

Subject:	Using Windows 2000 Remote Installation Service to deploy Windows 98
Category:	RIS, RISME, Windows 2000
Doc Type	Application Note

Using Windows 2000 Remote Installation Service to deploy Windows 98

Overview

Some of the most challenging and costly tasks that IT staff perform are the deployment of new operating systems on client PCs, their subsequent management, and the updating of tasks on those PCs. Remote Installation Services (RIS), a new function on Microsoft's Windows 2000 Server, goes a long way in facilitating the implementation of these tasks. Using Preboot Execution Environment (PXE) network boot technology on the client PCs, RIS allows administrators to do a simple installation of Windows 2000 Professional over the network from a server onto a PC. RIS also allows one to clone existing installations of Windows 2000 Professional, including applications, onto a server and to install that cloned image onto other client PCs.

In addition to its primary function--simplifying the installation of an operating system over the network--RIS also provides an enterprise with a network boot framework for other tasks. Microsoft has encouraged the latter and has therefore documented how network administrators can add extra tasks to the RIS framework. The process is technical, detailed, and complicated, however, and requires steps (such as creating a boot image file) and tools that RIS does not provide. 3Com saw the potential of the RIS framework, but it also saw that it could be better realized by providing an easier and more automated method of adding functionality to RIS. Using its expertise in RIS and network booting, 3Com created the RIS Menu Editor.

Synopsis

The RIS Menu Editor is an easy-to-use Windows application that allows administrators and VARs to add new menus to RIS's Client Installation Wizard and to associate tasks to these menus. When one of these menus is selected, the task's program is downloaded from the RIS server and executed on the client. The task can be anything: off-the-shelf third-party utilities (e.g., virus scan, PC diagnostic tools), machine upgrades (e.g., BIOS updates, a new driver file), or, for that matter, anything that a user with programming experience has devised.

Intended Audience

Network Administrators and IT professional responsible for desktop management and OS deployment.

Assumptions

This document does not cover following topics

- How to automate the Windows 98 deployment
- How to install and configure the Microsoft DHCP server
- How to install and configure the Windows RIS server
- How to create the Windows 98 deployment diskette

The assumption is that the intended reader is already conversant with the topics mentioned above. If you are not familiar with these topics, refer to the following resource materials before proceeding:

- Windows 98 Resource Kit
- Windows 2000 Server Resource Kit

The Big Picture

The following tasks must be completed to ensure a successful deployment:

1. Create the Windows 98 deployment diskette
2. Install and configure the Microsoft DHCP server
3. Install and configure the Remote Installation Server
4. Install the RIS Menu Editor
5. Create a menu item for the Windows 98 installation
6. Install and configure the Managed PC Boot Agent or Remote Installation Boot Floppy
7. Boot the first client from the network

The Windows 98 Deployment Diskette

The most important component of this process is the Windows 98 deployment diskette. Most of the steps for performing an unattended OS installation are dependent on the deployment diskette. Use the Windows NT 4.0 Network Client Administrator utility to create a deployment diskette. Once the deployment disk is created, the AUTOEXEC.BAT file must be modified to perform the following tasks:

- Format the local hard drive
- Map a drive to the shared directory on the server containing Windows 98 source files
- Copy the Windows 98 source files from the server to the local hard drive
- Reboot the machine and launch the Windows 98 Setup program from the local hard drive

You must manually configure the diskette by copying the NDIS2 driver for your PCI adapter to the \NET directory and modify the SYSTEM.INI and PROTOCOL.INI accordingly. For instance, when using the 3Com 3C905C adapter, the SYSTEM.INI file must be modified to change the netcard value to EL90X.DOS. Also, the drivename value in the PROTOCOL.INI file must be set to EL90X\$.

To free up disk space on the floppy diskette, you can safely delete the following files:

- NET\ELNK3.DOS (or any other NDIS driver not needed)
- NET\NETH.MSG
- A:\DRVSPACE.BIN (This is a hidden file)

Modify the CONFIG.SYS file to include the /TESTMEM:OFF switch when loading HIMEM.SYS. This is very important. Failing to do so will result in a corrupted boot image file. The CONFIG.SYS line should read: DEVICE=HIMEM.SYS /TESTMEM:OFF

3Com has an in-house utility called **reboot.exe** that is used to reboot the machine from the command line. However, any other utility that performs the same function may be used.

Tips on Formatting

Normally, the FORMAT command will prompt you to enter Y before proceeding. A simple text file containing Y must be redirected to the format command to automate this process.

- Create a file called YES.TXT using any ASCII text editor, such as Edit or Notepad
- On the first line, type in the letter Y and press enter.
- Save the file onto the Windows 98 deployment diskette.
- Update the AUTOEXEC.BAT file so that this file is redirected to the format command. See the sample AUTOEXEC.BAT file used to perform the installation at the end of the document.

Note - although not documented here, third party utilities can also be used to partition the client hard drive before formatting.

Quick Start

The following steps must also be completed before proceeding.

- Verify that the deployment diskette will work as expected.
- Install Active Directory on the server.
- Install and configure the Microsoft DHCP server.
- Install and configure the RIS server.

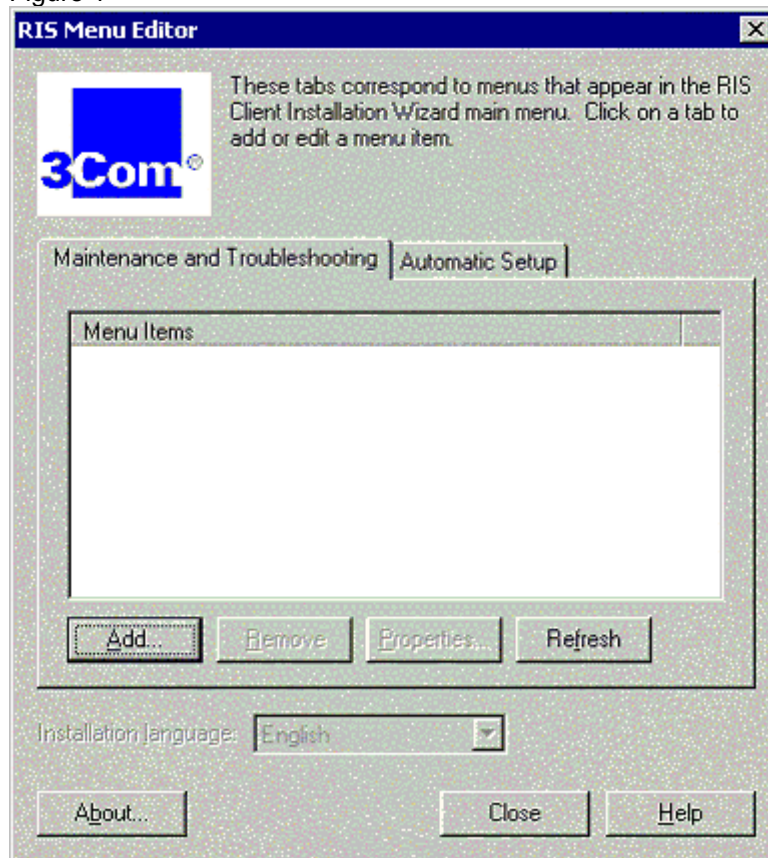
At the server

1. Download and install the RIS Menu Editor (RISME) from 3Com's web site:
<http://www.3com.com/managedpc>

When the RIS Menu Editor is started the following screen (Figure 1) will appear. You will notice 2 tabs labeled Maintenance and Troubleshooting and Automatic Setup. The Maintenance and Troubleshooting is used to add third party utilities to the Maintenance and Troubleshooting menu. Note, the Maintenance and Troubleshooting menu is disabled by default. Refer to the RISME FAQ for instructions how enable this menu.

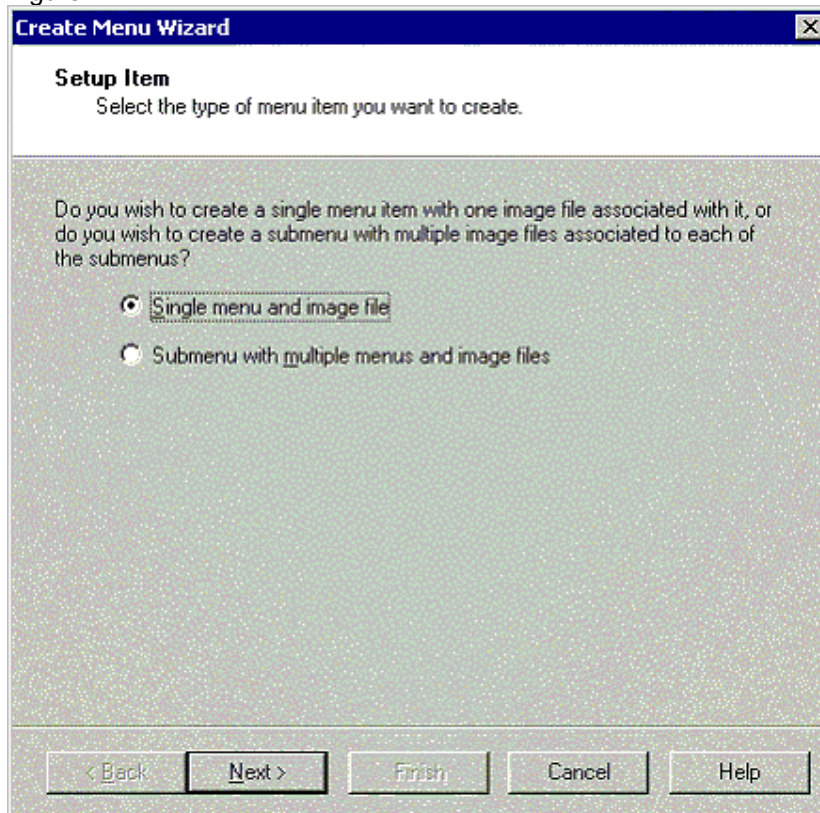
The Automatic Setup tab is reserved for OS deployment. It is on this menu that the Windows 2000 Professional deployment option resides. Following this convention, the Windows 98 installation option should also be created on this menu.

Figure 1



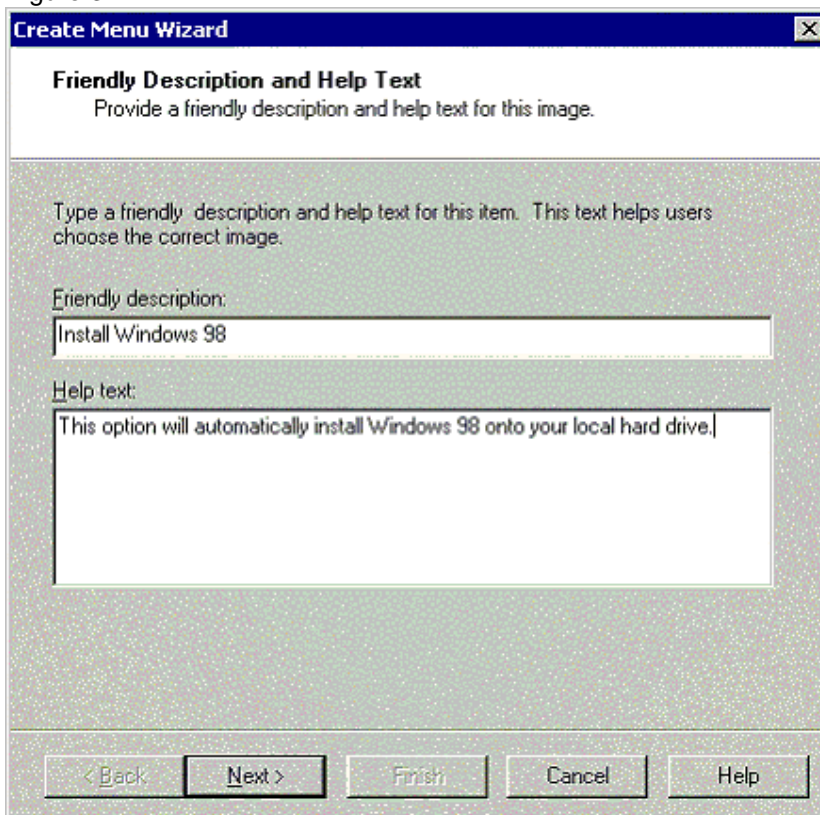
2. Click on the Automatic Setup tab.
3. Click on the Add button
4. Select Single menu and image file then click on the Next button. See Figure 2.

Figure 2



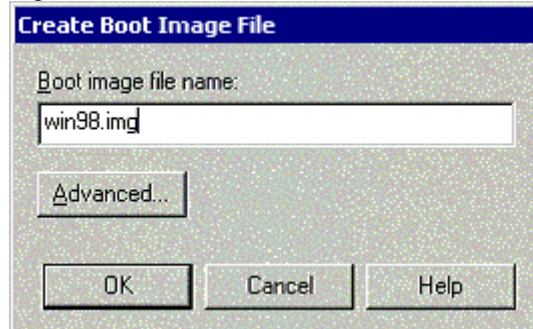
5. Enter a friendly description and help text in the next dialog. See Figure 3.

Figure 3



6. Click on the Next button, and the Image File dialog box will appear.
7. Click on the Create button to create the boot image file for the menu item. At this point, you must insert the Windows 98 deployment diskette in the floppy drive.
8. Type a file name for the boot image file. Note, it's good practice to make the name as descriptive but short as possible. By convention, the image file should have the .img extension. See Figure 4.

Figure 4



9. Make sure that the Windows 98 deployment diskette is inserted the floppy drive, then click on the OK button.
10. Click on the Finish button when image file is created. The new entry should now appear on the Automatic Setup menu.

At the client

Read the Managed PC Boot Agent (MBA) User Guide carefully before installing and/or configuring the MBA. If you do not have an MBA or PXE boot ROM, you can use the RIS Remote Boot Floppy Generator (RBF) utility to create a Remote Boot floppy (RBF) which mimics the behavior of a PXE boot ROM. Refer to Windows 2000 User Guide or Resource Kit for more information on RBF. If using a Remote Boot floppy, proceed to Step 5.

1. Install and configure the Managed PC Boot Agent (MBA) to use the PXE protocol.
2. To ensure that the computer will always try and boot from the network, the MBA UNDI must be placed first in the boot order, with the hard drive as second. Refer to the chapter, "Configuring MBA" in the MBA User Guide for more information.
3. Configure the MBA with the following options. Refer to the MBA User Guide for instructions:
 - Boot Method: PXE
 - Boot Failure Prompt: Wait for timeout
 - Boot Failure: Next BBS Device
4. Save the settings and exit.
5. Boot from the MBA or Remote Boot floppy.
6. Press F12 when prompted.

7. The Client Installation Wizard will appear. Read the instructions carefully and press <Enter> to continue.
8. Enter a valid username and password when prompted then press Enter to continue.
9. Select Windows 98 from the operating systems menu.
10. Read the instructions and press Enter to continue. Eventually, the Windows 98 installation will proceed unattended.
11. Do not press F12 the next time the computer boots. Subsequent network boot will start the deployment process all over again.

Conclusion

The 3Com RIS Menu Editor is the ideal tool for extending the capabilities of the Windows 2000 Remote Installation Server to perform Windows 9x. Following the same process outlined above RISME can also be used for Windows NT rollouts.

References

3Com's Managed PC URL:

<http://www.3com.com/managedpc>

Information on the Windows 2000 Remote Installation Service:

<http://www.microsoft.com/WINDOWS2000/library/planning/management/remotesteps.asp>

<http://www.microsoft.com/WINDOWS2000/library/resources/reskit>

<http://www.microsoft.com/HWDEV/SUPPORTABILITY/risover.htm>

Microsoft has written a document on how to create a Microsoft Network Client for MS-DOS that you can download from <ftp://ftp.microsoft.com/bussys/winnt/winnt-docs/papers/>. The document file is **dosclnt.exe**.

Sample configuration files

CONFIG.SYS

```
files=30
device=a:\net\ifshlp.sys
lastdrive=z
DEVICE=A:\NET\HIMEM.SYS /TESTMEM:OFF
DEVICE=A:\NET\EMM386.EXE NOEMS
DOS=HIGH,UMB
```

AUTOEXEC.BAT

```
path=a:\;a:\net
REM Format the local hard drive.
REM The yes.txt provides Y when format
REM prompts for an answer.
format c: /s /v:win98 < a:\yes.txt
REM Initialize the network adapter and load
REM the TCP/IP stack
a:\net\net initialize
a:\net\netbind.com
a:\net\umb.com
```

```
a:\net\tcptsr.exe
a:\net\tinyrfc.exe
a:\net\nmtsr.exe
a:\net\emsbfr.exe
REM Automate the login process
net logon administrator grep /savepw:no /y
REM Map a drive to Windows 98 source files directory
net use z: \\win2k\Win98
REM Make a directory on the local drive and copy the source files to this directory
md c:\win98
xcopy z:\*.* c:\win98 /s
REM Create new AUTOEXEC.BAT on the local hard drive
echo path=c:\win98 > c:\autoexec.bat
echo call wininstall.bat >>c:\autoexec.bat
copy a:\net\wininstall.bat c:\
REM Reboot the machine
reboot
```

WINSTALL.BAT

```
REM Create a new autoexec.bat file so that
REM setup won't run on subsequent reboots.
echo >c:\autoexec.bat
cd \win98
REM msbatch.inf is created using the Windows 98 BATCH utility.
REM Refer to Windows 98 Resource Kit for more information.
setup.exe msbatch.inf /iw /is
```