client Memory	Yes
Value Type	Choice
Allowable Values	none, xon/xoff, dtr/dsr, rts/cts

hangup

Specifies what a local NCDterm client will do when closing the serial port. Also specifies what the serial daemon will do to signal the end of a network connection.

Retained in Client Memory	No
Value Type	Choice
Allowable Values	none, drop-dtr, send-break

The following table provides the shipped default values:

portnumber	mode	current mode	baud rate	data-bits	stop-bits	parity	handshake	hangup
1	printer	printer	9600	8	1	none	dtr/dsr	none
2	printer	printer	9600	8	1	none	dtr/dsr	none
3	printer	printer	9600	8	1	none	dtr/dsr	none
4	printer	printer	9600	8	1	none	dtr/dsr	none
5	printer	printer	9600	8	1	none	dtr/dsr	none
6	printer	printer	9600	8	1	none	dtr/dsr	none
7	printer	printer	9600	8	1	none	dtr/dsr	none
8	printer	printer	9600	8	1	none	dtr/dsr	none
9	printer	printer	9600	8	1	none	dtr/dsr	none
10	printer	printer	9600	8	1	none	dtr/dsr	none
11	printer	printer	9600	8	1	none	dtr/dsr	none
12	printer	printer	9600	8	1	none	dtr/dsr	none
13	printer	printer	9600	8	1	none	dtr/dsr	none
14	printer	printer	9600	8	1	none	dtr/dsr	none
15	printer	printer	9600	8	1	none	dtr/dsr	none
16	printer	printer	9600	8	1	none	dtr/dsr	none
17	printer	printer	9600	8	1	none	dtr/dsr	none
18	printer	printer	9600	8	1	none	dtr/dsr	none

SNMP Settings

snmp-read-only-community

Note: SNMP-community names at PTF 6 are no longer settable via the command line utility.
Specifies the first of two possible community names that can be specified in SNMP requests to obtain read-only access to configuration information.

Takes Effect	At Workstation Init
Retained in Client Memory	Yes
User Interface Path	Hardware->Workstation: Workstation Management Settings: SNMP Read Community Name
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation

Value Type	Encoded string
Shipped default value	public
Allowable Values	

snmp-read-only-community-alt

Specifies the second of two possible community names that can be specified in SNMP requests to obtain read-only access to configuration information.

Takes Effect	At Workstation Init
Retained in Client Memory	Yes
User Interface Path	Hardware->Workstation: Workstation Management Settings: SNMP Read Community Name Alternate
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Encoded string
Shipped default value	not shipped
Allowable Values	

snmp-read-write-community

Specifies the first of two possible community names that can be specified in SNMP requests to obtain read-write access to configuration information.

Takes Effect	At Workstation Init
Retained in Client Memory	Yes
User Interface Path	Hardware->Workstation: Workstation Management Settings: SNMP Read/Write Community
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Encoded string
Shipped default value	not shipped
Allowable Values	

snmp-read-write-community-alt

Specifies the second of two possible community names that can be specified in SNMP requests to obtain read-write access to configuration information.

Takes Effect	At Workstation Init
Retained in Client Memory	Yes
User Interface Path	Hardware->Workstation: Workstation Management Settings: SNMP Read/Write Community Alternate
Registry Object	/config
Category	WORKSTATION

Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Encoded string
Shipped default value	not shipped
Allowable Values	

unit-contact

Specifies the administrative contact for the unit. This is provided as a convience for system administration personnel.

Takes Effect	At Workstation Init
Retained in Client Memory	No
User Interface Path	Hardware->Workstation: Workstation Management Settings: Contact person
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	String
Shipped default value	nil
Allowable Values	

unit-global-password

Specifies the password required to obtain read-write access to the Boot Setup, Telnet, and SNMP and other daemons.

Takes Effect	At workstation Init
Retained in Client Memory	Yes
User Interface Path	Hardware->Workstation: Workstation Management Settings: Administrator password
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Encoded String
Shipped default value	nil
Allowable Values	

unit-initial-locale

Initial locale for the Network Station. This value is set by install to reflect the locale of the server at the system wide level for workstations (system).

Takes Effect	At Workstation Init
Retained in Client Memory	No
User Interface Path	None
Registry Object	/config
Category	EXTERNAL

Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Choice
Shipped default value	en_US
Allowable Values	da_DK, de_CH, de_DE, en_US, es_ES, fi_FI, fr_BE, fr_CA, fr_CH, fr_FR, it_CH, it_IT, nl_BE, nl_NL, no_NO, pt_BR, pt_PT, sv_SE See “Appendix F. Language and locale” on page 235 for a description of these values.

unit-location

Specifies the physical location of the unit. This is provided as a convience for system administration personnel.

Takes Effect	At Workstation Init
Retained in Client Memory	No
User Interface Path	Hardware->Workstation:
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	String
Shipped default value	nil
Allowable Values	

TCPIP

tcpip-name-servers-1

Takes Effect	
Retained in Client Memory	
User Interface Path	
Registry Object	/config
Category	EXTERNAL
Valid Preference Levels	
Value Type	
Shipped default value	Not shipped
Allowable Values	

tcpip-name-servers-2

Takes Effect	
Retained in Client Memory	
User Interface Path	
Registry Object	/config

Category	EXTERNAL
Valid Preference Levels	
Value Type	
Shipped default value	Not shipped
Allowable Values	

Xserver Settings

xserver-access-control-enabled

Determines whether or not xhost-style access control is enabled on the client. When set to ″false″, any client can connect from any host. When set to ″true″, only clients on the specified host list can connect..

Takes Effect	At Workstation Initialization, At Login
Retained in Client Memory	No
User Interface Path	Hardware->Workstation: Local Services: Allow remote X Clients
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, usergroup, workstation, user
Value Type	Boolean
Shipped default value	true
Allowable Values	true, false

xserver-access-control-enabled-default

Specifies whether xhost-style access control is on or off by default for client connections.

Specifies the default value to be used for the companion option ″xserver-access-control-enabled″.

Takes Effect	At Workstation Init
Retained in Client Memory	No
User Interface Path	None
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, usergroup, user, workstation
Value Type	Boolean
Shipped default value	true
Allowable Values	true, false

xserver-access-control-list

This is a list of host names and address families for the hosts that clients may connect from using xhost-style authentication. Each list element must contain at least the field ″host″, which indicates the hostname or IP address of the host that is permitted access. List elements may also contain the field

″field″, which indicates the address family that is allowed access. The only supported address family is ″tcpip″, which is also the default. Hosts for other address families are ignored.

Takes Effect	At Workstation Initialization, At Login
Retained in Client Memory	No
User Interface Path	None
Registry Object	/config
Category	EXTERNAL
Valid Preference Levels	system, allworkstation, allusers, workstation, usergroup, user
Value Type	Table
Shipped default value	<blank>
Allowable Values	

host

Specifies the name of the host that is granted access to make connections to the server.

Retained in Client Memory	No
Value Type	String
Allowable Values	

family

The access control family to which this entry applies.

Retained in Client Memory	No
Value Type	Choice
Allowable Values	tcpip

xserver-initial-x-resources

This is a string to be set as the initial resource list on the X server's root window. Its syntax must conform to that of the X resource file format.

Takes Effect	At Workstation Init
Retained in Client Memory	No
User Interface Path	None
Registry Object	/config
Category	EXTERNAL
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	String
Shipped default value	not shipped
Allowable Values	

Print

print-access-control-enabled

Indicates whether to check the access control list.

Takes Effect	At Workstation Init
Retained in Client Memory	No
User Interface Path	Hardware->Printers: Printer Services
Registry Object	/config
Category	DEVICE
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Boolean
Shipped default value	false
Allowable Values	true, false

print-access-control-list

Specifies the list of IP hosts that are allowed access to the print daemon

Takes Effect	At Workstation Init
Retained in Client Memory	No
User Interface Path	Hardware->Printers: Printer Services
Registry Object	/config
Category	DEVICE
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Table
Shipped default value	See the following tables
Allowable Values	See the following tables

The following attribute is valid for each table entry:

host

Specifies the network name/address of a node granted permission to access the print daemon.

Value Type	String
Default Value	localhost
Allowable Values	IP address or host name

print-lpd-cache-size

Maximum percentage of available memory LPD will allocate for print job

Takes Effect	At Workstation Init
Retained in Client Memory	No
User Interface Path	Hardware->Printers: Print Services: Print server (LPD): Maximum LPD buffer size

Registry Object	/config
Category	DEVICE
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Integer
Shipped default value	10
Allowable Values	0 - 95

print-lpd-stream-large-jobs

Indicates whether incoming jobs that overflow the cache are switched to streaming mode

Takes Effect	At Workstation Init
Retained in Client Memory	No
User Interface Path	Hardware->Printers: Print Services: Print server (LPD): Maximum LPD buffer size
Registry Object	/config
Category	DEVICE
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Boolean
Shipped default value	true
Allowable Values	true, false

print-lpr-servers

Print server information

Takes Effect	At Workstation Init
Retained in Client Memory	No
User Interface Path	Hardware->Printers
Registry Object	/config
Category	DEVICE
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Table
Shipped default value	<blank>
Allowable Values	

The following attributes are valid for each table entry:

server

server name

Value Type	String
Allowable Values	

queue-name

Name of print queue.

Value Type	String
Default Value	nil
Allowable Values	

datastream-type

Datastream type

Value Type	String
Default Value	not shipped
Allowable Values	

description

description

Value Type	String
Default Value	not shipped
Allowable Values	

transform-file

full path to transform file

Value Type	String
Default Value	not shipped
Allowable Values	

dbcs-type

DCBS type

Value Type	String
Default Value	not shipped
Allowable Values	

print-resolution

print resolution

Value Type	String
Default Value	not shipped
Allowable Values	

dbcs-font-encoding

DBCS font encoding

Value Type	String
Default Value	not shipped
Allowable Values	

request-banner-page

request banner page

Value Type	Boolean
Default Value	not shipped
Allowable Values	true, false

use-as-default

indicates whether this entry should be the default

Value Type	Boolean
Default Value	not shipped
Allowable Values	true, false

print-lprd-cache-size

Maximum percentage of available memory LPRD will allocate for print job

Takes Effect	At Workstation Init
Retained in Client Memory	No
User Interface Path	Hardware-> Printers: Print Services: Print Client (LPR): Maximum LPR buffer size
Registry Object	/config
Category	DEVICE
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Integer
Shipped default value	10
Allowable Values	0 - 95

Desktop Settings

collapsed

Sets whether or not the application launch bar on the left of the screen starts open (no) or collapsed (yes).

Takes Effect	At Destkop Init (login)
Retained in Client Memory	No
User Interface Path	Desktop->Display: Launch bar options: Collapsed
Registry Object	/desktop/preferences
Category	DESKTOP

Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Choice
Shipped default value	not shipped; the default is no
Allowable Values	yes, no

commands

Specifies the values to execute the kiosk RUN command. You must make sure the **desktop_commands** is set to 'True'. See "desktop_command" on page 167

Takes Effect	At workstation initialization
Retained in Client Memory	No
User Interface Path	
Registry Object	login/session
Category	RUN
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Table
Shipped default value	
Allowable Values	See the following tables

The following are valid attributes for each row entry in the table:

Op

Specifies the applications to execute.

Value Type	String
Default value	
Allowable Values	RUN

Arg1

Specifies the applications to execute.

Value Type	String
Default Value	
Allowable Values	any string

Arg2

Specifies the applications to execute.

Value Type	String
Default Value	
Allowable Values	true, false

confirm_logoff

Sets whether or not the confirmation dialog box should be displayed. When set to 'no', the user will be immediately logged off when 'Logoff and Exit' is selected.

Takes Effect	At Desktop Init
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user, workstation
Value Type	Choice
Shipped default value	not shipped, the default is 'yes'
Allowable Values	yes, no

confirm_logoff_system_modal

When set to 'yes', the logoff confirmation dialog will be 'system modal'. That is, the user will not be able to access any other windows on the screen until the dialog has been answered. When set to 'no', the logoff confirmation dialog will be 'application modal', allowing the user to access other windows.

Takes Effect	At Desktop Init
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user, workstation
Value Type	Choice
*shipped default value	not shipped; the default is yes
Allowable Values	yes, no

constrained_mode

Sets whether or not windows are constrained to be on-screen, or if they can be moved off-screen.

Takes Effect	At Desktop Init
Retained in Client Memory	No
User Interface Path	Desktop->Display: Window Appearance: Constrained mode
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Choice
Shipped default value	no
Allowable Values	yes, no

current_theme

This is the name of the color theme that is currently in use. A theme specifies the attributes for colors, screensaver, and background images to be used within the desktop. Available color themes are stored in ″/usr/local/nc/registry/desktop/themes″.

Takes Effect	At Desktop init
Retained in Client Memory	No; retained in user's desktop profile if root-menu is enabled
User Interface Path	Desktop->Display : Window Appearance : Desktop Color Theme
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user, workstation
Value Type	choice
Shipped default value	BLUE
Allowable Values	BLUE = Blue BLUES = Dark/Light Blue BRICK = Brick Wall CHAIN = Chain Link Fence DROPS = Water Drops EBIZ = e Business GREEN = Green KHAKI = Khaki LAWN = Lawn MAUVE = mauve MIDNIGHT = Midnight NSKEY = Series 2800 NSTFT = Network Station OCEAN = Kids in Ocean PLUM = Plum PURPLE = Purple SPACE = Kids in Space STARS = Star in Night Sky TAN = Tan WATER = Choppy Water <File Name> = Custom theme file

desktop_command

Enables startup commands. See "commands" on page 165

Takes Effect	At Desktop Initialization
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	String
Shipped default value	
Allowable Values	True, False

desktop_font_size

The point size of the font that the desktop uses on the icon bar and memory meter.

Takes Effect	At Desktop Init
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Integer
Shipped default value	not shipped; desktop default is 12
Allowable Values	8, 10, 12, 14, 18, 24

help_button

Specifies if help button icon should be displayed on the launch bar. Simliar to show_help_button.

Takes Effect	At Desktop Init
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Choice
Shipped default value	not shipped
Allowable Values	yes, no

icon_placement

Specifies where minimized application icons should be placed on the desktop.

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No; saved in user's desktop profile
User Interface Path	Desktop->Display: Window appearance: Icon location
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Integer
Shipped default value	0
Allowable Values	0 - Align on top, from left to right. 1 - Align on bottom, from left to right. 2 - Align on left, from top to bottom. 3 - Align on right, from top to bottom. 4 - Align on top, from right to left. 5 - Align on bottom, from right to left. 6 - Align on left, from bottom to top. 7 - Align on right, from bottom to top.

lock_screen

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user, workstation
Value Type	Choice
Shipped default value	Not shipped
Allowable Values	yes, no

lock_when_screen_saves

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Choice
Shipped default value	Not shipped
Allowable Values	yes, no

logout_button

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Choice
Shipped default value	Not shipped
Allowable Values	yes, no

max_unlock_attempts

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences

Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Integer
Shipped default value	Not shipped
Allowable Values	0 - 1000

prompt_for_lock_password

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Choice
Shipped default value	Not shipped
Allowable Values	yes, no

root_menu_enabled

Indicates whether the pop-up menu on the desktop should be displayed if right-click on desktop is performed.

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	Desktop -> Display : Window Appearance: Enable Desktop Pop-up
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Choice
Shipped default value	yes
Allowable Values	yes - show popup window no - do not show popup window

show_logoff_during_lock

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Choice

Shipped default value	not shipped
Allowable Values	yes, no

show_logout_button

Sets whether the logout image should be displayed on the launchbar.

Takes Effect	At Desktop Init (Login)
Retained in Client Memory	No
User Interface Path	Desktop->Display: Desktop buttons: Show Exit button
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Choice
Shipped default value	not shipped; desktop default is yes
Allowable Values	yes, no

show_lock_button

Sets whether the lock screen image should be displayed on launchbar.

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	Desktop->Display: Desktop buttons: Show Lock button
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Choice
Shipped default value	not shipped; desktop default is yes
Allowable Values	yes, no

show_help_button

Sets whether the help button/image should be displayed on launchbar.

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	Desktop->Display: Desktop buttons: Show Help button
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Choice
*shipped default value	not shipped; desktop default is yes
Allowable Values	yes, no

show_memory_meter

Sets whether or not the memory meter can be ″popped out″ to show actual memory usage figures. This has no effect on whether the memory meter is displayed on the launch bar.

Takes Effect	At Desktop Init (Login)
Retained in Client Memory	No
User Interface Path	Desktop->Display: Launch bar options: Show memory meter
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Choice
Shipped default value	not shipped; desktop default is yes
Allowable Values	yes, no

winmgr_font_size

The point size of the font that the window manager uses for window titles, menus, and dialog boxes.

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	Desktop->Display: Fonts: Font size for icons and menus
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Choice
Shipped default value	not shipped; default is 12
Allowable Values	8, 10, 12, 14, 18, 24

xserver-initialize-web-palette-colors

Specifies whether to preload the 216 web palette colors into the default colormap

Takes Effect	At Desktop Init
Retained in Client Memory	No
User Interface Path	Desktop->Display: Fonts: Enable web palette colors
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Boolean
Shipped default value	false
Allowable Values	true, false

Keyboard Related Settings

pref-keyboard-auto-repeat

Specifies whether or not keyboard auto-repeat is enabled. If ″false″, then keys do not auto-repeat at all.

Takes Effect	At Workstation Initialization, At Login
Retained in Client Memory	No
User Interface Path	None
Registry Object	/config
Category	EXTERNAL
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Boolean
Shipped default value	true
Allowable Values	true, false

pref-keyboard-auto-repeat-rate

The auto repeat rate to use for the keyboard (times per second). This option is ignored if ″pref-keyboard-auto-repeat″ is false.

Takes Effect	At Workstation Initializtion, At Login
Retained in Client Memory	No
User Interface Path	Hardware->Workstation: Keyboard Settings: Repeat rate
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Integer
Shipped default value	20
Allowable Values	2-30

pref-keyboard-auto-repeat-start

The delay (in milliseconds) to use before keyboard auto repeat begins. This option is ignored if

″pref-keyboard-auto-repeat″ is false.

Takes Effect	At Workstation Initialization, At Login
Retained in Client Memory	No
User Interface Path	Hardware->Workstation: Keyboard Settings: Repeat delay
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Integer
Shipped default value	500
Allowable Values	0 - 1000

nsm-numlock

Used to enable/disable status of numlock key on keyboard when session is started.

Takes Effect	At Workstation Initialization, At Login
Retained in Client Memory	No
User Interface Path	Hardware->Workstation: Keyboard Settings: Num Lock key
Registry Object	/config
Category	HLOGIN
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	Boolean
false	false
Allowable Values	true, false

key_window_close

The key sequence to close the active window.

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	String
*shipped default value	not shipped; default ″Alt<Key>F4″
Allowable Values	

key_root_menu

The key sequence to pop up the root menu at the current mouse pointer position.

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	String
Shipped default value	not shipped; default is ″Alt<Key>F10″
Allowable Values	

key_window_menu

The key sequence to pop up the window menu that is associated with the active window.

Takes Effect	At Desktop Initialization (Login)

Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	String
Shipped default value	not shipped; default, ″Alt<Key>space″
Allowable Values	

key_window_menu_alt

An alternative key sequence for accessing the window menu for the active window.

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	String
Shipped default value	not shipped; (default ″Alt<Key>minus″)
Allowable Values	

key_window_switch

The key sequence to switch between windows by moving forwards through the window list.

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	String
*shipped default value	not shipped; (default ″˜Shift Alt<Key>Tab″)
Allowable Values	

key_window_switch_back

The key sequence to switch between windows by moving backwards through the window list.

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP

Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	String
Shipped default value	not shipped; default ″Shift Alt<Key>Tab″
Allowable Values	

key_version

Display the desktop build date version.

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	String
*shipped default value	not shipped; default ″Ctrl Alt<Key>V″
Allowable Values	

key_logoff

The key sequence to log the user off. This has the same effect as selecting the ″Logoff and Exit″ option from the root menu.

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	String
Default Value	″Ctrl Alt<Key>BackSpace″
Allowable Values	

key_window_kill

Hitting this key sequence twice will send an ″XKillClient″ message to the active window. This can be used to kill crashed applications. Note however that some applications may still stay in memory because they are not responding to X events. It is necessary to logout to kill the process in this situation.

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user

Value Type	String
Shipped default value	not shipped; default ″Ctrl Alt<Key>Delete″
Allowable Values	

key_login_name

Display the userid of the logged in user.

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	String
Default Value	not ″Ctrl Alt<Key>L″
Allowable Values	

key_information

Display information about the IP-related parameters that have been configured on the NC.

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	String
Default Value	″Ctrl Alt<Key>I″
Allowable Values	

key_print_screen

The key sequence to use to print the entire screen image to a BMP file in the user's document directory.

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	String
Shipped default value	Alt Shift<Key>PrtSc
Allowable Values	

key_print_window

The key sequence to use to print the active window's image to a BMP file in the user's document directory.

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	String
Shipped default value	Alt Shift<Key>Scroll_Lock
Allowable Values	

key_toggle_keys

The key sequence to use to toggle special keys on and off.

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	String
Shipped default value	not shipped; default ″Shift Ctrl Alt<Key>F11″
Allowable Values	

special_keys_enabled

This option can be set to false to disable the special keys when the user logs in. The user can change the special key state using the ″key_toggle_keys″ key at any time during the login session. Upon the next login, the state will revert to the server's setting: the user's changes do not persist across login sessions.

Takes Effect	At Desktop Initialization (Login)
Retained in Client Memory	No
User Interface Path	None
Registry Object	/desktop/preferences
Category	DESKTOP
Valid Preference Levels	system, allworkstation, allusers, usergroup, user
Value Type	boolean
Shipped default value	not shipped; default true
Allowable Values	true, false

xserver-keyboard-type

Specifies the type of keyboard in use. NOTE: Choices depend on attached keyboard.

Takes Effect	At Workstation Init
Retained in Client Memory	Yes
User Interface Path	Hardware->Workstation: Keyboard Settings: Keyboard mapping language
Registry Object	/config
Category	WORKSTATION
Valid Preference Levels	system, allworkstation, allusers, workstation
Value Type	Choice
Shipped default value	not shipped
Allowable Values	15 - Danish 110 - Dutch 6 - Dutch (Belgian) 9 - English (UK) 0 - English (US) 112 - English (US ISO) 13 - Finnish 5 - French 44 - French (Belgian) 43 - French (Canadian-1988) 45 - French (Canadian-1992) 46 - French (Swiss) 4 - German 7 - German (Swiss) 10 - Italian 12 - Norwegian 14 - Portuguese 141 - Portuguese (Brazilian) 8 - Spanish 109 - Spanish (Latin America) 167 - Swedish 107 - Swiss, French/German

Registry Settings

NSM_ALLOW_OVERRIDES

Indicates if override files should be pulled in by the registry during initialization.

Takes Effect	At Registry Initialization
Retained in Client Memory	No
User Interface Path	None
Registry Object	/login/rules
Category	RULES
Valid Preference Levels	system, allworkstation, allusers
Value Type	Choice
Shipped default value	DISABLE
Allowable Values	ENABLE, DISABLE

NSM_NC_NAME_TYPE

Indicates what name format should be used to locate the workstation specific configuration information for this Network Station. Valid types are: ANY, IP_ADDRESS, MAC_ADDRESS, and HOST_NAME. ANY indicates that all of the valid forms are acceptable. Specifying any of the other options will make that the only valid form and exclude usage of the other forms.

Takes Effect	At Registry Initialization
Retained in Client Memory	No
User Interface Path	None
Registry Object	/login/rules
Category	RULES
Valid Preference Levels	system, allworkstation, allusers
Value Type	Choice
Shipped default value	ANY
Allowable Values	ANY, IP_ADDRESS, MAC_ADDRESS, HOST_NAME

NSM_ACCESS_NC_CONFIG

Specifies whether the registry should look for workstation specific configuration files during registry initialization. Disabling this attribute will result in a minor performance improvement during Network Station startup and eliminate any possibility of workstation specific configuration from being used.

Takes Effect	At Registry Initialization
Retained in Client Memory	No
User Interface Path	None
Registry Object	/login/rules
Category	RULES
Valid Preference Levels	system, allworkstation, allusers
Value Type	Choice
Shipped default value	ENABLE
Allowable Values	ENABLE, DISABLE

NSM_ACCESS_GROUP_CONFIG

Specifies whether the registry should look forusergroup level configuration files during registry initialization of user information. Disabling this attribute will result in a minor performance improvement during user login and eliminate any possiblity of usergroup level configuration files being used.

Takes Effect	At Registry Initialization
Retained in Client Memory	No
User Interface Path	None
Registry Object	/login/rules
Category	RULES
Valid Preference Levels	system, allworkstation, allusers
Value Type	Choice
Shipped default value	ENABLE
Allowable Values	ENABLE, DISABLE

NSM_ACCESS_USER_CONFIG

Specifies whether the registry should look for user specific configuration files during registry initialization of user information. Disabling this attribute will result in a minor performance improvement during user login and eliminate any possiblity of user level configuration files being used.

Takes Effect	At Registry Initialization
Retained in Client Memory	No
User Interface Path	None
Registry Object	/login/rules
Category	RULES
Valid Preference Levels	system, allworkstation, allusers
Value Type	Choice
Shipped default value	ENABLE
Allowable Values	ENABLE, DISABLE

Network Station Login

<User's Group Specification>

If a user belongs to more than one group, this specifies from which group the user should get their preferences.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Administration->User's Group
Registry Object	/login/groups
Category	USERGROUP
Valid Preference Levels	system, allworkstation, allusers
Value Type	List (user name, group name)
Shipped default value	not shipped
Allowable Values	Any valid user name. The group name is the configuration value name and the user name is the configuration value.

FULL_NAME

Specifies the user for which these defaults settings are being defined. The default is to not list any user.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Network->Personal: User's name
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstation, allusers, usergroup, user, workstation

Value Type	String
Shipped Default Value	nil
Allowable Values	Any invariant ASCII string

EMAIL_USERID

For specifying the Internet E-mail address of this user.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Network->Personal: Email address
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstation, allusers usergroup user workstation
Value Type	String
Shipped Default Value	nil
Allowable Values	Any invariant ASCII string

REPLY_TO

Used to specify an E-mail address at which this user can receive E-mail as an alternative to the users regular E-mail address.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Network->Personal: Reply to address
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstations, allusers usergroup user workstation
Value Type	String
Shipped Default Value	nil
Allowable Values	Any invariant ASCII string

HOME_PAGE

Specifies the URL address that is automatically loaded after the browser starts.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Network->Personal: Home page
Registry Object	/login/groups
Category	INTERNET

Valid Preference Levels	system, allworkstations, allusers usergroup user workstation
Value Type	String
Shipped Default Value	nil
Allowable Values	Any invariant ASCII string

FTP_PROXY_HOST

Specifies the name of the FTP proxy to be used.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Network->Proxies: FTP: Address of proxy server to use
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstations, allusers usergroup user workstation
Value Type	String
Shipped Default Value	nil
Allowable Values	Any invariant ASCII string

FTP_PROXY_PORT

Specifies the name of the FTP port to be used.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Network->Proxies: FTP: Port
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstations, allusers usergroup user workstation
Value Type	Integer
Shipped Default Value	nil
Allowable Values	1 - 65535

HTTP_PROXY_HOST

Specifies the name of the HTTP proxy to be used.

Takes Effect	At Login
Retained in Client Memory	No

User Interface Path	Environment->Network->Proxies: HTTP: Address of proxy server to use
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstations, allusers, usergroup, user, workstation
Value Type	String
Shipped Default Value	nil
Allowable Values	Any invariant ASCII string

HTTP_PROXY_PORT

Specifies the name of the HTTP port to be used.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Network->Proxies: HTTP: Port
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstations, allusers, usergroup, user, workstation
Value Type	Integer
Shipped Default Value	nil
Allowable Values	1 - 65535

GOPHER_PROXY_HOST

Specifies the name of the GOPHER proxy to be used.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Network->Proxies: GOPHER: Address of proxy server to use
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstations, allusers, usergroup, user, workstation
Value Type	String
Shipped Default Value	nil
Allowable Values	Any invariant ASCII string

GOPHER_PROXY_PORT

Specifies the name of the GOPHER port to be used.

Takes Effect	At Login
Retained in Client Memory	No

User Interface Path	Environment->Network->Proxies: GOPHER: Port
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstations, allusers, usergroup, user, workstation
Value Type	Integer
Shipped Default Value	nil
Allowable Values	1 -65535

HTTPS_PROXY_HOST

Specifies the name of the security proxy to be used.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Network->Proxies: Security: Address of proxy server to use
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstations, allusers, usergroup, user, workstation
Value Type	String
Shipped Default Value	nil
Allowable Values	Any invariant ASCII string

HTTPS_PROXY_PORT

Specifies the name of the security port to be used.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Network->Proxies: Security: Port
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstations, allusers, usergroup, user, workstation
Value Type	Integer
Shipped Default Value	nil
Allowable Values	1 - 65536

SOCKS_HOST

SOCKS host field specifies the name of the SOCKS Host to be used.

Takes Effect	At Login
Retained in Client Memory	No

User Interface Path	Environment->Network->Proxies: SOCKS: Address of proxy server to use
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstations, allusers, usergroup, user, workstation
Value Type	String
Shipped Default Value	nil
Allowable Values	Any invariant ASCII string

SOCKS_PORT

Specifies the name of the SOCKS port to be used.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Network->Proxies: SOCKS: Port
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstations, allusers, usergroup, user, workstation
Value Type	Integer
Shipped Default Value	nil
Allowable Values	1 - 65535

SMTP_SERVER

Specifies the name of the SMTP mail server to be used.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Network->Mail and News servers: Outgoing mail (SMTP) server
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstations, allusers, usergroup, user, workstation
Value Type	String
Shipped Default Value	nil
Allowable Values	Any invariant ASCII string

POP3_SERVER

Specifies the name of the POP3 mail server to be used.

Takes Effect	At Login
Retained in Client Memory	No

User Interface Path	Environment->Network->Mail and News servers: Incoming mail (POP3) server
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstations, allusers, usergroup, user, workstation
Value Type	String
Shipped Default Value	nil
Allowable Values	Any invariant ASCII string

NNTP_SERVER

Specifies the name of the NNTP news server to be used.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Network->Mail and News servers: News (NNTP) server
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstations, allusers, usergroup, user, workstation
Value Type	String
Shipped Default Value	nil
Allowable Values	Any invariant ASCII string

NNTP_SERVER_PORT

Specifies the port that accesses the NNTP server.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Network->Mail and News servers: News (NNTP) server port
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstations, allusers, usergroup, user, workstation
Value Type	Integer
Shipped Default Value	nil
Allowable Values	1 - 65536

FTP_PROXY_OVERRIDES

Identifies hosts that can connect without going through the FTP proxy.

Takes Effect	At Login
Retained in Client Memory	No

User Interface Path	Environment->Network->Proxy exceptions: No FTP proxy for
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstations, allusers, usergroup, user, workstation
Value Type	String
Shipped Default Value	nil
Allowable Values	Any list of PATH:PORT entries separated by commas (must be invariant ASCII)

HTTP_PROXY_OVERRIDES

Identifies hosts that can connect without going through the FTP proxy.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Network->Proxy exceptions: No HTTP proxy for
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstations, allusers, usergroup, user, workstation
Value Type	String
Shipped Default Value	nil
Allowable Values	Any list of PATH:PORT entries separated by commas (must be invariant ASCII)

GOPHER_PROXY_OVERRIDES

Identifies hosts that can connect without going through the GOPHER proxy.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Network->Proxy exceptions: No GOPHER proxy for
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstations, allusers, usergroup, user, workstation
Value Type	String
Shipped Default Value	nil
Allowable Values	Any list of PATH:PORT entries separated by commas (must be invariant ASCII)

NSM_HTTP_PORT

Specifies the port that accesses the HTTP server.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Network->Ports: Web server port on the boot host
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstations, allusers, usergroup, user, workstation
Value Type	Integer
Shipped Default Value	80
Allowable Values	1 - 65536

DESKTOP_LAUNCHER_PORT

Identifies the port to connect to when launching Java applets.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Network->Ports: Applet launcher port
Registry Object	/login/groups
Category	INTERNET
Valid Preference Levels	system, allworkstations, allusers, usergroup, user, workstation
Value Type	Integer
Shipped Default Value	5555
Allowable Values	1 - 65535

LANG

The default is Default (from server). The value for this field is taken from the Host server from which the IBM Network Stations are booted.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Language->Formats: Format to use for dates, currency, numbers, and messages
Registry Object	/login/groups
Category	LANGUAGE
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	String
Shipped Default Value	nil
Allowable Values	See “Appendix F. Language and locale” on page 235

LC_TIME

Refers to how dates and time are presented on paper or computer displays.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Language->Formats: Date and time format
Registry Object	/login/groups
Category	LANGUAGE
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	String
Shipped Default Value	nil
Allowable Values	See “Appendix F. Language and locale” on page 235

LC_MONETARY

Defines the rules and symbols used to format monetary information.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Language->Formats: Currency related format
Registry Object	/login/groups
Category	LANGUAGE
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	String
Shipped Default Value	nil
Allowable Values	See “Appendix F. Language and locale” on page 235

LC_NUMERIC

Defines the rules and symbols for formatting non-monetary numeric values.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Language->Formats: Numeric format
Registry Object	/login/groups
Category	LANGUAGE
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	String
Shipped Default Value	nil
Allowable Values	See “Appendix F. Language and locale” on page 235

LC_CTYPE

Defines how characters are classified for use.

Takes Effect	At Login
Retained in Client Memory	No

User Interface Path	Environment->Language->Formats: Character handling rules
Registry Object	/login/groups
Category	LANGUAGE
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	String
Shipped Default Value	nil
Allowable Values	See “Appendix F. Language and locale” on page 235

LC_MESSAGES

Defines the format and values used for messages and menus on a system.

Takes Effect	At Login
Retained in Client Memory	No
User Interface Path	Environment->Language->Formats: Language for messages and menus
Registry Object	/login/groups
Category	LANGUAGE
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	String
Shipped Default Value	nil
Allowable Values	See “Appendix F. Language and locale” on page 235

5250 Emulator Settings

NS5250*KeyRemap

Determines if you want the user to have the ability to remap keys or to restrict the user to the 5250 default (or system default).

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->5250->Keyboard mapping: Key remapping capability
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	disable
Allowable Values	enable, disable, disable_and_hide

NS5250*KeymapPath

Select which key mapping is used with a 5250 session.

Takes Effect	At start of the first emulator session

Retained in Client Memory	No
User Interface Path	Applications->5250->Keyboard mapping: Default keyboard files
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	0
Allowable Values	0, 1 (0 = no default at the level; 1 = default at the level)

NS5250*KeymapXXXPath

Provides the client path to the keymap file.

Note: the XXX in the preference name should be subsituted with the numeric value of the keyboard.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->5250->Keyboard mapping->Default keyboard files
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	String
Shipped default value	
Allowable Values	valid path name accessible from the client

NS5250*KeyPad

Allows you to customize keys.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->5250->Keypad: Keypad capability
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, keypad_only, disable_and_hide

NS5250*KeyPadPath

Contains the Keypad sequences that will be made available to users with enabled or keypad use only capability. The default is None, meaning you don’t want to make any keypad sequences available.

Takes Effect	At start of the first emulator session

Retained in Client Memory	No
User Interface Path	Applications->5250->Keypad: Keypads to make available
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	0 (no paths specified)
Allowable Values	any valid path name to default keypad files; multiple values separated by commas

NS5250*PlayBack

Determines if the user can use the 5250 emulator function of recording a series of keystrokes and then play them back.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->5250->Record/Playback: Record/Playback capability
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, playback_only, disable_and_hide

NS5250*PlayBackPath

Contains the Playback sequences that will be made available to users with enable or playback only capability.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->5250->Record/Playback: Playback sequences to make available
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	0
Allowable Values	any valid client path to default playback files, multiple paths separated by commas

NS5250*ColorMap

Determines whether the user has the capability to create new color schemes (Advanced), use color schemes created by others (Basic), or be limited to the default color scheme.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->5250->Colors: Color customization capability
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	basic
Allowable Values	basic, advanced, disable, disable_and_hide

NS5250*DefaultColorMapPath

Used to indicate which color scheme should be used when the 5250 emulation session is started.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->5250->Colors: Default color scheme
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	String
Shipped default value	0
Allowable Values	Any valid client path to color map files

NS5250*ColorMapPath

Determines the color schemes that will be available to users with basic or advanced color customization capability. Clients path to color map files. Multiple paths should be separated by commas.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->5250->Colors: Additional color schemes to make available
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	String
Shipped default value	0 ; no paths
Allowable Values	Any valid client path name to color map files

NS5250*27x132

Used to select the size (number of rows and columns) that you want your 5250 session to use. Possible values are: 24 by 80 and 27 by 132. The default value is 27 by 132.

Takes Effect	At start of the first emulator session

Retained in Client Memory	No
User Interface Path	Applications->5250->Appearance: Screen size
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable

NS5250*ImageView

Enables or disables Sviewing of image or fax documents.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->5250->Appearance: Image/Fax display
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable

NS5250*ColumnSeparator

Enables or disables displaying column separators between certain types of fields.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->5250->Appearance: Column separators
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable

NS5250*Command

Allows you to enable or disable the menu bar Command choice.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->5250->Allow use of: Command menu
Registry Object	/ns5250/preferences
Category	NS5250

Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable_and_hide

NS5250*Edit

Allows you to enable or disable editing (copy, cut, and paste) functions.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->5250->Allow use of: Edit menu
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable_and_hide

NS5250*Option

Allows you to enable or disable the menu bar Option choice.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->5250->Allow use of: Option menu
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable_and_hide

NS5250*LocalPrint

Allows you to enable or disable the menu bar Print choice.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->5250->Allow use of: Print menu
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, keyboard_only_local_print, disable_and_hide

NS5250*Help

Enables the Help menu item.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->5250->Allow use of: Help menu
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable_and_hide

NS5250*Control

Allows you to enable or disable the menu bar Control choice.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->5250->Allow use of: Help menu
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable_and_hide

NS5250*MiscPref

Determines (to some extent) the look and feel of your 5250 display screen.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->5250->Allow use of: Miscellaneous preferences
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable_and_hide

NS5250*FontMenu

Provides the capability to select a different size font for a 5250 emulation session.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->5250->Allow use of: Font menu list
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable, disable_no_resize_or_move, fixed_fonts_only

NS5250*ChangeIPAddress

Provides the capability to request a 5250 session on a different host.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->5250->Allow use of: New session window
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable

NS5250*BrowserStart

Provides the capability to launch a browser session from any valid URL address encountered during a 5250 Emulation session

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->5250->Allow use of: Browser hotspot
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable

NS5250*DesktopFunction

Stores the window size, location, and the fonts in the most recent use of the application.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No

User Interface Path	Applications->5250->Allow use of: Desktop file write
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable

NS5250*

Provides ability to add any additional 5250 application parameter. Any literal can follow the NS5250* prefix and it will become a custom 5250 parameter.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->5250->Additional parameters:
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	

3270 Emulator Settings

NS3270*KeyRemap

Determines if users can have the capability to remap keys or if users are restricted to the 3270 default (or system default).

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->3270->Keyboard mapping: Key remapping capability
Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	disable
Allowable Values	enable, disable, disable_and_hide

NS3270*KeymapPath

Select which key mapping is used with a 3270 session.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No

User Interface Path	Applications->5250->Keyboard mapping: Default keyboard files
Registry Object	/ns5250/preferences
Category	NS5250
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	0
Allowable Values	0, 1

NS3270*KeymapXXXPath

Provides the client path to the keymap file.

Note: the XXX in the preference name should be subsituted with the numeric value of the keyboard.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	None
Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	String
Shipped default value	
Allowable Values	valid path name accessible from the client

NS3270*buttonBox (KeyPad)

Allows you to customize keys.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->3270->Keypad: Keypad capability
Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	true
Allowable Values	true, false, disable_and_hide, keypad_only

NS3270*KeyPadPath

Contains the Keypad sequences that will be made available to users with enabled or keypad use only capability.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->3270->Keypad: Keypads to make available

Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	0 (no paths specified)
Allowable Values	any valid path name to keypad files; multiple values separated by commas

NS3270*PlayBack

Determines if the user can use the 3270 emulator function of recording a series of keystrokes and then playing them back.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->3270->Record/Playback: Record/Playback capability
Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, playback_only, disable_and_hide

NS3270*PlayBackPath

Contains the Playback sequences that will be made available to users with enable or playback only capability.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->3270->Record/Playback: Playback sequences to make available
Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	0
Allowable Values	any valid client paths, multiple paths separated by a comma

NS3270*ColorMap

Determines whether the user has the capability to create new color schemes (Advanced), use color schemes created by others (Basic), or be limited to the default color scheme.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No

User Interface Path	Applications->3270->Colors: Color customization capability
Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	basic
Allowable Values	basic, advanced, disable, disable_and_hide

NS3270*DefaultColorMapPath

Used to indicate which color scheme should be used when the 3270 emulation session is started.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->3270->Colors: Default color scheme
Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	String
Shipped default value	0
Allowable Values	Any valid client path to color map files

NS3270*ColorMapPath

Clients path to color map files. Multiple paths should be separated by commas.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->3270->Colors: Additional color schemes to make available
Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	String
Shipped default value	0 ; no paths
Allowable Values	Any valid client path to color map files

NS3270*rows

Selects the size (number of rows) that you want your 3270 session to use.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->3270->Appearance: Screen size
Registry Object	/ns3270/preferences

Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	32
Allowable Values	24, 32, 43, 27

NS3270*cols

Selects the size (number of columns) that you want your 3270 session to use.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->3270->Appearance: Screen size
Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	80
Allowable Values	80, 132

NS3270*Port

Specifies which TCP/IP port on a System/390 is used to establish a 3270 session.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->3270->Appearance: Telnet 3270 port to connect to
Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Integer
Shipped default value	23
Allowable Values	1- 65535

NS3270*Speckey (Enter key position)

Specifies the key you want to use as the Enter key.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->3270->Appearance: Key for Enter function
Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice

Shipped default value	false
Allowable Values	true, false

NS3270*Command

Allows you to enable or disable the menu bar Command choice.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->3270->Allow use of: Command menu
Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable_and_hide

NS3270*Edit

Allows you to enable or disable editing (copy, cut, and paste) functions.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->3270->Allow use of: Edit menu
Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable_and_hide

NS3270*Option

Allows you to enable or disable the menu bar Option choice.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->3270->Allow use of: Option menu
Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable_and_hide

NS3270*LocalPrint

Allows you to enable or disable the menu bar Print choice.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->3270->Allow use of: Print menu
Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, keyboard_only_local_print, disable_and_hide

NS3270*Help

Enables the Help menu item.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->3270->Allow use of: Help menu
Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable_and_hide

NS3270*Graphics

Allows you to enable or disable the capability of the 3270 session to display graphics.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->3270->Allow use of: Graphics
Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	
Shipped default value	false
Allowable Values	true, false

NS3270*MiscPref

Determines (to some extent) the look and feel of your 3270 display screen.

Takes Effect	At start of the first emulator session

Retained in Client Memory	No
User Interface Path	Applications->3270->Allow use of: Miscellaneous preferences
Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable_and_hide

NS3270*FontMenu

Provides the capability to select a different size font for a 3270 emulation session.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->3270->Allow use of: Font menu list
Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable, disable_no_resize_or_move, fixed_fonts_only

NS3270*ChangeIPAddress

Provides the capability to request a new 3270 session on a different host.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->3270->Allow use of: New session window
Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable

NS3270*BrowserStart

Provides the capability to launch a browser session from any valid URL address encountered during a 3270 Emulation session.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->3270->Allow use of: Browser hotspot

Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable

NS3270*

Provides ability to add any additional 3270 application parameter. Any literal can follow the NS3270* prefix and it will become a custom 3270 parameter.

Takes Effect	At start of the first emulator session
Retained in Client Memory	No
User Interface Path	Applications->3270->Additional parameters
Registry Object	/ns3270/preferences
Category	NS3270
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable

VT Emulator (NSTerm) Settings

NSTerm*KeyRemap

Determines if you want the user to have the ability to remap keys or to restrict the user to the VT Emulator default (or system default).

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->VT Emulator->Keyboard: Key remapping capability
Registry Object	/nsterm/preferences
Category	NSTERM
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	disable
Allowable Values	enable, disable, disable_and_hide

NSTerm*KeymapPath

Selects which key mapping is used with a VT Emulator session.

Takes Effect	Under Application Control
Retained in Client Memory	No

User Interface Path	Applications->VT Emulator->Keyboard: Default keyboard files
Registry Object	/nsterm/preferences
Category	NSTERM
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	0
Allowable Values	0, 1

NSterm*KeymapXXXPath

Provides the client path to the keymap file.

Note: the XXX in the preference name should be subsituted with the numeric value of the keyboard.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	None
Registry Object	/nsterm/preferences
Category	NSTERM
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	String
Shipped default value	
Allowable Values	valid path name accessible from the client

NSTerm*Command

Allows you to enable or disable the menu bar Command choice.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->VT Emulator->Allow use of: Command menu
Registry Object	/nsterm/preferences
Category	NSTERM
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable_and_hide

NSTerm*Edit

Allows you to enable or disable editing (copy, cut, and paste) functions.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->VT Emulator->Allow use of: Edit menu

Registry Object	/nsterm/preferences
Category	NSTERM
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable_and_hide

NSterm*Option

Allows you to enable or disable the menu bar Option choice.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->VT Emulator->Allow use of: Option menu
Registry Object	/nsterm/preferences
Category	NSTERM
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable_and_hide

NSTerm*LocalPrint

Allows you to enable or disable the menu bar Print choice.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->VT Emulator->Allow use of: Print menu
Registry Object	/nsterm/preferences
Category	NSTERM
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, keyboard_only_local_print, disable_and_hide

NSterm*Help

Enables the Help menu item.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->VT Emulator->Allow use of: Help menu
Registry Object	/nsterm/preferences
Category	NSTERM
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice

Shipped default value	enable
Allowable Values	enable, disable_and_hide

NSTerm*Control

Allows you to enable or disable the menu bar Control choice.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->VT Emulator->Allow use of: Control menu
Registry Object	/nsterm/preferences
Category	NSTERM
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable disable_and_hide

NSterm*MiscPref

Determine (to some extent) the look and feel of your VT emulator display screen.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->VT Emulator->Allow use of: Miscellaneous preferences
Registry Object	/nsterm/preferences
Category	NSTERM
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable_and_hide

NSTerm*FontMenu

Provides the capability to select a different size font for a VT emulator session.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->VT Emulator->Allow use of: Font menu list
Registry Object	/nsterm/preferences
Category	NSTERM
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable, disable_no_resize_or_move, fixed_fonts_only

NSTerm*EightBitInput

Allows special diacritic marks to be displayed correctly.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->VT Emulator->Advanced settings: Eight bit input enable
Registry Object	/nsterm/preferences
Category	NSTERM
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	false
Allowable Values	true, false

NSTerm*EightBitEmit

Allows special diacritic marks to be displayed correctly.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->VT Emulator->Advanced settings: Eight bit emit enable
Registry Object	/nsterm/preferences
Category	NSTERM
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	False
Allowable Values	True, False

NSTerm*FieldAccess

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	None
Registry Object	/nsterm/preferences
Category	NSTERM
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable

NSTerm*DiagdAccess

Takes Effect	Under Application Control
Retained in Client Memory	No

User Interface Path	None
Registry Object	/nsterm/preferences
Category	NSTERM
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable

NSTerm*ConfigdAccess

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	None
Registry Object	/nsterm/preferences
Category	NSTERM
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable

NSTerm*SaveLines

Specifies the number of lines to save in the scroll buffer.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->VT Emulator->Advanced settings: Lines to save in buffer
Registry Object	/nsterm/preferences
Category	NSTERM
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Integer
Shipped default value	240
Allowable Values	non negative integer

NSTerm*scrollBar

The VT emulator uses a scrollable window. If you do not want the window to be scrollable, the scroll bar can be hidden using this preference setting.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->VT Emulator->Advanced settings: Vertical scrollbar
Registry Object	/nsterm/preferences

Category	NSTERM
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	True
Allowable Values	True, False

NSTerm*c132

Provides ability to add any additional VT Emulator or VT Emulator application parameter. Any literal can follow the NS3270* prefix and it will become a custom VT emulator parameter.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->VT Emulator
Registry Object	/nsterm/preferences
Category	NSTERM
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	true
Allowable Values	

NSTerm*

Provides ability to add any additional VT Emulator or VT Emulator application parameter. Any literal can follow the NS3270* prefix and it will become a custom VT emulator parameter.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->VT Emulator->Additional parameters
Registry Object	/nsterm/preferences
Category	NSTERM
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	enable
Allowable Values	enable, disable

Netscape Communicator Settings

lockPref.network.proxy.type

Indicates how you want to obtain your proxy settings; or no proxy.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->Netscape Communicator->Proxy configuration:
Registry Object	/netscape/preferences

Category	NETSCAPE
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	1
Allowable Values	1, 2, 3

lockPref.network.proxy.autoconfig_url

Allows the ability to ype the URL of the automatic proxy.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->Netscape Communicator->Proxy configuration: Configuration URL
Registry Object	/netscape/preferences
Category	NETSCAPE
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	String
Shipped default value	no shipped value
Allowable Values	any valid URL

lockPref.security.enable_java

Specifies that Netscape Communicator is enabled to run Java Applets.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->Netscape Communicator->Java: Enable Java Applets
Registry Object	/netscape/preferences
Category	NETSCAPE
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Boolean
Shipped default value	false
Allowable Values	true, false

lockPref.java.use_plugin

Allows you to use the external Java Virtual Machine (JVM) shipped by IBM rather than the the JVM shipped with Netscape Communicator.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->Netscape Communicator->Java: Runtime Plug-in for Network Station, Java Edition
Registry Object	/netscape/preferences
Category	NETSCAPE

Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Boolean
Shipped default value	false
Allowable Values	true, false

lockPref.browser.cache.memory_cache_size

Specifies the largest cache size, in kilobytes, of the memory in the IBM Network Station system unit available for caching web pages and images.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->Netscape Communicator->Network: Maximum memory cache
Registry Object	/netscape/preferences
Category	NETSCAPE
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Integer
Shipped default value	1024
Allowable Values	0-5000

lockPref.browser.mail.server_type

Defines your mail server type.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->Netscape Communicator->Mail server type:
Registry Object	/netscape/preferences
Category	NETSCAPE
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	Choice
Shipped default value	0
Allowable Values	0, 1

lockPref.mail.imap.root_dir

Specifies the IMAP4 directory path.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->Netscape Communicator->Mail server type: IMAP4 directory
Registry Object	/netscape/preferences
Category	NETSCAPE
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	String

Shipped default value	~/ns_imap/
Allowable Values	Any valid client path

lockPref.java.classpath

Specifies Java classpaths for Netscape Communicator to use.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->Netscape Communicator->Netscape Java Classpath options: Netscape Java Classpath:
Registry Object	/netscape/preferences
Category	NETSCAPE
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	String
Shipped default value	${PRODBASE}/usr/locale/netscape/java/classes/java40.jar/ ${PRODBASE}/usr/local/netscape/java/classes/jae40.jar
Allowable Values	any valid client path appended to above string

ICA Remote Application Manager

ica-connect-records

Lets you configure ICA connections to a PC server.

Takes Effect	Under Application Control
Retained in Client Memory	No
User Interface Path	Applications->ICA Remote Application Manager: ICA Connection Entries
Registry Object	/ica/connections
Category	ICA
Valid Preference Levels	system, allworkstations, allusers, usergroup, user
Value Type	List that contains name, command, id
Shipped default value	
Allowable Values	

Launch Bar

For an example of a launch bar command line, please see “DELETE” on page 77

Folder

Lets you create a folder for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->Folder
Registry Object	/desktops/default

Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder, type
Shipped default value	No
Allowable Values	Folder, Host_Access, Java, Tool_Kit, Extras, Startup

5250 Emulator

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->5250 Emulator
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder, command
Shipped default value	No
Allowable Values	User preference

3270 Emulator

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->3270 Emulator
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder, command
Shipped default value	No
Allowable Values	User preference

VT Emulator

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->VT Emulator
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder, command
Shipped default value	No

Allowable Values	User preference

Windows-based Application

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->Window-based Application
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder, command
Shipped default value	No
Allowable Values	User preference

ICA Remote Application Manager

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->ICA Remote Application Manager
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder, command
Shipped default value	No
Allowable Values	User preference

Netscape

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->Netscape
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder, command
Shipped default value	No
Allowable Values	User preference

Java Application

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->Java Application
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder, command
Shipped default value	No
Allowable Values	User preference

Java Applet

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->Java Applet
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder, command
Shipped default value	No
Allowable Values	User preference

File Manager

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->File Manager
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

Text Editor

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization

Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->Text Editor
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

Calendar List

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->Calendar List
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

Calculator

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->Calculator
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

Audio Player

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->Audio Player
Registry Object	/desktops/default
Category	LAUNCHBAR

Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

Video Player

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->Video Player
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

Real Player

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->Real Player
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

Paint

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->Paint
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

Remote Program

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->Remote Program
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder, command
Shipped default value	No
Allowable Values	x11_class

Local Program

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->Local Program
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder, command
Shipped default value	No
Allowable Values	Application_name, autocommand, x11_class

Custom URL

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->Custom URL
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	resource NSM URL, url

Advanced Diagnostics

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->Advanced Diagnostics
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

Print Monitor

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->Print Monitor
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

Calibration Tools

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->Calibration Tools
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

XTerm

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->XTerm
Registry Object	/desktops/default

Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

LBGeneral

Lets you create an icon for the desktop.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Launch Bar->LBGeneral
Registry Object	/desktops/default
Category	LAUNCHBAR
Valid Preference Levels	allusers, usergroup, user
Value Type	List
Shipped default value	No
Allowable Values	kill_priority (1–10), memory_size (1000–50000), activate_class (yes, no), save_size (yes, no), save_position (yes, no)

Start Up

5250 Emulator

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->5250 Emulator
Registry Object	/startup
Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder, command
Shipped default value	No
Allowable Values	User preference

3270 Emulator

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->3270 Emulator
Registry Object	/startup

Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder, command
Shipped default value	No
Allowable Values	User preference

VT Emulator

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->VT Emulator
Registry Object	/startup
Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder, command
Shipped default value	No
Allowable Values	User preference

Windows-based Application

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->Windows-based Application
Registry Object	/startup
Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder, command
Shipped default value	No
Allowable Values	User preference

ICA Remote Application Manager

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->ICA Remote Application Manager
Registry Object	/startup
Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder, command
Shipped default value	No

Allowable Values	User preference

Netscape

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->Netscape
Registry Object	/startup
Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder, command
Shipped default value	No
Allowable Values	User preference

Java Application

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->Java Application
Registry Object	/startup
Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder, command
Shipped default value	No
Allowable Values	User preference

Java Applet

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->Java Applet
Registry Object	/startup
Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder, command
Shipped default value	No
Allowable Values	User preference

File Manager

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->File Manager
Registry Object	/startup
Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

Text Editor

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->Text Editor
Registry Object	/startup
Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

Calendar

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->Calendar
Registry Object	/startup
Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

Calculator

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->Calculator
Registry Object	/startup

Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

Audio Player

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->Audio Player
Registry Object	/startup
Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

Video Player

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->Video Player
Registry Object	/startup
Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

Real Player

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->Real Player
Registry Object	/startup
Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No

Allowable Values	User preference

Paint

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->Paint
Registry Object	/startup
Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

Remote Program

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->Remote Program
Registry Object	/startup
Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder, command
Shipped default value	No
Allowable Values	x11_class

Local Program

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->Local Program
Registry Object	/startup
Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder, command
Shipped default value	No
Allowable Values	application_name, autocommand, x11_class

Custom URL

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->Custom URL
Registry Object	/startup
Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	resource NSM URL, url

Advanced Diagnostics

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->Remote Program
Registry Object	/startup
Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

Print Monitor

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->Print Monitor
Registry Object	/startup
Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

Calibration Tools

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->Calibration Tools
Registry Object	/startup

Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

XTerm

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->XTerm
Registry Object	/startup
Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List that contains name, folder
Shipped default value	No
Allowable Values	User preference

LBGeneral

Lets you put a program in the Start Up folder.

Takes Effect	Desktop initialization
Retained in Client Memory	No
User Interface Path	Applications->Start Up->LBGeneral
Registry Object	/startup
Category	ICA
Valid Preference Levels	allusers, usergroup, user
Value Type	List
Shipped default value	No
Allowable Values	kill_priority (1–10), memory_size (1000–50000), activate_class (yes, no), save_size (yes, no), save_position (yes, no)

Appendix E. Regular expression notation

A regular expression specifies a pattern of character strings. One or more regular expressions can be used to create a matching pattern. Certain characters (sometimes called wildcards) have special meanings. Table 69 describes the pattern matching scheme.

Table 69. Regular expression pattern matching

Pattern	Description
string	String (no special characters) - a string with no special characters matches the values that contain the string.
[set]	Set - matches a single character specified by the set of single characters within the square brackets.
^	Caret - signifies the characters following the ^ are the beginning of the value.
$	Dollar - signifies the characters preceding the $ are the end of the value.
.	Period - signifies any one character. The period means match any character.
*	Asterisk - signifies zero or more of preceding character.
\	Backslash - signifies an escape character. When preceding any of the characters that have special meaning, the escape character removes any special meaning from the character. The backslash is useful to remove special meaning from a period in an IP address.

For example:

Table 70. Examples of regular expression pattern matching

Pattern	Examples of strings that match
ibm	ibm01, myibm, aibmbc
^ibm$	ibm
^ibm0[0-4][0-9]$	ibm000 through ibm049
ibm[3-8]	ibm3, myibm4, aibm5b
^ibm	ibm01, ibm
ibm$	myibm, ibm, 3ibm
ibm...	ibm123, myibmabc, aibm09bcd
ibm*1	ibm1, myibm1, aibm1abc, ibmkkkkk12
^ibm0..	ibm001, ibm099, ibm0abcd
^ibm0..$	ibm001, ibm099
10.2.1.9	10.2.1.9, 10.2.139.6, 10.231.98.6
^10\.2\.1\.9$	10.2.1.9
^10\.2\.1\.1[0-5]$	10.2.1.10, 10.2.1.11, 10.2.1.12, 10.2.1.13, 10.2.1.14, 10.2.1.15
^192.\.168\..*\..*$	(All addresses on class B subnet 192.168.0.0)
^192.\.168\.10\..*$	(All addresses on class C subnet 192.168.10.0)

Appendix F. Language and locale

Note: Entities with @euro mean that euro character support is added.

Language	Locale (country)	Value
Danish	Denmark	da_DK
Danish	Denmark	da_DK@euro
German	Switzerland	de_CH
German	Switzerland	de_CH@euro
German	Germany	de_DE
German	Germany	de_DE@euro
English	Great Britain	en_GB (uses en_US)
English	Great Britain	en_GB@euro
English	United States	en_US
English	United States	en_US@euro
Spanish	Spain	es_ES
Spanish	Spain	es_ES@euro
Finnish	Finland	fi_FI
Finnish	Finland	fi_FI@euro
Spanish	Latin America	es_LA (no translation - uses English; keyboard and localization support only)
Spanish	Latin America	es_LA@euro
French	Belgium	fr_BE
French	Belgium	fr_BE@euro
French	Canada	fr_CA
French	Canada	fr_CA@euro
French	Switzerland	fr_CH
French	Switzerland	fr_CH@euro
French	France	fr_FR
French	France	fr_FR@euro
Italian	Switzerland	it_CH
Italian	Switzerland	it_CH@euro
Italian	Italy	it_IT
Italian	Italy	it_IT@euro
Dutch	Belgium	nl_BE
Dutch	Belgium	nl_BE@euro
Dutch	Netherlands	nl_NL
Dutch	Netherlands	nl_NL@euro
Norwegian	Norway	no_NO
Norwegian	Norway	no_NO@euro
Portuguese	Brazil	pt_BR
Portuguese	Brazil	pt_BR@euro

Language	Locale (country)	Value
Portuguese	Portugal	pt_PT
Portuguese	Portugal	pt_PT@euro
Swedish	Sweden	sv_SE
Swedish	Sweden	sv_SE@euro

Appendix G. Series 1000 (Type 8362)

Configuring Network Station for booting a CompactFlash card

There are multiple combinations for configuring the IBM Network Station with a CompactFlash card installed. The combinations consist of:

- different KIOSK configurations
- non-KIOSK configurations
- multiple applications
- single applications
- desktop look and feel
- launch bar configurations and,
- allowing the CompactFlash to be updated.

The configuration controls all the combinations.

This appendix will deal with how the configurations files are obtained. There are three common configuration setups for the CompactFlash card.

1. All the configuration files are located on the CompactFlash card and the CompactFlash card cannot be updated via the network.
2. All the configurations files are located on the CompactFlash card but updates of the CompactFlash card can be done via the network.
3. All the configurations files are on a server with the capability to update the CompactFlash.

Currently, only NVRAM settings allow the user to create a boot-able CompactFlash card from a new (raw) or used (not boot-able) CompactFlash card.

The following table lists which section the user can utilize based on how the configuration files are obtained:

Table 71.

Configuration obtained from:	**NVRAM**
CompactFlash card without updates	Section 1
CompactFlash card with updates via a server	Section 2
A server with updates	Section 3

Section 1

The Network Station is booted using information stored in NVRAM (static IP address, directories, etc.) that directs the Network Station to use the configuration files from the CompactFlash card commonly used in the KIOSK mode.

With this setup, the CompactFlash card cannot be updated. There are no servers required except on the initial copy (creation) from a server to the CompactFlash card of the flash image selected. Use the following three Boot Monitor utility configurations tables to set the Boot Monitor parameters. Make the following selections from the Setup Utility screen (SCNR02).

Note: To get to the Setup Utility initial screen, press the ESC key during the first part of the Network Station boot process.

Table 72. Set Network Parameters (SCRN04 or SCRN05) — to select, press F3 from SCRN02.

Parameter	Value
IP Addressed from	NVRAM
Network Station IP Address	*<IP address of the Network Station>*
Boot Host IP Addresses: First	0.0.0.0
Boot Host IP Addresses: Second	0.0.0.0
Boot Host IP Addresses: Third	0.0.0.0
Configuration Host IP Addresses: First Host	0.0.0.0
Configuration Host IP Addresses: Second Host	0.0.0.0
Gateway IP Address	*<IP address of your gateway>*
Subnet Mask	*<Your subnet mask for the network>*

Table 73. Set Boot Parameters (SCRN06) — to select, press F4 from SCRN02

Parameter	Value
Boot File	kernel.1000
TFTP Boot Directory	
NFS Boot Directory	
Boot Host Protocol: TFTP Order	Disabled
Boot Host Protocol: NFS Order	Disabled
Boot Host Protocol: LOCAL Order	1

Table 74. Set Configuration Parameters (SCRN25) — to select, press F5 from SCRN02

Parameter	Value
Configuration File	
Configuration Directory: First	/termbase/profiles
Configuration Directory: Second	
Configuration Host Protocol: First	Local
Configuration Host Protocol: Second	

Section 2

The Network Station is booted using information stored in NVRAM (static IP addresses, directories, etc.) that directs the Network Station to:

1. Use the configuration files from the CompactFlash card, and
2. Use configuration files to allow updates or copying (initial creation) to the CompactFlash card (used only to allow updates/copies) from a server.

With this setup you can update, create and do an initial creation to the CompactFlash. Use the following three Boot Monitor utility configurations tables to set the Boot Monitor parameters. Make the following selections from the Setup Utility screen (SCNR02).

Note: To get to the Setup Utility initial screen, press the ESC key during the first part of the Network Station boot process.

Table 75. Set Network Parameters (SCRN04 or SCRN05) — to select, press F3 from SCRN02

Parameter	Value

Table 75. Set Network Parameters (SCRN04 or SCRN05) — to select, press F3 from SCRN02 (continued)

IP Addressed from	NVRAM
Network Station IP Address	*<IP address of the Network Station>*
Boot Host IP Addresses: First	0.0.0.0
Boot Host IP Addresses: Second	*<IP address of a server>*
Boot Host IP Addresses: Third	0.0.0.0
Configuration Host IP Addresses: First Host	127.0.0.1 (this is required)
Configuration Host IP Addresses: Second Host	*<IP address of a server>*
Gateway IP Address	*<IP address of your gateway>*
Subnet Mask	*<Your subnet mask for the network>*

Table 76. Set Boot Parameters screen (SCRN06) — to select, press F4 from SCRN02

Parameter	**Value**
Boot File	kernel.1000
TFTP Boot Directory	AIX -; AS/400 - QIBM/ProdData/NetworkStationV2/ppc/kernel.1000 Windows NT -
NFS Boot Directory	AIX - /usr/NetworkStationV2/prodbase/ppc/kernel.1000 AS/400 -; Windows NT - /NetworkStationV2/prodbase/ppc/kernel.1000
Boot Host Protocol: TFTP Order	AIX - Disabled; AS/400 - 2; Windows NT - Disabled
Boot Host Protocol: NFS Order	AIX - 2; AS/400 - Disabled; Windows NT - 2
Boot Host Protocol: LOCAL Order	1

Table 77. Set Configuration Parameters (SCRN25) — to select, press F5 from SCRN02

Parameter	**Value**
Configuration File	
Configuration Directory: First	/termbase/profiles
Configuration Directory: Second	AIX - /usr/NetworkStationV2/userbase/profiles AS/400 - /QIBM/Userdata/NetworkStationV2/profiles Windows NT - /NetworkStationV2/userbase/profiles
Configuration Host Protocol: First	Local
Configuration Host Protocol: Second	AIX - NFS; AS/400 - RFS/400; Windows NT - NFS

Section 3

The Network Station is booted using information stored in NVRAM (static IP addresses, directories, etc.) that directs the Network Station to use the configuration files from a server allowing updates or copying (initial creation) to the CompactFlash card and managing all configurations from the server.

Use the following three Boot Monitor utility configurations tables to set the Boot Monitor parameters. Make the following selections from the Setup Utility screen (SCNR02).

Note: To get to the Setup Utility initial screen, press the ESC key during the first part of the Network Station boot process.

Table 78. Set Network Parameters (SCRN04 or SCRN05) — to select, press F3 from SCRN02

Parameter	**Value**
IP Addressed from	NVRAM

Table 78. Set Network Parameters (SCRN04 or SCRN05) — to select, press F3 from SCRN02 (continued)

Network Station IP Address	*<IP address of the Network Station>*
Boot Host IP Addresses: First	0.0.0.0
Boot Host IP Addresses: Second	*<IP address of a server>*
Boot Host IP Addresses: Third	0.0.0.0
Configuration Host IP Addresses: First Host	*<IP address of a server>*
Configuration Host IP Addresses: Second Host	0.0.0.0
Gateway IP Address	*<IP address of your gateway>*
Subnet Mask	*<Your subnet mask for the network>*

Table 79. Set Boot Parameters (SCRN06) — to select, press F4 from SCRN02

Parameter	**Value**
Boot File	kernel.1000
TFTP Boot Directory	AIX -; AS/400 - QIBM/ProdData/NetworkStationV2/ppc/kernel.1000 Windows NT -
NFS Boot Directory	AIX - /usr/NetworkStationV2/prodbase/ppc/kernel.1000 AS/400 -; Windows NT - /NetworkStationV2/prodbase/ppc/kernel.1000
Boot Host Protocol: TFTP Order	AIX - Disabled AS/400 - 2 Windows NT - Disabled
Boot Host Protocol: NFS Order	AIX - 2 AS/400 - Disabled Windows NT - 2
Boot Host Protocol: LOCAL Order	1

Table 80. Set Configuration Parameters (SCRN25) — to select, press F5 from SCRN02

Parameter	**Value**
Configuration File	
Configuration Directory: First	AIX - /usr/NetworkStationV2/userbase/profiles AS/400 - /QIBM/Userdata/NetworkStationV2/profiles Windows NT - /NetworkStationV2/userbase/profiles
Configuration Host Protocol: First	AIX - NFS; AS/400 - RFS/400; Windows NT - NFS

Peer booted Network Station solution

You can use a CompactFlash card in one Network Station to boot other Network Stations on a local area network (LAN) using the NFS protocol. This is known as peer booting. You must set up the other Network Stations as if they were booting from any other server. Peer booting can be done only on the same hardware platform (x86 or PPC). The S/1000 is based on the PPC (Power PC) platform.

There are two prerequisites to creating a peer-booted Network Station solution:

1. A Network Station with CompactFlash card installed/configured with the NFS Peer Boot daemon (referred to as flash-based Network Station).
2. A Network Station configured to boot from the flash based Network Station.

The configuration files may come from the flash-based Network Station or from a server with NSM installed.

The flash-based Network Station CompactFlash card should contain the NFS Peer Boot daemon (selected from the application list within the flash manager program when creating the flash image). The flash-based Network Station will automatically start the NFS Peer Boot daemon when booted. The Network Station

(network-based Network Station) that boots from the flash-based Network Station can obtain the IP addresses, directories and other information from the NVRAM settings.

Use the following table to determine which section to use when configuring the network-based Network Station to boot from the flash-based Network .

Table 81.

Configuration obtain from:	**DHCP**	**NVRAM**
CompactFlash card	Section 4	Section 6
A server	Section 5	Section 7

Section 4

The Network Station is booted using DHCP information that directs the Network Station to use a Network Station that has a CompactFlash installed and NFS daemon running (flash-based Network Station) as the Boot file server and as the configuration server. If the Network Station is setup for KIOSK operation, DHCP option 98 is not needed.

Table 82. DHCP options to set on a DHCP server

Option	**Name**	**Default value**
66	Boot file server IP	*<IP address of a Network Station with CompactFlash card>*
67	Boot file server name	/kernel.1000
98	Authentication server URL	rap://*<IP address of a server>*
211	Boot file server protocol	NFS
212	Workstation configuration server IP	*<IP address of a Network Station with CompactFlash card>*
213	Workstation configuration server directory	/termbase/profiles
214	Workstation configuration server protocol	NFS

Make the following selections from the Setup Utility screen (SCRN02).

Note: To get to the Setup Utility initial screen, press the ESC key during the first part of the Network Station boot process.

Table 83. Set Network Parameters (SCRN04 or SCRN05) — to select, press F3 from SCRN02

Parameter	**Value**
IP Addressed from	Network
DHCP IP Addressing Order	1
BOOTP IP Addressing Order	Disabled

Section 5

The Network Station is booted using DHCP information that directs the Network Station to use a Network Station that has a CompactFlash installed and NFS daemon running (flash-based Network Station) as the Boot file server. Also the workstation configuration files would come from a different server (the server with NSM installed). If the Network Station is setup for KIOSK operation, DHCP option 98 is not needed.

Table 84. DHCP options to set on a DHCP server

Option	**Name**	**Default value**

Table 84. DHCP options to set on a DHCP server (continued)

66	Boot file server IP	*<IP address of a Network Station with CompactFlash card>*
67	Boot file server name	/kernel.1000
98	Authentication server URL	rap:*<//IP address of a server>* (NSM)
211	Boot file server protocol	NFS
212	Workstation configuration server IP	*<IP address of server>* (NSM)
213	Workstation configuration server directory	AIX - /usr/NetworkStationV2/userbase/profiles AS/400 - /QIBM/Userdata/NetworkStationV2/profiles Windows NT - /NetworkStationV2/userbase/profiles
214	Workstation configuration server protocol	AIX - NFS AS/400 - RFS Windows NT - NFS

Make the following selections from the Setup Utility screen (SCRN02).

Note: To get to the Setup Utility initial screen, press the ESC key during the first part of the Network Station boot process.

Table 85. Set Network Parameters (SCRN04 or SCRN05) — to select, press F3 from SCRN02

Parameter	**Value**
IP Addressed from	Network
DHCP IP Addressing Order	1
BOOTP IP Addressing Order	Disabled

Section 6

The Network Station is booted using information stored in NVRAM (static IP addresses, directories, etc.) that directs the Network Station to use a Network Station that has a CompactFlash installed and NFS daemon running (flash-based Network Station) as the Boot file server and as the configuration server.

Use the following three Boot Monitor utility configurations tables to set the Boot Monitor parameters. Make the following selections from the Setup Utility screen (SCRN02).

Note: To get to the Setup Utility initial screen, press the ESC key during the first part of the Network Station boot process.

Table 86. Set Network Parameters (SCRN04 or SCRN05) — to select, press F3 from SCRN02

Parameter	**Value**
IP Addressed from	NVRAM
Network Station IP Address	*<IP address of the Network Station>*
Boot Host IP Addresses: First	*<IP address of a Network Station with CompactFlash card>*
Boot Host IP Addresses: Second	0.0.0.0
Boot Host IP Addresses: Third	0.0.0.0
Configuration Host IP Addresses: First Host	*<IP address of a Network Station with CompactFlash card>*
Configuration Host IP Addresses: Second Host	0.0.0.0
Gateway IP Address	*<IP address of your gateway>*
Subnet Mask	*<Your subnet mask for the network>*

Table 87. Set Boot Parameters (SCRN06) — to select, press F4 from SCRN02

Parameter	Value
Boot File	kernel.1000
TFTP Boot Directory	
NFS Boot Directory	/
Boot Host Protocol: TFTP Order	Disabled
Boot Host Protocol: NFS Order	1
Boot Host Protocol: LOCAL Order	Disabled

Table 88. Set Configuration Parameters (SCRN25) — to select, press F5 from SCRN02

Parameter	Value
Configuration File	
Configuration Directory: First	/termbase/profiles
Configuration Host Protocol: First	NFS

Section 7

The Network Station is booted using information stored in NVRAM (static IP addresses, directories, etc.) that directs the Network Station to use a Network Station that has a CompactFlash card installed and NFS daemon running (flash-based Network Station) as the Boot file server. Also the configuration files would come from a different server (the server with NSM installed).

Use the following three Boot Monitor utility configurations tables to set the Boot Monitor parameters. Make the following selection from the Setup Utility screen (SCRN02).

Note: To get to the Setup Utility initial screen, press the ESC key during the first part of the Network Station boot process.

Table 89. Set Network Parameters (SCRN04 or SCRN05) — to select, press F3 from SCRN02

Parameter	Value
IP Addressed from	NVRAM
Network Station IP Address	*<IP address of the Network Station>*
Boot Host IP Addresses: First	*<IP address of a Network Station with CompactFlash card>*
Boot Host IP Addresses: Second	0.0.0.0
Boot Host IP Addresses: Third	0.0.0.0
Configuration Host IP Addresses: First Host	*<IP address of a server>* (NSM)
Configuration Host IP Addresses: Second Host	0.0.0.0
Gateway IP Address	*<IP address of your gateway>*
Subnet Mask	*<Your subnet mask for the network>*

Table 90. Set Boot Parameters (SCRN06) — to select, press F4 from SCRN02

Parameter	Value
Boot File	kernel.1000
TFTP Boot Directory	

Table 90. Set Boot Parameters (SCRN06) — to select, press F4 from SCRN02 (continued)

NFS Boot Directory	/
Boot Host Protocol: TFTP Order	Disabled
Boot Host Protocol: NFS Order	1
Boot Host Protocol: LOCAL Order	Disabled

Table 91. Set Configuration Parameters (SCRN25) to select, press F5 from SCRN02

Parameter	**Value**
Configuration File	
Configuration Directory: First	AIX - /usr/NetworkStationV2/userbase/profiles AS/400 - /QIBM/Userdata/NetworkStationV2/profiles Windows NT - /NetworkStationV2/userbase/profiles
Configuration Host Protocol: First	AIX - NFS; AS/400 - RFS/400; Windows NT - NFS

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