IBM Network Computer

IBM Network Station

Multiple Application Kiosk Setup for IBM Network Station Manager Version 2 Release 1

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The IBM Network Station...A Family of Thin Clients

Introduction

Overview

Kiosk mode is a special form of operation wherein the Network Station boots to an application without any login or authentication. There is no user ID associated with the session and no user-specific configuration information is provided. The user's home directory is set up in /tmp/kioskhome in RAMDisk and is lost on session termination. This would be a typical scenario in kiosks (hence the name) or other environments where users merely interact with the application and do not need to have a specific identity apart from any that they might give via an application login (e.g. 5250 session).

As designed, this capability is intended to launch a single, full-screen application without a desktop or window decorations (also called "chromeless"). (In the current release, not all applications actually launch in chromeless mode.) 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.

This document discusses how to set up multiple applications to run in kiosk mode.

Disclaimer

The capabilities described in this document are intended for advanced users of the IBM Network Station. **IBM does not have an official support position on these modifications nor are these feautures guaranteed to persist through subsequent releases.**

Prerequisites

This document assumes a familiarization with the configuration capabilities of the IBM Network Station Manager (NSM) program. A discussion of NSM usage is beyond the scope of this document and is covered in the product publications. If you have not used NSM, it is recommended that you read Chapter 2 in the *Using IBM Network Station Manager V2R1* publication listed below and "play" with NSM to familiarize yourself with its options and capabilities. NSM has extensive online help text to guide you through workstation, device, desktop, and application setup.

The techniques and supporting file structures described in this document were first released with NSM V2R1M0 PTF 4 in February 2000. Prior releases and PTF levels do not contain all of the support referenced here.

Single Application Kiosk Setup

A complete discussion of the single application kiosk mode can be found in Chapter 3 of the *IBM Network Station Advanced Information V2R1* document and in the Redbook *IBM Network Station Manager V2R1*. See the References section for the location of these documents.

For the single application kiosk setup, there are a variety of sample files provided in the *$ServBase*/**defaults** directory. These files, suffixed with ".ksk", can be copied to the appropriate configuration directory and modified to reflect the proper parameters for the environment. While this is not automated, it is straightforward and will not be discussed further here.

The published documentation (see the References section) shows how to create a single application kiosk file using the sample kiosk template files and save it as a workstation configuration file or an **allkiosk.nsm** file.

References

- *Using IBM Network Station Manager V2R1*.

This document may be accessed on the web at http://www.ibm.com/nc/pubs.

- *IBM Network Station Manager Advanced Information V2R1*.
  This document may be accessed on the web at http://www.ibm.com/nc/pubs.

- *IBM Network Station Manager V2R1*.
  This Redbook/Redpiece may be accessed on the web at http://www.redbooks.ibm.com. It is
  publication number SG24-5844.

Multiple Application Kiosk Setup

Overview

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. See the Redbook for more details.

  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 remainder of this document will discuss setting up kiosk files that allow multiple applications to be

run. The focus will be 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. (Although it can be manually deleted, this is not recommended.)

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

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 fisrt 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>
   ```

   Note: In PTF 6, the capability will exist to set this flag through NSM.

   If you are using the 3270, 5250, or VT emulation, you must also add the following lines prior to the

   ```
   </PROPERTY>
   ```

   line, replacing *program* with `ns3270`, `ns5250`, or `nsterm` as appropriate.

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

   If you are using more than one emulator, list each as arguments to the **nsmrun** command. For example, if you are using both the 5250 and 3270 emulators:

```
<FIELD NAME="arg1">/usr/bin/nsmrun ns3270 ns5250</FIELD>
```

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 that 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. Refer to the Advanced Information publication and the Network Station Redbook for more on kiosk file naming.

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).

Rather than provide a lengthly explanation, an example will be used to illustrate how to create the appropriate files. The example scenario is the same as we used for the desktop kiosk setup (VT220, 5250, and Netscape).

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

```
<PACKAGE NAME="/desktops/default">
</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 that 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 below.

```
#/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\ Emulator" -ti
nsm_wrapper ns5250 rocket.austin.ibm.com -geometry 9999x9999+0+0 &
#
# 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 above is ideal for creating a boot server-only system. First, create **allncs.nsm**/**allkiosk.nsm** files on a system that has NSM loaded using the procedure above. This system will be the management server. Then 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). Lastly, 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 the merge and deploy the new **allncs.nsm** and **allkiosk.nsm** files.

Flash Boot Using Kiosk Files

This topic is discussed in the product publications and in a separate white paper.