

application  
note

**remote unattended  
NOS installation**



This document describes how to implement remote unattended NOS installation. It is distributed together with :

- pdf files with all details required for the setup of an unattended remote NOS installation and remote NOS image deployment;
- a zip file with copies of the disks needed for the installation.

All these information are available:

1/ within the Toptools Remote Control Card (TT\_RCC) sales kit,  
which can be ordered from your Technical Sales Representative.

2/ on the HP web site: <http://www.hp.com/go/netservers>

# 1. unattended installation for W2K AS & NT4 server:

This section describes how to create the two disks you need for an unattended installation.

Disk 1 prepares the hard drive peripherals and disk 2 prepares the source file copies and launches the unattended installation. The creation of the script file for W2K unattended installation is also described below.

The second part of this section describes how to configure your "file" server, what you must change and where.

## a) Creating the 2 disks required for an unattended installation

### 1 - Disk 1 prepares the hard drive peripherals

For a successful automated installation on a Netserver, you must have at least one free hard drive able to receive the operating system. You have to prepare this drive and create a 2GB FAT16 partition so that "Windows Setup Loader" can access all necessary files. When the server begins to install the OS, there is no way of accessing a network because no drivers are installed, therefore you must copy all the files to the local disk.

The first step consists of automating these operations. Let us now create an MS-DOS boot disk (which has more free space than a Win9x boot disk) with the minimum number of programs.

It is necessary to have:

- Software able to erase all partitioning information from the disk, to create a 2GB FAT16 partition and to activate this partition in order to boot on it (powerful fdisk).
- FDISK.COM to erase the Master Boot Record once partitions have been made.
- A well-known compiled command, REBOOT.COM, that can make the Netserver shut down and restart automatically.

No blocking question should occur on the Netserver console during these operations, because the unattended installation needs to be able to bypass every problem and work unhindered.

The following operations (formatting, copying and launching) are only accessible when the server has rebooted, because the partitioning is effective after a warm restart.

### 2 - Creation of the script file for W2K unattended installation

This file is a text mode file and its name depends on the information in the launch script "install.bat". You must therefore copy this file with all the OS source files because AUTOEXEC.BAT will copy it locally on the pre-installed Netserver.

```
; W2KSRV.INF
; HP Netserver Unattended Installation File
;
; Microsoft Windows 2000 Server, Advanced Server
; (c) 1994-1999 Microsoft Corporation. All rights reserved.
;

[Unattended]
; Part of the minimum options required for a fully unattended installation
UnattendMode = FullUnattended

; Determine whether the Microsoft license agreement should be prompted or not
OemSkipEula = YES

; The path of the source files to be installed
OemFilesPath = I:\i386
```

```

; Describe the target directory to be installed
TargetPath = \WINNT

; Specifies whether the primary partition should be converted to NTFS or left as FAT16
Filesystem = ConvertNTFS

; Non-signed drivers will cause attended information during installation
DriverSigningPolicy = Warn

[GuiUnattended]
; Specify the time zone for the server, prevent from prompting an attended selection
TimeZone = "095"
; Simply set no password for Administrator account
AdminPassword = *

; Automatically logon with the Administrator account
Autologon = Yes

; Disables the autologon after 1 successful logon
AutologonCount = 1

[LicenseFilePrintData]
; Set the options of licensing installation
AutoMode = "PerServer"
AutoUsers = "5"

[UserData]
; All necessary information to inform the Gui installation
FullName = "Netserver"

OrgName = "HP"
; This part is automatically provided by the autoexec.bat script, so leave it blank
ComputerName=
; Please add your own OS license number
ProductId = "XXXXX-XXXXX-XXXXX-XXXXX-XXXXX"

; Just an example of a specific command line for Netserver LH6000 to patch registry
; Other programs can be configured to silent installations and set in this key
[GuiRunOnce]
;Command0 = "%windir%\regedit.exe -s c:\Masters\lh6000\lh6000.reg"

[Display]
; Set the values to get predefined display properties
BitsPerPel = 16
XResolution = 800
YResolution = 600
VRefresh = 70

[Components]
; Choose whether common programs included in W2K are installed
cdplayer = Off
freecell = Off
minesweeper = Off
pinball = Off
solitaire = Off
[Networking]

```

*; Choose whether some network programs included in W2K are installed*  
InstallDefaultComponents = Yes

[NetAdapters]

*; Set the names of the different LAN adapters*  
LanCard1 = params.LanCard1

[params.LanCard1]

*; When many LAN Adapters are installed, the InfiD must be SET exactly to separate them*  
InfiD = "\*"

[NetProtocols]

*; Choose which Network protocols must be installed*  
MS\_TCPIP = params.TCPIP

[params.TCPIP]

*; Set the options values for TCP/IP*  
DHCP = Yes  
;DNSDomain = dns.hp.com  
;DNSServerSearchOrder = dns1.hp.com , dns2.hp.com  
;EnableLMHosts = Yes  
;DefaultGateway = 192.168.100.254  
;IPAddress = 192.168.100.1  
;SubnetMask = 255.255.255.0  
WINS = No  
;WINSServerList = 192.168.0.253,192.168.1.253

[NetOptionalComponents]

*; Set the optional values for the protocol*  
DHCPServer = 0  
DNS = 0  
SNMP = 1  
NETMONTTOOLS = 1  
WINS = 0

[SNMP]

*; Set the parameters for a specific network service*  
Accept\_CommunityName = public:Read\_Create  
Any\_Host = Yes  
Community\_Name = public  
Contact\_Name = Administrator  
Location = Public  
Service = Physical, Applications, Datalink, Internet, End-to-End  
Send\_Authentication = No  
Traps = 192.168.100.1 # This IP address depends on the particular implementation

[Identification]

*; Set which Workgroup or Domain to join*  
JoinWorkgroup = HP-LABS # This workgroup depends on the particular implementation

[Data]

*; Informs W2K Setup loader that an unattended installation is being performed*  
UnattendedInstall = Yes

nb: the boot disk can also be a .dsk image file that can be downloaded by a TT\_RCC.

nb: a Win9x-based system must be used because this software does not work on an NT system.

### 3 - Disk 2 prepares the source file copy and launches the unattended installation

When the server is ready, a more complete boot disk is required to check the location of the OS source files and configuration files (CD ROM or Network).

The second boot disk is more difficult to create because we have to start the Netserver, access the CD ROM or a mapped network drive, copy all the files and then launch the installation. This disk will be an MS DOS boot disk, with CD ROM drivers (in case of unattended installation by CD) or TCP/IP stack (in case of unattended installation from a shared distant directory).

Creation of the base boot disk:

Use HPFORMAT.EXE on the HP Navigator CD, located in the directory \System and all the files such as msdos.sys, io.sys, etc. in the sub-directory \Dosstub\Language.

Usage:

```
hpformat -b bootSec [-i ioSys -m msdos.sys] [-l language] [-v label] drive
```

where

- b bootSec: boot sector for the formatted drive
- i ioSys: io.sys for the formatted drive, optional
- m msdos.sys: msdos.sys for the formatted drive, optional
- v label: disk label, optional
- l language: us, fr, ge, it, or sp

We can also copy XCOPY.EXE to the disk.

Creation of the network boot disk

Use "Network Client Administrator" on a Windows NT4 Server, choose "Make Network Installation Disk", Select the correct path for the Client files (the directory \Clients included on the Windows NT4 Server CD ROM), and then choose "Network Client MS DOS...", a driver for the NIC integrated into the Netserver or any that can easily be identified in the configuration files. When this has been done, we can add some other useful information, such as the distant server name, etc., because all this information will be required later. All the files necessary for the TCP/IP stack will be copied to the disk and AUTOEXEC.BAT and CONFIG.SYS database files will also be added.

It is necessary for the disk to be able to boot so that we can run the above files.

Now refer to the specific configuration documentation to change PROTOCOL.INI and SYSTEM.INI files located into \Net subdirectory.

Certain files must be modified to be appropriate for the automatic installation, in particular SYSTEM.INI in the \Net directory in which it is necessary to remove the computer name, the username, etc. and insert the correct ".DOS" driver files (see variables put in memory in the list below).

It is necessary to format the partition of 2Go and to start a copy of all necessary files, i.e. \i386 for OS and possibly other directories for additional applications such as pcAnywhere(r).

nb: all resource names are arbitrary and will depend on the actual implementation.

The following operation consists of loading in memory all the useful variables to parse to various possible scripts. This stage is not mandatory but can prove useful when several different systems have to be installed.

```
ECHO SET TEMPLATE=%TEMPLATE%> A:\VARS.BAT
ECHO SET COMPUTERNAME=%COMPUTERNAME%>> A:\VARS.BAT
ECHO SET LOGIN=Administrator>> A:\VARS.BAT
ECHO SET WORKGROUP=HP-LABS>> A:\VARS.BAT
ECHO SET DOMAIN=HP>> A:\VARS.BAT
ECHO SET NETDRIVE=i:>> A:\VARS.BAT
ECHO SET NETSERVER=E800-TTDM>> A:\VARS.BAT
ECHO SET NETSHARE=W2KSRV>> A:\VARS.BAT
ECHO SET SRVTYPE=%SRVTYPE%>> A:\VARS.BAT
```

- Loading Smartdrive to accelerate the copies and access to the files.
- Launching the file that loads the various variables in memory or directly puts these variables in memory.
- Placement of the variables in the script files (computername, username, domain in the file system.ini) before launching the loading of the utilities network and the mapping of distant drives. For local installation, this operation must be replaced by loading the CD ROM driver. However, it is not possible to load both (CD and network) for lack of memory since one of them boots in MS-DOS.

The last stage before launching the installation consists of creating and copying the various directories containing the source files.

```
C:\
cd \
md masters
md masters\i386
REM Copy all the Master directory that contains files for W2K Server
xcopy i:\i386\*. * c:\masters\i386\ /s /e
REM Copy the Unattended file
xcopy a:\srvtype\w2ksrv.inf c:\masters\i386\
REM Create the install batch file to launch
echo c:\masters\i386\WinNT /u:C:\masters\i386\w2ksrv.inf /s:c:\masters\i386 >
c:\masters\install.bat
REM Set the name of the computer into the unattended file
Change c:\masters\i386\w2ksrv.inf ComputerName= ComputerName=%COMPUTERNAME% > nul
```

Launch the unattended installation:

```
C:\masters\install.bat
```

.....and go for a coffee...

## b) Configuring your "file" server

To summarize, first prepare the HDD by formatting a primary partition of 2GB and rebooting the server (disk 3). Second, copy and install either W2K Advanced Server (disk 4) or NT4 server (disk 5)

The two disks required for installation (disks 3 and 4 or disks 3 and 5) may be combined on a single disk. The new disk should then be called disk 6 or disk 7. In this section, disk 6 should be used where disk 4 is mentioned (for W2K) and disk 7 for disk 5 (for NT4).

However, if you use the TT\_RCC, you will need two different disks, which will be transferred into \*.dsk files created via "copydisk.exe" on the Navigator CD.

For **W2K**, depending on the HP Netserver (drivers), you may not have to change anything.

- On the "file" server, you must create a shared file. We suggest the following name:  
For W2K Advanced Server = W2KSRV
- For W2K , copy the whole of the folder W2KSRV from the CD ROM  
\\W2KSRV\i386 (contents = W2K source)

refer to software scripts:  
\\unattended install  
\\disk 3 & 4 or 5

refer to software scripts:  
\\unattended install  
\\W2KSRV

refer to software scripts:  
\\unattended install  
\\disk 4

- On disk 4, edit the file:  
Autoexe.bat
  - You must enter the name of the server that will contain the **shared** file -  
ECHO SET NETSERVER=e800-TTDM>> A:\VARS.BAT.
  - You have just created a **shared** file with the following name: W2KSRV.  
If you have used a different name, change at this line:  
ECHO SET NETSHARE=W2KSRV>> A:\VARS.BAT

For **NT4**, you will have to find the drivers of your HP Netserver to complete the following process (e.g. within the CD ROM=LH3 and LH4) because Win2K is plug and play, WinNT4 is not.

refer to software scripts:  
\\unattended  
install\NT4SRV

- On the "file" server, you must create a shared file. We suggest the following name:  
For NT4 Advanced Server = NT4SRV
- For NT4, copy the following folders from the CD ROM:  
\\NT4SRV\i386 (contents = NT4 source)  
\\NT4SRV\SP4 (Contents = SP4 executable file , it **\*MUST\*** be called : Sp4i386.exe)
- Create the subfolder SRVTYPE within \\NT4SRV
- Copy the folder PCA32 from the CD ROM to this sub-folder you have just created:  
\\NT4SRV\SRVTYPE\PCA32 (contents = PCAnywhere source install)

refer to software scripts:  
\\unattended install  
\\disk 5

- To complete the preparation, you must locate the drivers of the HP Netserver you use and copy them within a sub-folder named lhx as in the following example (LH3 and LH4):

\\NT4SRV\SRVTYPE\lhx	
\\NT4SRV\SRVTYPE\lhx\cirrus.inf	-> LHx video adapter
\\NT4SRV\SRVTYPE\lhx\cl54xx.dll	-> LHx video adapter
\\NT4SRV\SRVTYPE\lhx\cl54xx.sys	-> LHx video adapter
\\NT4SRV\SRVTYPE\lhx\monisel.dll	-> LHx video adapter
\\NT4SRV\SRVTYPE\lhx\monisel.hlp	-> LHx video adapter
\\NT4SRV\SRVTYPE\lhx\monisel.txt	-> LHx video adapter
\\NT4SRV\SRVTYPE\lhx\readme.1st	-> LHx video adapter
\\NT4SRV\SRVTYPE\lhx\timings.dat	-> LHx video adapter
\\NT4SRV\SRVTYPE\lhx\mraidnt.sys	-> Netraid Adapter
\\NT4SRV\SRVTYPE\lhx\oemsetup.inf	-> Netraid Adapter
\\NT4SRV\SRVTYPE\lhx\intel\hpaft.sys	
\\NT4SRV\SRVTYPE\lhx\intel\hpmon.exe	
\\NT4SRV\SRVTYPE\lhx\intel\hpsetp.cnt	
\\NT4SRV\SRVTYPE\lhx\intel\hpsetp.cpl	
\\NT4SRV\SRVTYPE\lhx\intel\hpsetp.hlp	
\\NT4SRV\SRVTYPE\lhx\intel\hptx.sys	
\\NT4SRV\SRVTYPE\lhx\intel\hptxdd.sys	
\\NT4SRV\SRVTYPE\lhx\intel\hptxdisk	=====> Intel Lan HP TX PCI Adapter
\\NT4SRV\SRVTYPE\lhx\intel\hptxkddp.sys	
\\NT4SRV\SRVTYPE\lhx\intel\hptxnt.sys	
\\NT4SRV\SRVTYPE\lhx\intel\ivlan.sys	
\\NT4SRV\SRVTYPE\lhx\intel\nethptx.cat	
\\NT4SRV\SRVTYPE\lhx\intel\nethptx.inf	
\\NT4SRV\SRVTYPE\lhx\intel\oemsetup.inf	
\\NT4SRV\SRVTYPE\lhx\intel\v31c0~22.tic	
\\NT4SRV\SRVTYPE\lhx\SYMSCSI\disk32.reg	-> LHx Symbios logic SCSI Adapter
\\NT4SRV\SRVTYPE\lhx\SYMSCSI\oemsetup.inf	-> LHx Symbios logic SCSI Adapter
\\NT4SRV\SRVTYPE\lhx\SYMSCSI\symc8xx.sys	-> LHx Symbios logic SCSI Adapter

refer to software scripts:  
\\unattended install  
\\disk 5

refer to software scripts:  
\\unattended install  
\\disk 5

- For NT4, you must now complete the driver information on disk 5 in the following files:

```
\srvtype\lhx\  
nt4srv.inf  
txtsetup.oem
```

- On disk 5, edit the file:

Autoexe.bat

- You must enter the name of the server that will contain the **shared** file - ECHO SET NETSERVER=e800-TTDM>> A:\VARS.BAT.
- You have just created a **shared** file with the following name:
  - NT4SRV. If you have used a different name, change at this line:  
ECHO SET NETSHARE=NT4SRV>> A:\VARS.BAT

## 2. Creating a \*.dsk file from the Navigator CD

- Go to the copydisk.exe utility, located on the HP Netserver Navigator CD under TTRC

To create a disk image (\*.dsk) of your disk and to copy it to the directory, please follow these steps:

- Open a MS DOS window
- Launch copydisk.exe using this syntax:

Copydisk *sourcedrive destinationpath*

where "*sourcedrive*" is a floppy disk drive on your PC that you would like to convert to a \*.dsk file (e.g. A:\ ) and "*destinationpath*" is the destination drive.

## 3. Configuring a TFTP server to communicate with the TT\_RCC

To start the supplied TFTP server, the program "tftpserv.exe" must be executed on the server in a DOS window or using the Run command from the Windows Start menu:

tftpserv.exe [*root*]

where [*root*] indicates the base directory from which a client can retrieve files. If the root is not specified, the current working directory is used as the base directory.

If you have already installed the **Toptools Device Manager** on one of your machines, that machine will automatically become a TFTP server. The directory from which a client can retrieve files is:

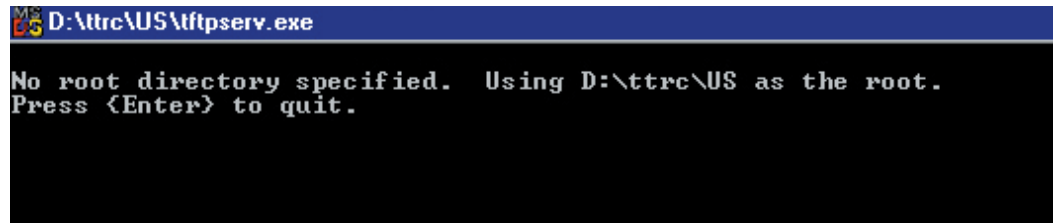
\program files\hptt\data\packages\

A TFTP client can request files within the base directory or its subdirectories but does not have access to lower directories. The server software enables the base directory to act only as a file source, not as a file destination.

- Insert the *Navigator CD* into the client.
- Click **Exit** to close the *Disk Library or Netserver Navigator screen*.
- Create a c:\tftp directory.
- Using *Explorer*, navigate to and view the *CDROM:\ttrc\us* directory.
- Copy the following file into the root of the C drive:  
tftpserv.exe (the executable program)



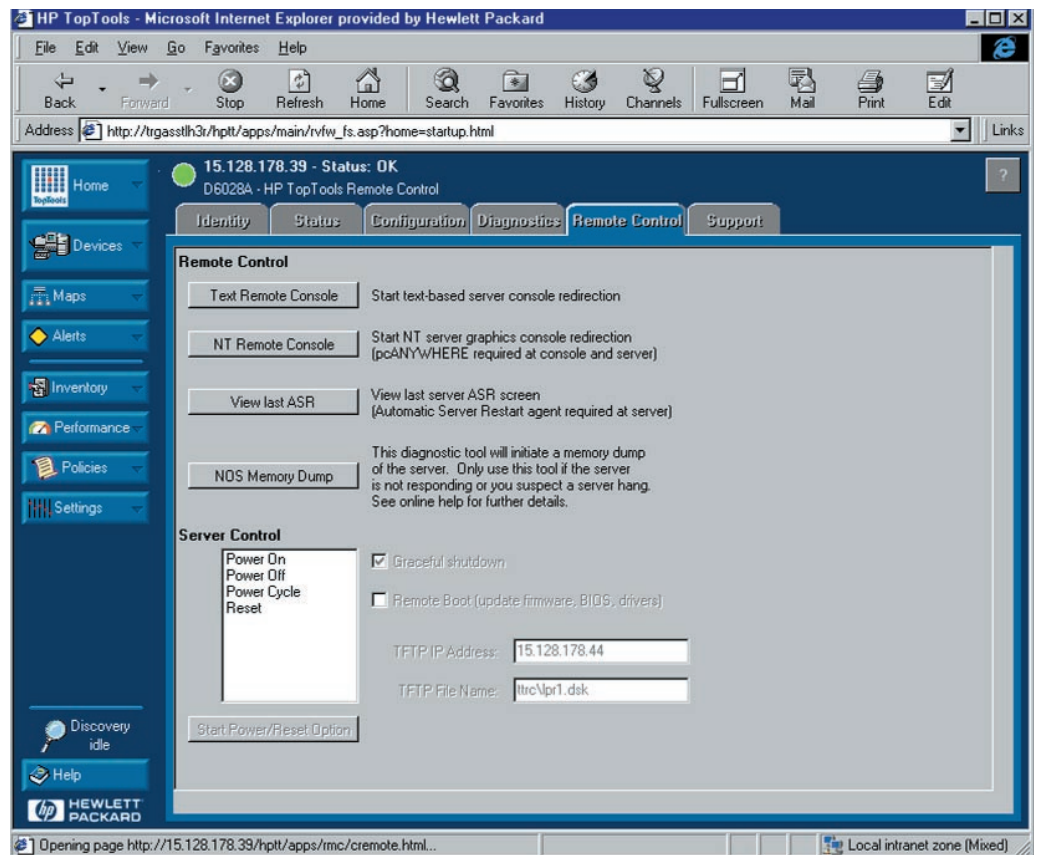
- From the C:\ directory, double-click on tftpserver.exe. A DOS command prompt window appears and launches the TFTP server on your NT client workstation.



- Minimize or move the window, but do not press Enter to quit or close it.

## 4. Configuring the TFTP information from the TT\_RCC

- From the HP Tootools Remote Control Card software interface, click the **Remote Control** tab.
- If prompted, log on as **ADMIN** using the password **ADMIN**.
- Click on **Power on or Power cycle / Remote Boot ...**
- Enter the IP address of the TFTP server = for example: 192.168.100.1
- Enter the file name (\*.dsk) you want to load via the TT\_RCC



## 5. Pushing an unattended installation from a TFTP server

- Follow the steps in section 1
- Create a \*.dsk file (step 2) from the two disks you have created in section 6
- Configure a TFTP server (step 3)
- Locate the \*.dsk files within the TFTP file of your TFTP server
- Configure the TT\_RCC with the IP address of the TFTP server (step 4)
- You must launch the first reboot with the \*.dsk file from disk 3 (prepares the disk). Follow the steps via the Text remote console.
- To start, click the **“Start”** button and confirm by clicking **“yes”**. Follow the steps via the Text remote console.
- When the server has finished preparing the disk and reboots again, configure the TT\_RCC to reboot with the second \*.dsk file you have created (from the previously prepared disk that copies and installs the NOS)
- To start, click the **“Start”** button and confirm by clicking **“yes”**. Follow the steps via the Text remote console.



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