



IA64 Integrity Server – Windows Setup and configuration



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Headless Windows

Headless – Why?

- Console monitor left over from single user PC
 - Tempting for people to use / misuse
- True high-end servers do not need it!
 - Normal management (In-band) done over terminal session
 - Emergency management (out-of-band) done from telnet or serial connected terminal
- Not related to RILO
 - No additional hardware
 - Does not redirect Keyboard / Video / Mouse



Headless – When?

- **Appears with Windows Server 2003**
 - OS support in all Windows Server 2003 SKUs
 - Called EMS (Emergency Management Services)
- **Needs hardware & firmware cooperation**
 - Require firmware upgrade for mid-life ProLiant
 - Not supported on very old ProLiant
 - Chosen path for HP Integrity Server

Headless – How?

- **Software:**
 - Initial boot loader has been modified
 - OS kernel has been modified
 - Addition of a pseudo-driver to give command line access (called sacdrv)
- **Hardware:**
 - Requires serial line with terminal / terminal emulator or NIC and telnet client
- **Firmware:**
 - Should support normal pre-boot (POST and configuration) redirection to serial



Headless – Who?

- You still can install a VGA console and operate your server like an old fashion PC
- Most people already manage their servers from their workstation
 - Install the Administrative Tools **from 32-bit server** using \\W2K3server\Admin\$\System32\AdminPak.MSI
 - Microsoft allows 2 connections for management without Terminal Services licenses
 - Multiple people can share 1 session for learning / troubleshooting purpose (Terminal Server Manager → Select server in left pane → Select session in right pane → Right-click → Remote Control)



Headless – Where?

- Integrity Servers offer additional features:
 - Always-on management processor
 - Headless serial port available on the management LAN via Telnet or via a web interface which includes a compatible terminal emulation in Java
 - Headless console activity log



Headless – WMIC

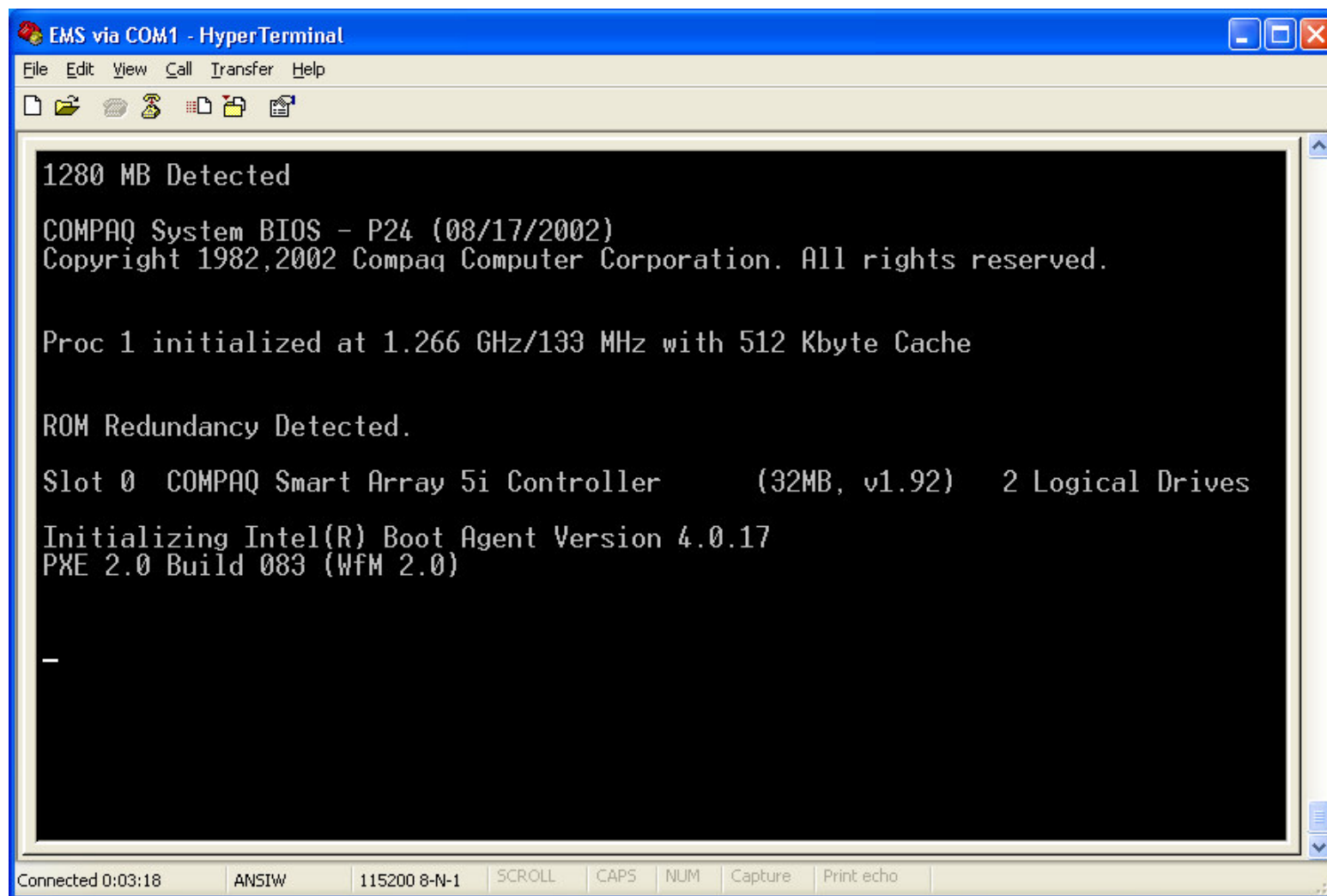
- New command line utility for Windows Server 2003
- Provides access to almost all management functions for Windows
- Consistent syntax not matter what you manage

Headless – Gotcha

- Depending on the terminal emulator / telnet program you use, function keys can be tricky
 - Use <ESC><Number> to replace <F-number> with less than 2 seconds between keystrokes
 - Use other means to achieve your goal: /SAFEBOOT boot option to replace <F8> at boot time
- If terminal services is not enable, use command:

```
WMIC RDToggle WHERE AllowTsConnections=0 CALL SetAllowTsConnections 1
```

Headless – ProLiant



```
EMS via COM1 - HyperTerminal
File Edit View Call Transfer Help
1280 MB Detected
COMPAQ System BIOS - P24 (08/17/2002)
Copyright 1982,2002 Compaq Computer Corporation. All rights reserved.
Proc 1 initialized at 1.266 GHz/133 MHz with 512 Kbyte Cache
ROM Redundancy Detected.
Slot 0 COMPAQ Smart Array 5i Controller (32MB, v1.92) 2 Logical Drives
Initializing Intel(R) Boot Agent Version 4.0.17
PXE 2.0 Build 083 (WfM 2.0)
-
```

Connected 0:03:18 ANSIW 115200 8-N-1 SCROLL CAPS NUM Capture Print echo

Headless – Superdome

```

C:\ 192.168.1.1 (VT-UTF8)
fs0:\> info mem
MEMORY INFORMATION

```

Cell	Cab/Slot	Total Mem	Active Mem	Failed DIMMs	SW Deconf DIMMs	HW Deconf DIMMs	Unknown
0	0/0	8192 MB	8192 MB	0	0	0	0
1	0/1	8192 MB	8192 MB	0	0	0	0
2	0/2	8192 MB	8192 MB	0	0	0	0
3	0/3	8192 MB	8192 MB	0	0	0	0
4	0/4	8192 MB	8192 MB	0	0	0	0
5	0/5	8192 MB	8192 MB	0	0	0	0
6	0/6	8192 MB	8192 MB	0	0	0	0
7	0/7	8192 MB	8192 MB	0	0	0	0

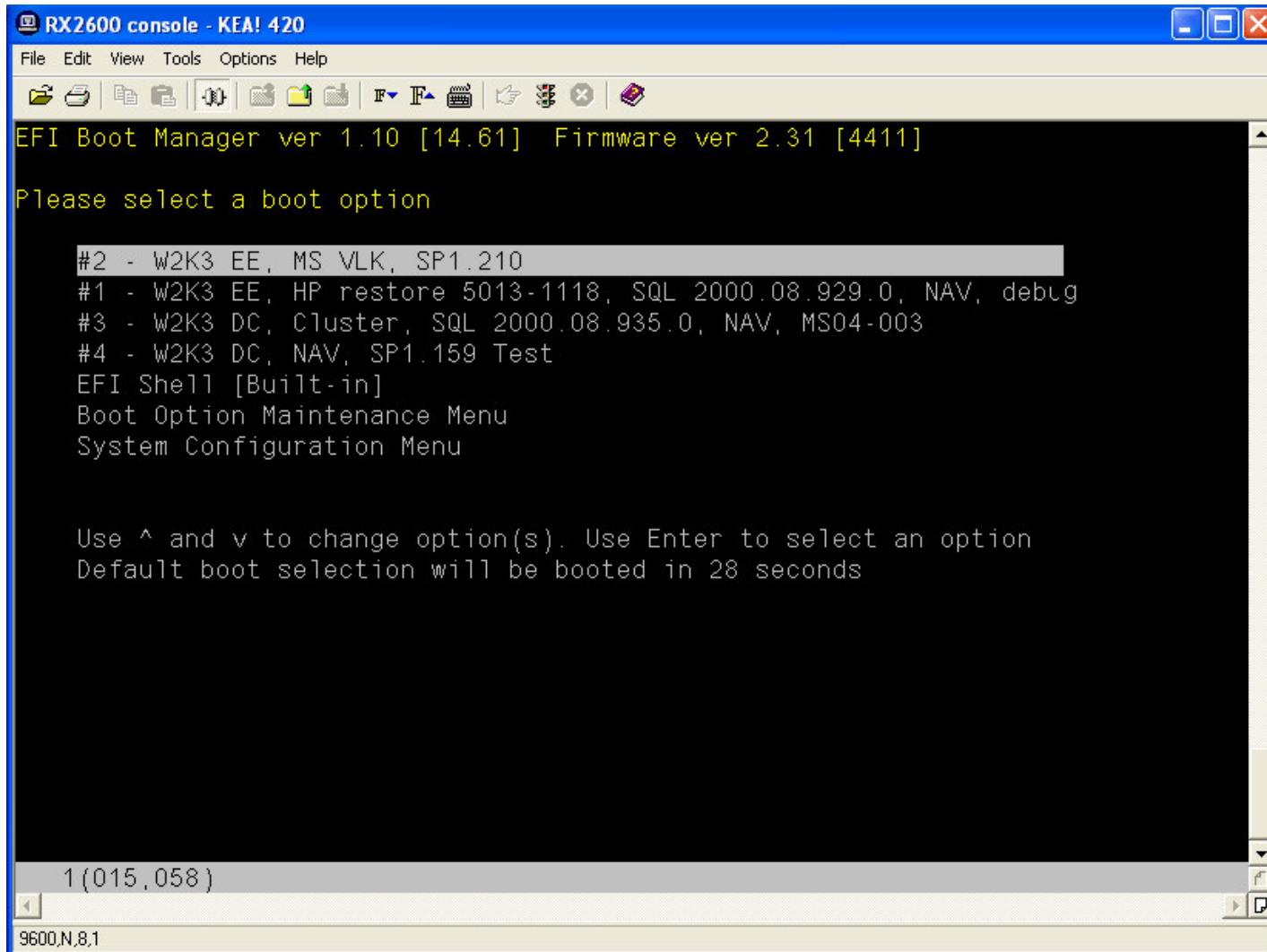
```

Active Memory           : 65536 MB
Interleaved Memory      : 65408 MB
NonInterleaved Memory   : 128 MB
Installed Memory        : 65536 MB

fs0:\> _

```

Headless – rx2600



```
RX2600 console - KEA! 420
File Edit View Tools Options Help
EFI Boot Manager ver 1.10 [14.61] Firmware ver 2.31 [4411]
Please select a boot option

#2 - W2K3 EE, MS VLK, SP1.210
#1 - W2K3 EE, HP restore 5013-1118, SQL 2000.08.929.0, NAV, debug
#3 - W2K3 DC, Cluster, SQL 2000.08.935.0, NAV, MS04-003
#4 - W2K3 DC, NAV, SP1.159 Test
EFI Shell [Built-in]
Boot Option Maintenance Menu
System Configuration Menu

Use ^ and v to change option(s). Use Enter to select an option
Default boot selection will be booted in 28 seconds

1 (015,058)
9600,N,8,1
```



Windows Setup



What should you install?

- Microsoft media or HP Media?
 - Pick based on license, requirements, and functionality
- Which SKU?
 - Standard Edition only available starting with SP1
 - Enterprise Edition supports up to 8 CPUs and 64 GB of memory
 - Datacenter Edition required when server exceeds Enterprise Edition supported limits, only available from HP
 - Plan ahead: what if you need to upgrade from 8 CPUs to 16 CPUs? You currently cannot upgrade Enterprise Edition to Datacenter Edition, must re-install!

Setup methods

- **Microsoft media**
 - For customer with Microsoft volume licenses
 - Not available for Datacenter Edition
 - Same setup process as 32-bit systems
 - HP specific tools and patches installed separately
- **HP Media**
 - WinPE Based quick restore
 - HP tools pre-installed
 - Some hot-fixes are pre-installed
 - Less configuration options but faster (SYSPREPed image)

Microsoft Setup

- Few differences between 32-bit and 64-bit
 - Require GPT disk
 - No WPA (Still requires key)
- IA64 Integrity servers do not have floppies
 - No <F5> option → cannot change HAL
 - No <F6> option → cannot load 3rd part storage drivers
- No BOOT.INI
- Same headless install as 32-bit servers, but likely new to everyone



Microsoft Setup

- Requires HP specific patches:
 - 821047 for NUMA Integrity servers (rx7620, rx8620, and Superdome)
 - 833272 for mx2 Integrity Servers (2 IA64 per IA64 slot)
- Apply HP tools and instrumented drivers
 - Download from WEB @ <http://www.hp.com> → Support & Drivers → type server model



Microsoft Setup – EBSU

- Obtain the Smart Setup media from HP
- Boot Smart Setup media
- Perform a Smart Setup
 - Allows using HP Specific boot driver without using <F6> but using a virtual floppy.



Microsoft Setup – No EBSU

- Insert the distribution media
- Get to the EFI boot menu
- Boot from CD
or
- Select “EFI Shell [Built-in]” option
- Use the device map to identify the device for the CDROM
- Start the install from that media

Microsoft Setup

```
RX2600 console - KEA! 420
File Edit View Tools Options Help
Use ^ and v to change option(s). Use Enter to select an option
Loading.: EFI Shell [Built-in]
EFI Shell version 1.10 [14.61]
Device mapping table
fs0 : Acpi(HWP0002,0)/Pci(2|0)/Ata(Primary,Master)/CDROM(Entry0)
fs1 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part1,Sig29F7D120-63EB-1)
fs2 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part2,Sig29F7DD3C-63EB-1)
fs3 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun1,Lun0)/HD(Part2,Sig95CC73E1-AFE7-1)
blk0 : Acpi(HWP0002,0)/Pci(2|0)/Ata(Primary,Master)
blk1 : Acpi(HWP0002,0)/Pci(2|0)/Ata(Primary,Master)/CDROM(Entry0)
blk2 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)
blk3 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part1,Sig29F7D120-63EB-1)
blk4 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part2,Sig29F7DD3C-63EB-1)
blk5 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part3,Sig29F7E700-63EB-1)
blk6 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part4,Sig5F0424CC-63EB-1)
blk7 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part5,Sig394A309F-E953-4)
blk8 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part6,Sig43F9AB57-72DD-4)
blk9 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part7,Sig4FB5846E-D3B6-4)
blkA : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part8,Sig4926917F-8523-4)
blkB : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part9,Sig9896E9BF-29AA-4)
blkC : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun1,Lun0)
blkD : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun1,Lun0)/HD(Part2,Sig95CC73E1-AFE7-1)
Shell> fs0:\setupldr
1 (024,021)
```

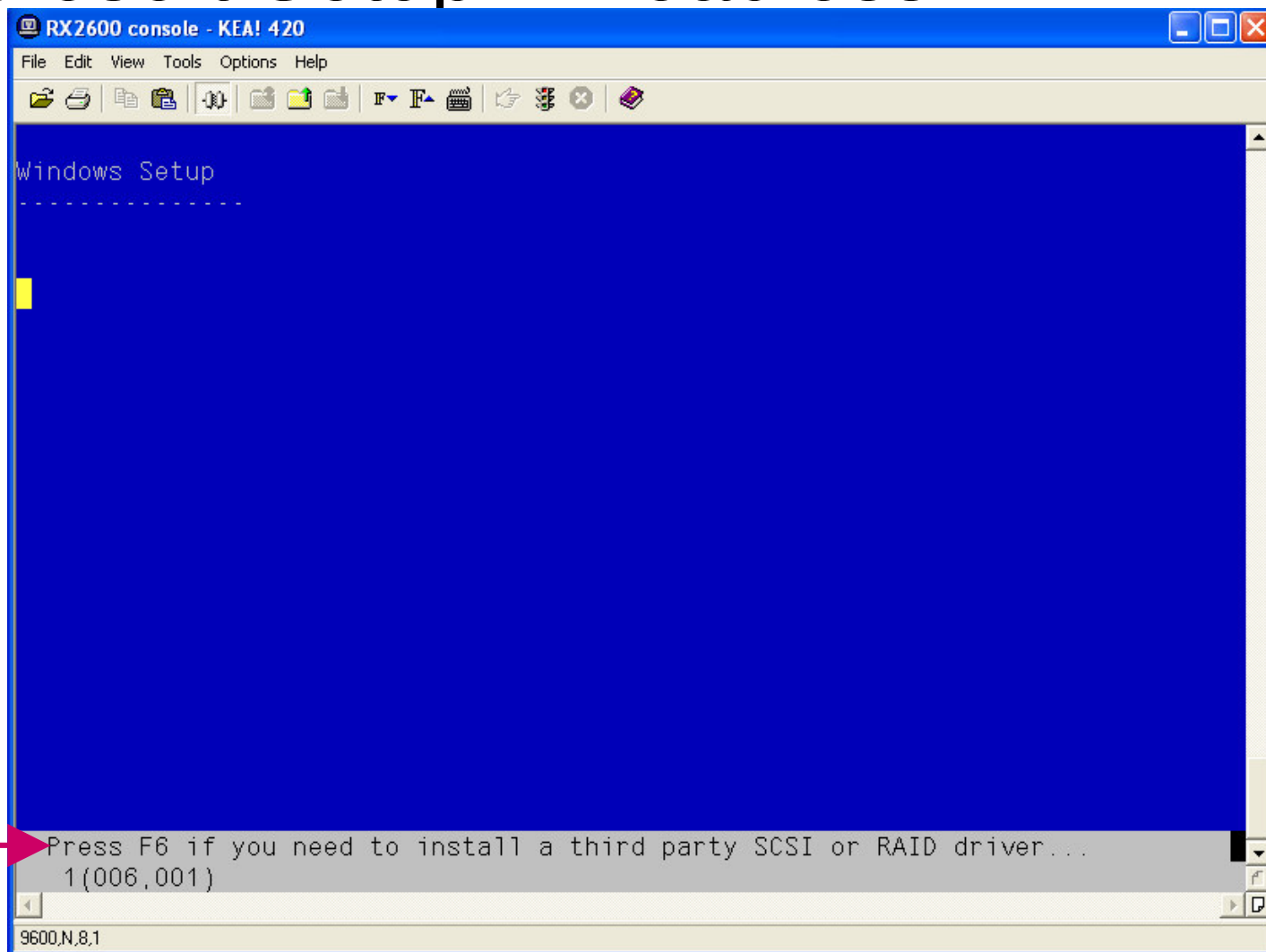




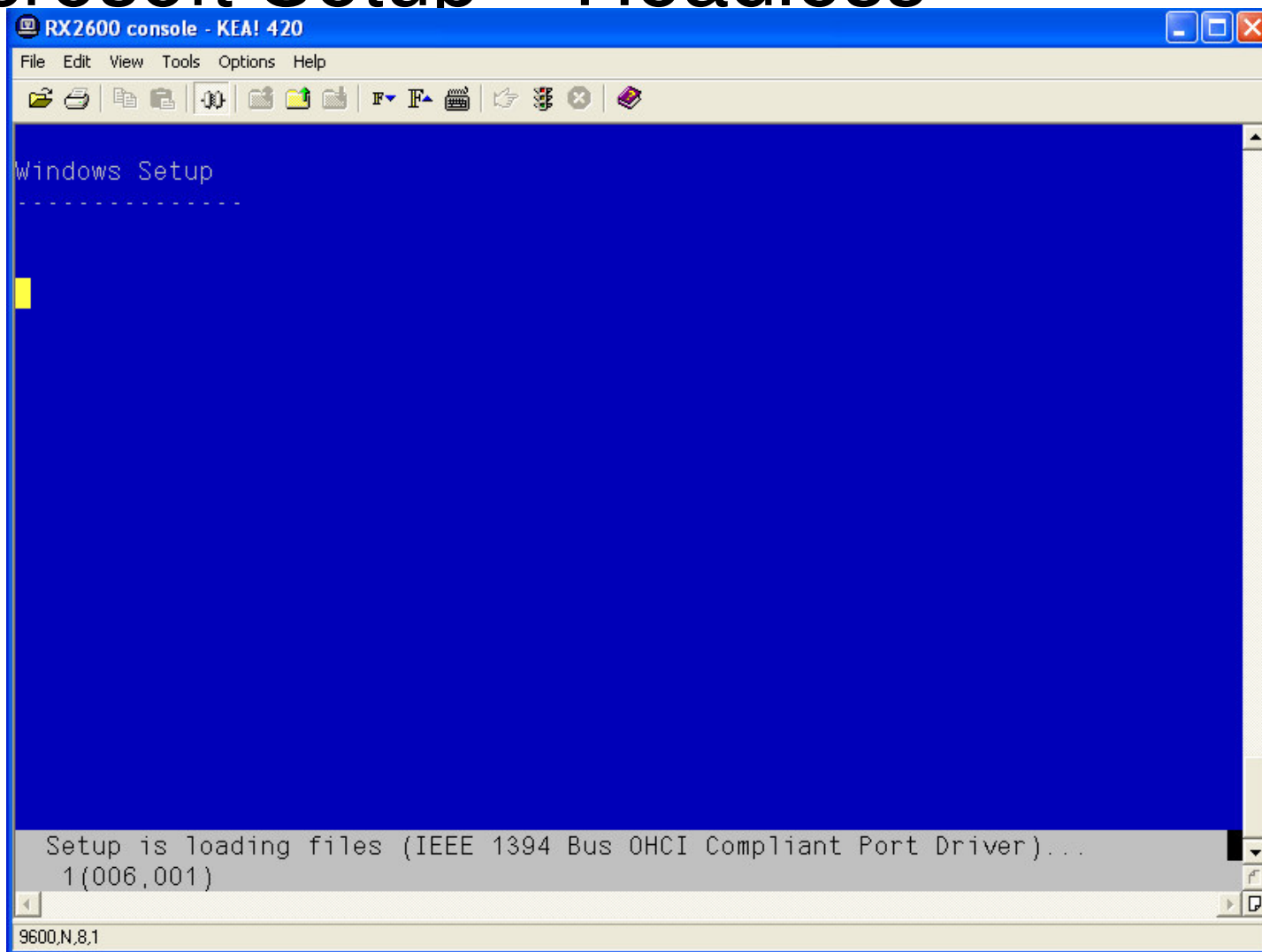
Microsoft Setup – GUI

- Identical to 32-bit!

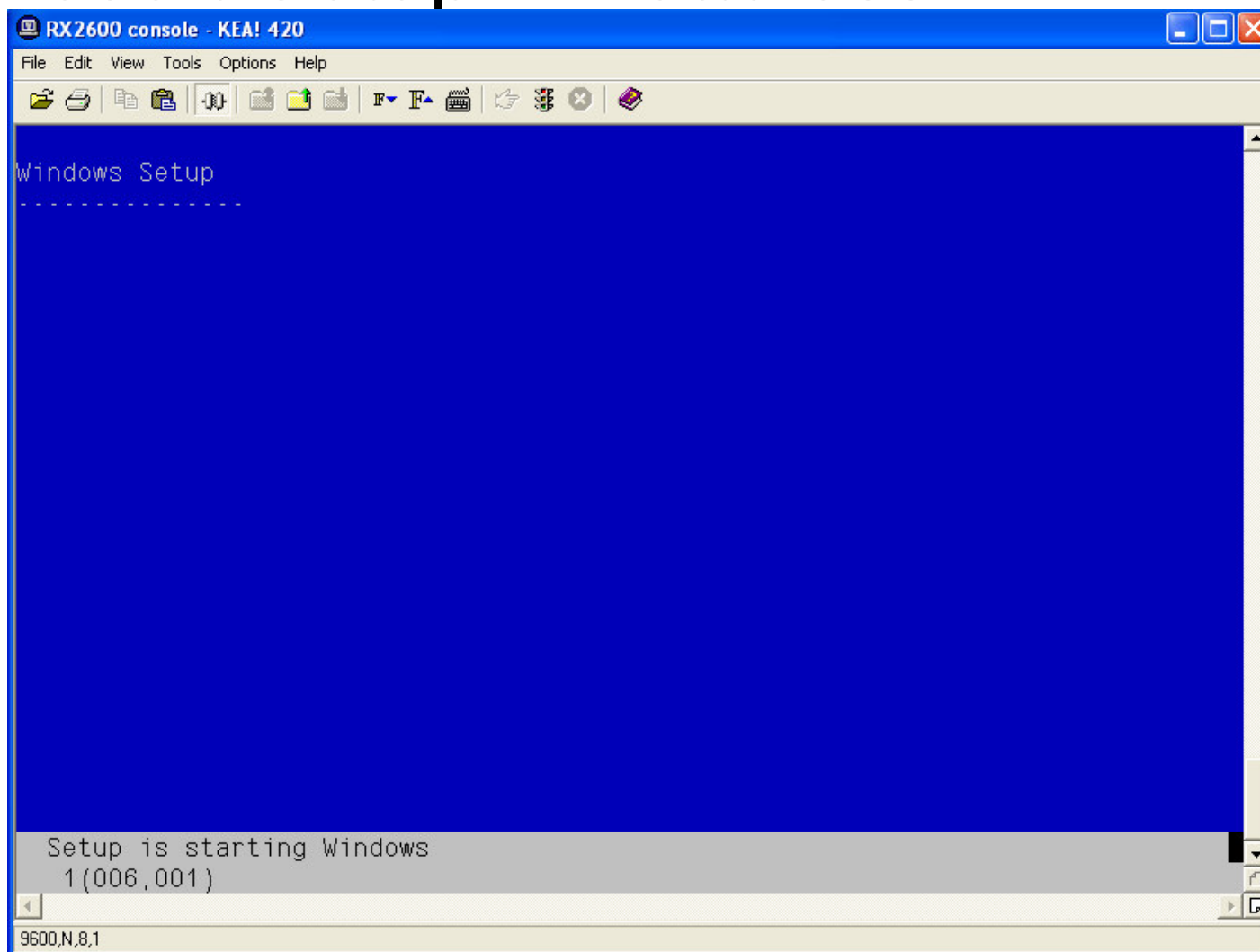
Microsoft Setup – Headless



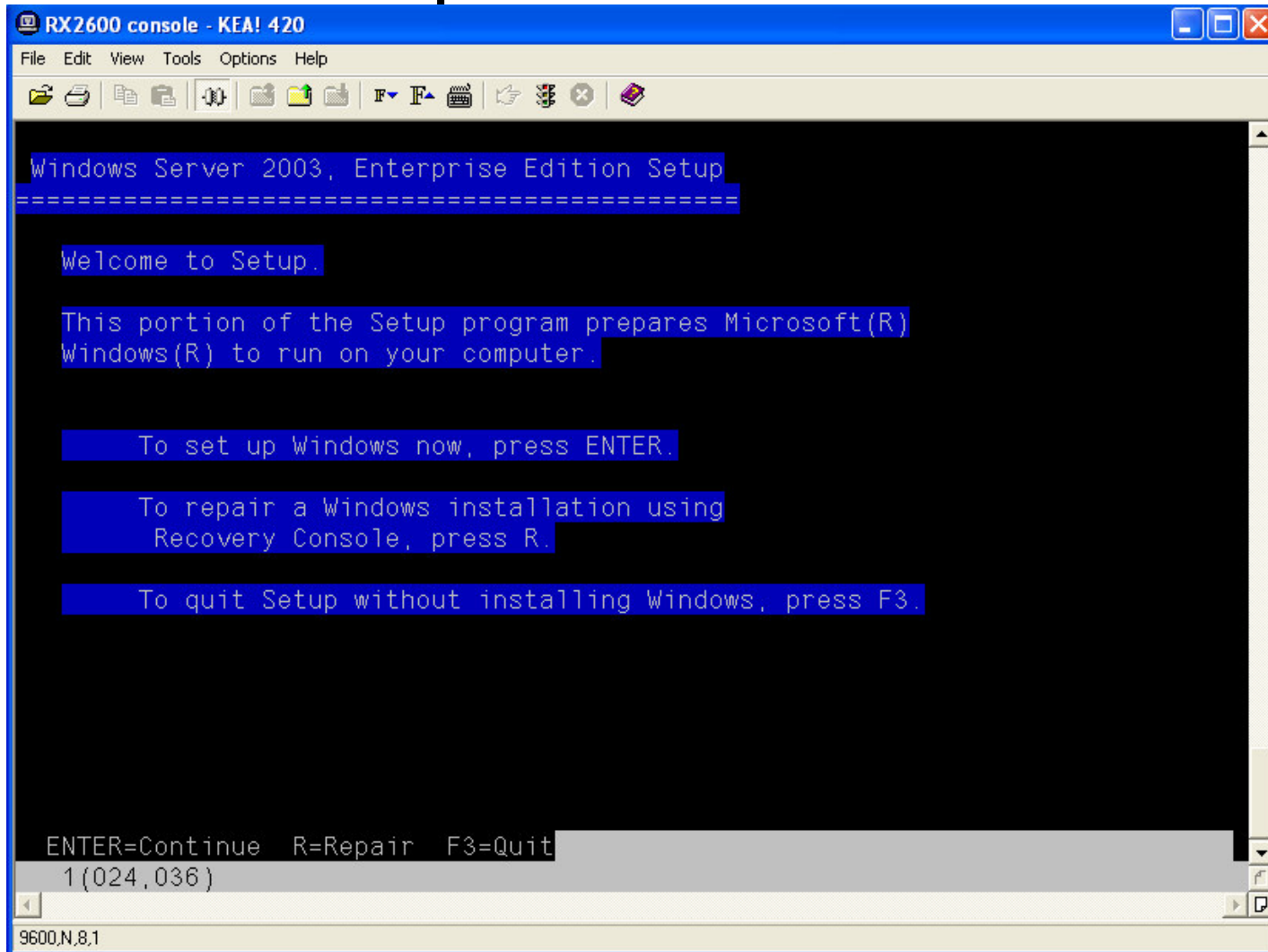
Microsoft Setup – Headless



Microsoft Setup – Headless



Microsoft Setup – Headless



```
Windows Server 2003, Enterprise Edition Setup
=====

Welcome to Setup.

This portion of the Setup program prepares Microsoft(R)
Windows(R) to run on your computer.

To set up Windows now, press ENTER.

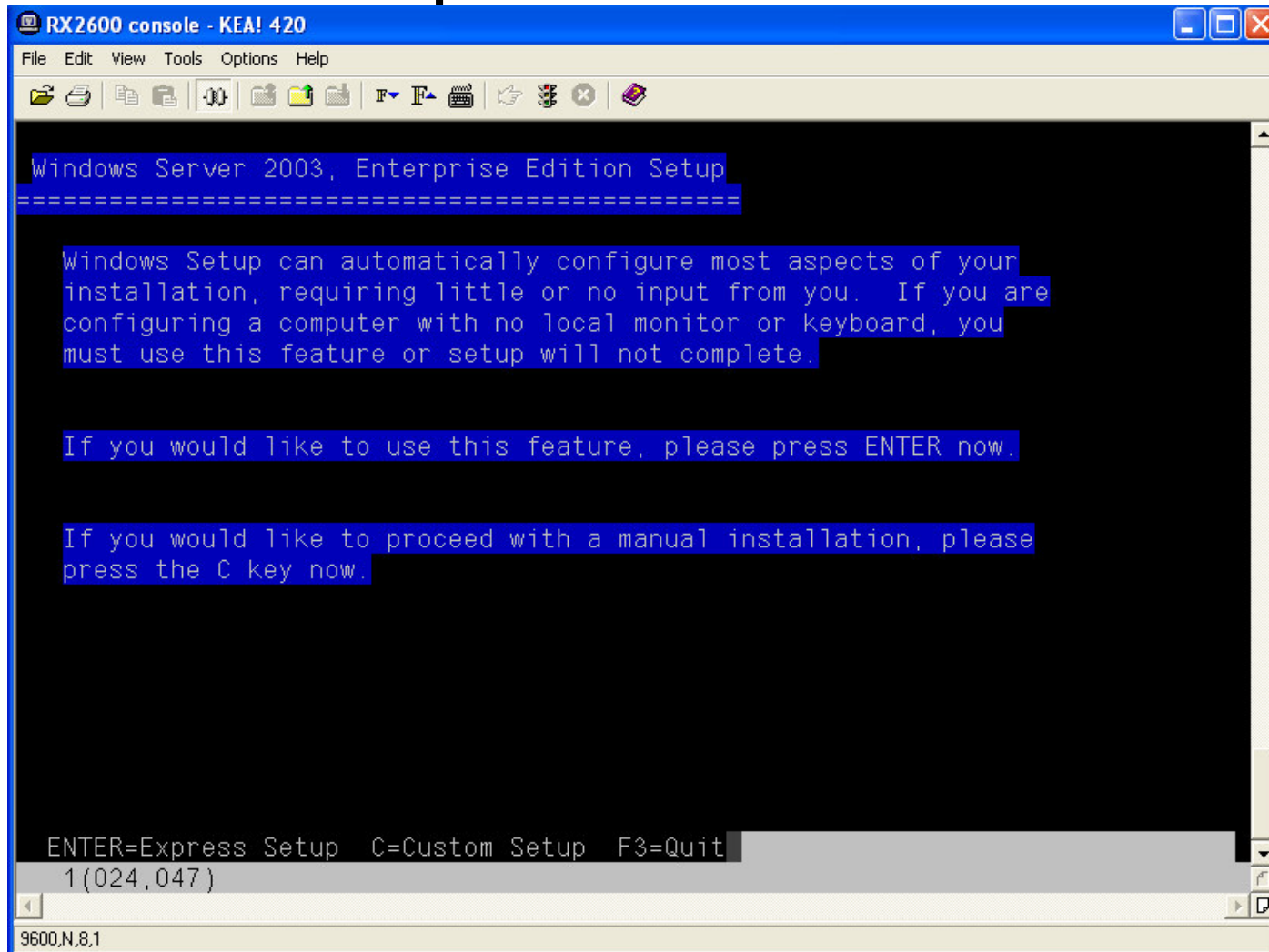
To repair a Windows installation using
Recovery Console, press R.

To quit Setup without installing Windows, press F3.

ENTER=Continue  R=Repair  F3=Quit
1(024,036)

9600,N,8,1
```

Microsoft Setup – Headless



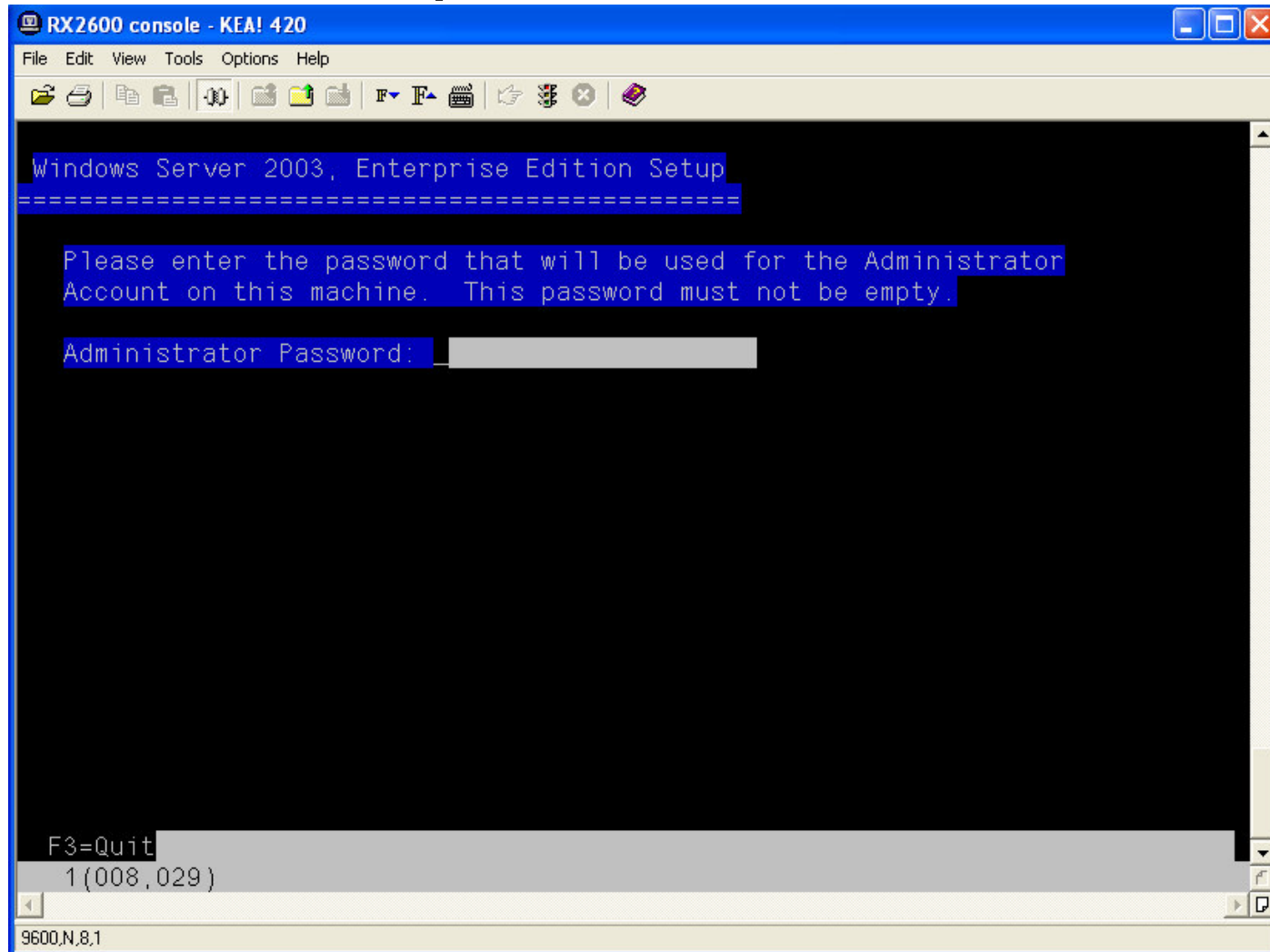
```
RX2600 console - KEA! 420
File Edit View Tools Options Help
Windows Server 2003, Enterprise Edition Setup
=====
Windows Setup can automatically configure most aspects of your
installation, requiring little or no input from you.  If you are
configuring a computer with no local monitor or keyboard, you
must use this feature or setup will not complete.

If you would like to use this feature, please press ENTER now.

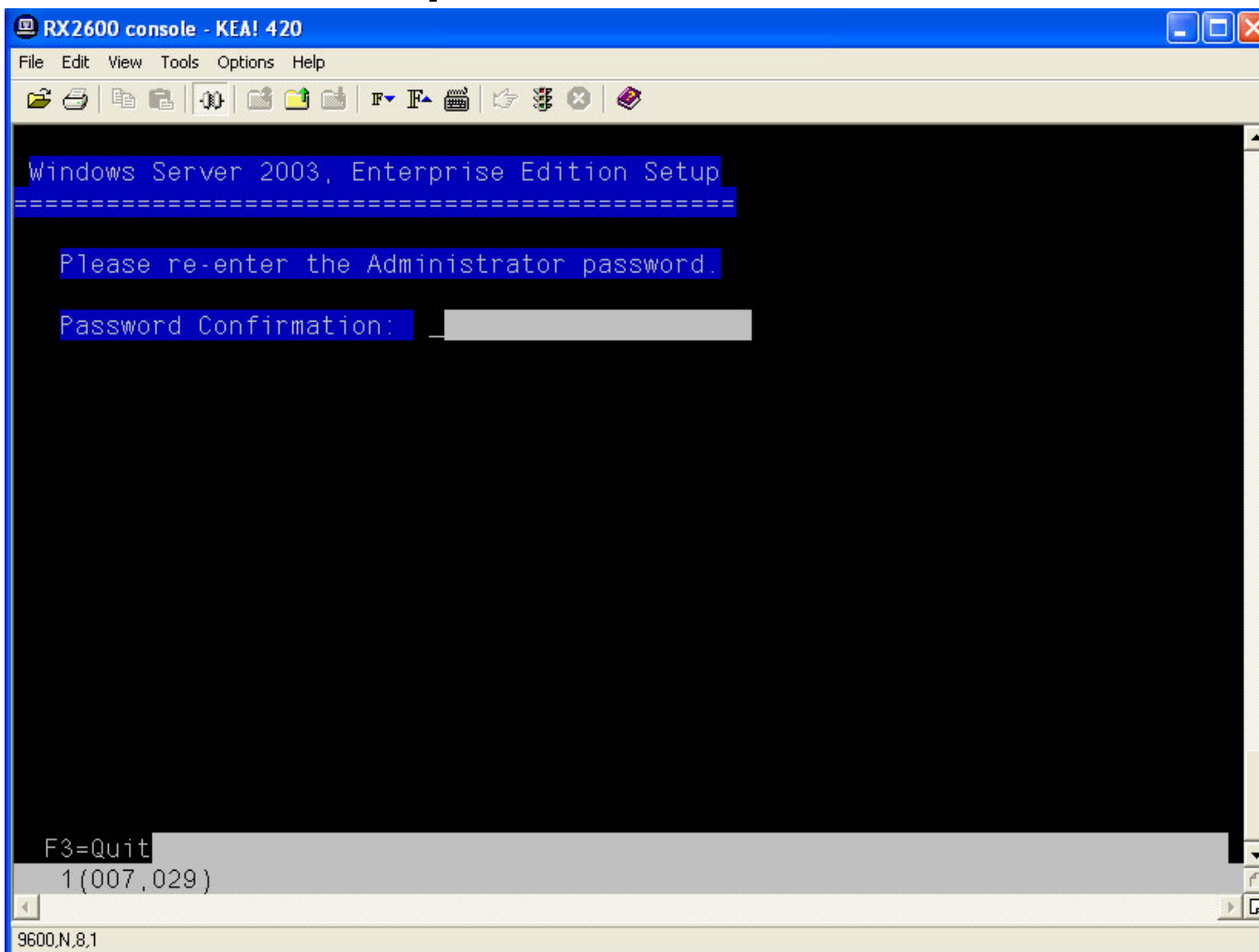
If you would like to proceed with a manual installation, please
press the C key now.

ENTER=Express Setup  C=Custom Setup  F3=Quit
1 (024,047)
9600,N,8,1
```

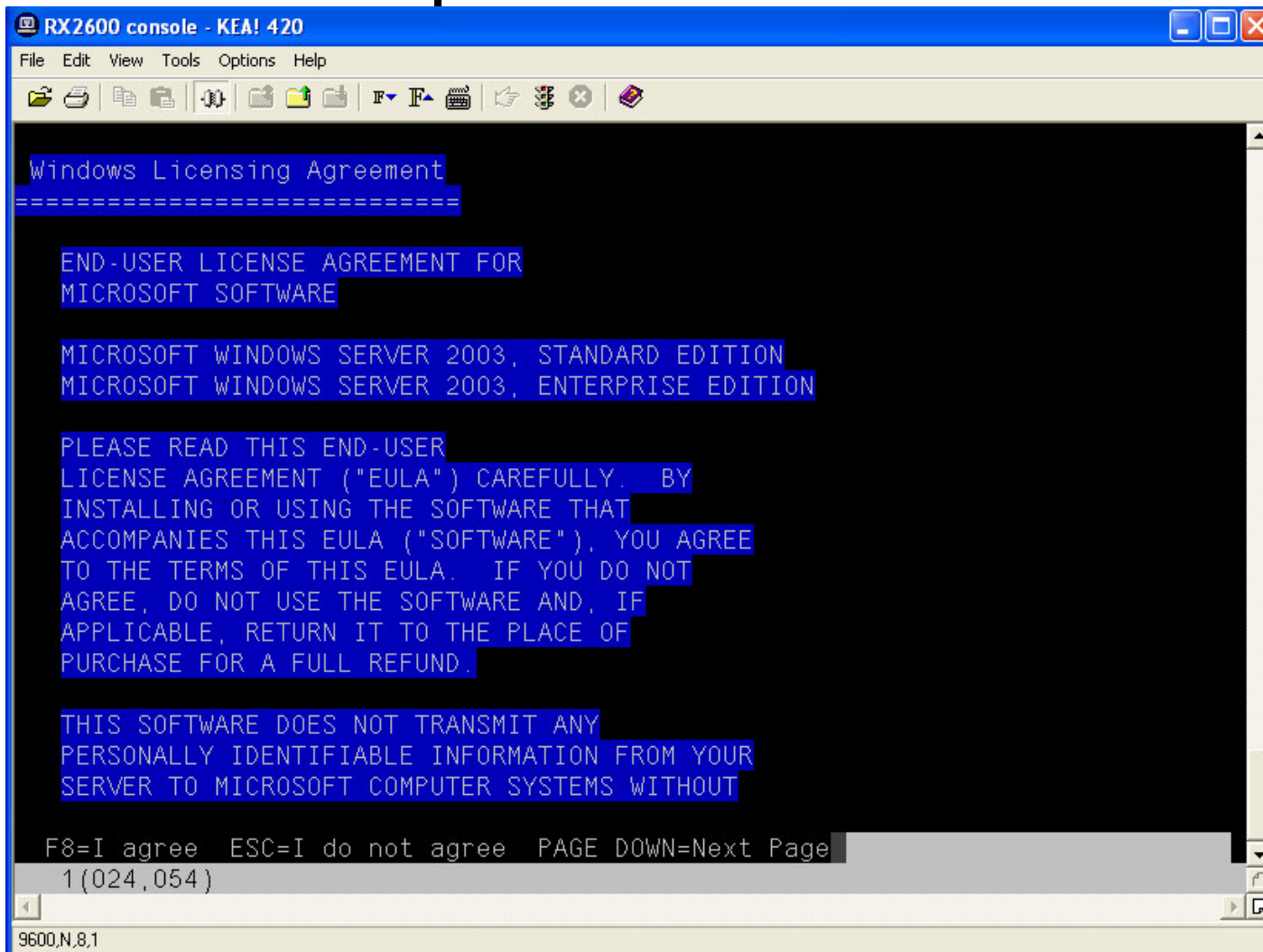
Microsoft Setup – Headless



Microsoft Setup – Headless



Microsoft Setup – Headless



```
RX2600 console - KEA! 420
File Edit View Tools Options Help
Windows Licensing Agreement
=====
END-USER LICENSE AGREEMENT FOR
MICROSOFT SOFTWARE

MICROSOFT WINDOWS SERVER 2003, STANDARD EDITION
MICROSOFT WINDOWS SERVER 2003, ENTERPRISE EDITION

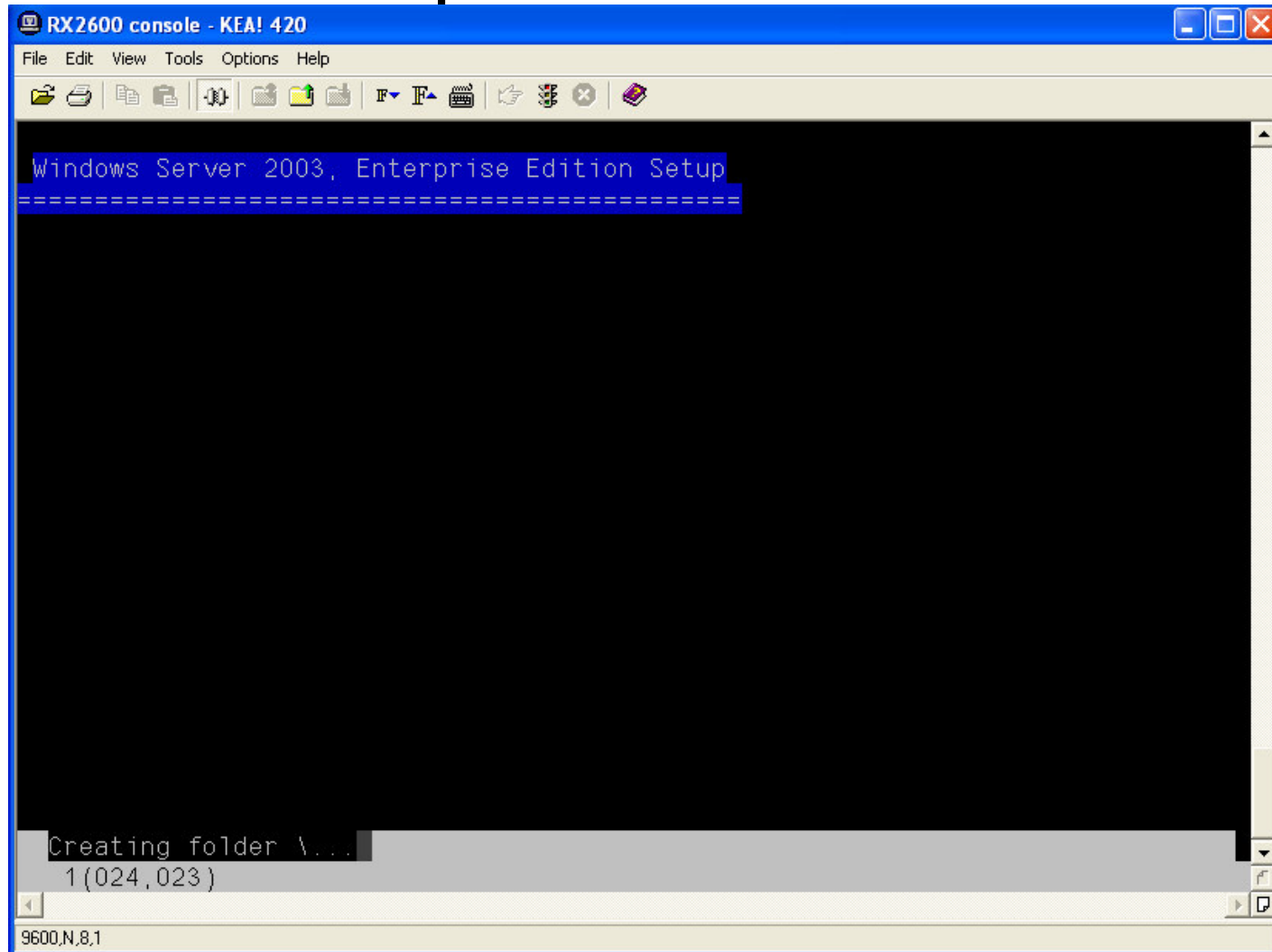
PLEASE READ THIS END-USER
LICENSE AGREEMENT ("EULA") CAREFULLY. BY
INSTALLING OR USING THE SOFTWARE THAT
ACCOMPANIES THIS EULA ("SOFTWARE"), YOU AGREE
TO THE TERMS OF THIS EULA. IF YOU DO NOT
AGREE, DO NOT USE THE SOFTWARE AND, IF
APPLICABLE, RETURN IT TO THE PLACE OF
PURCHASE FOR A FULL REFUND.

THIS SOFTWARE DOES NOT TRANSMIT ANY
PERSONALLY IDENTIFIABLE INFORMATION FROM YOUR
SERVER TO MICROSOFT COMPUTER SYSTEMS WITHOUT

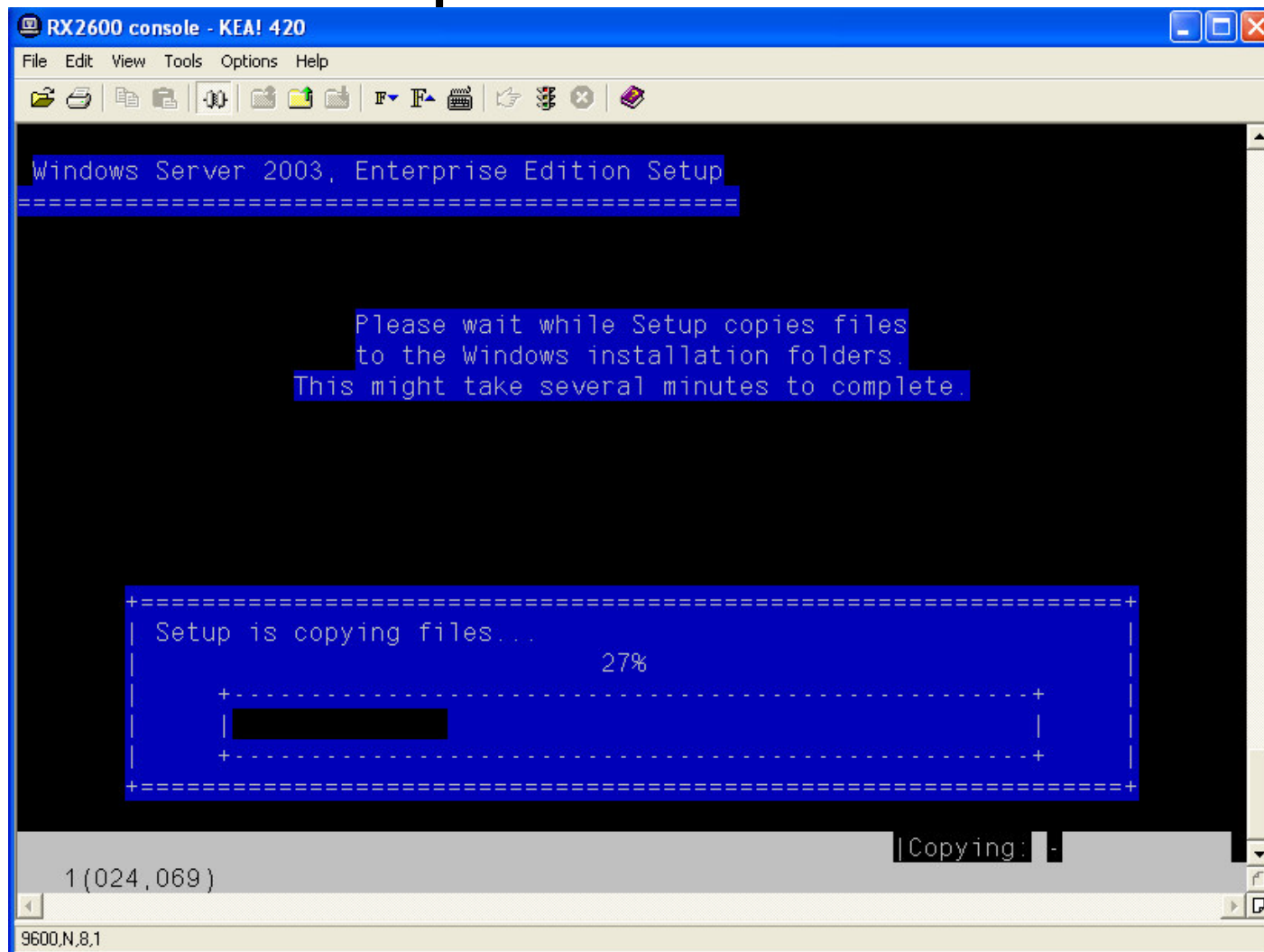
F8=I agree ESC=I do not agree PAGE DOWN=Next Page
1 (024,054)
9600,N,8,1
```

<ESC><8> in less than 2 seconds!

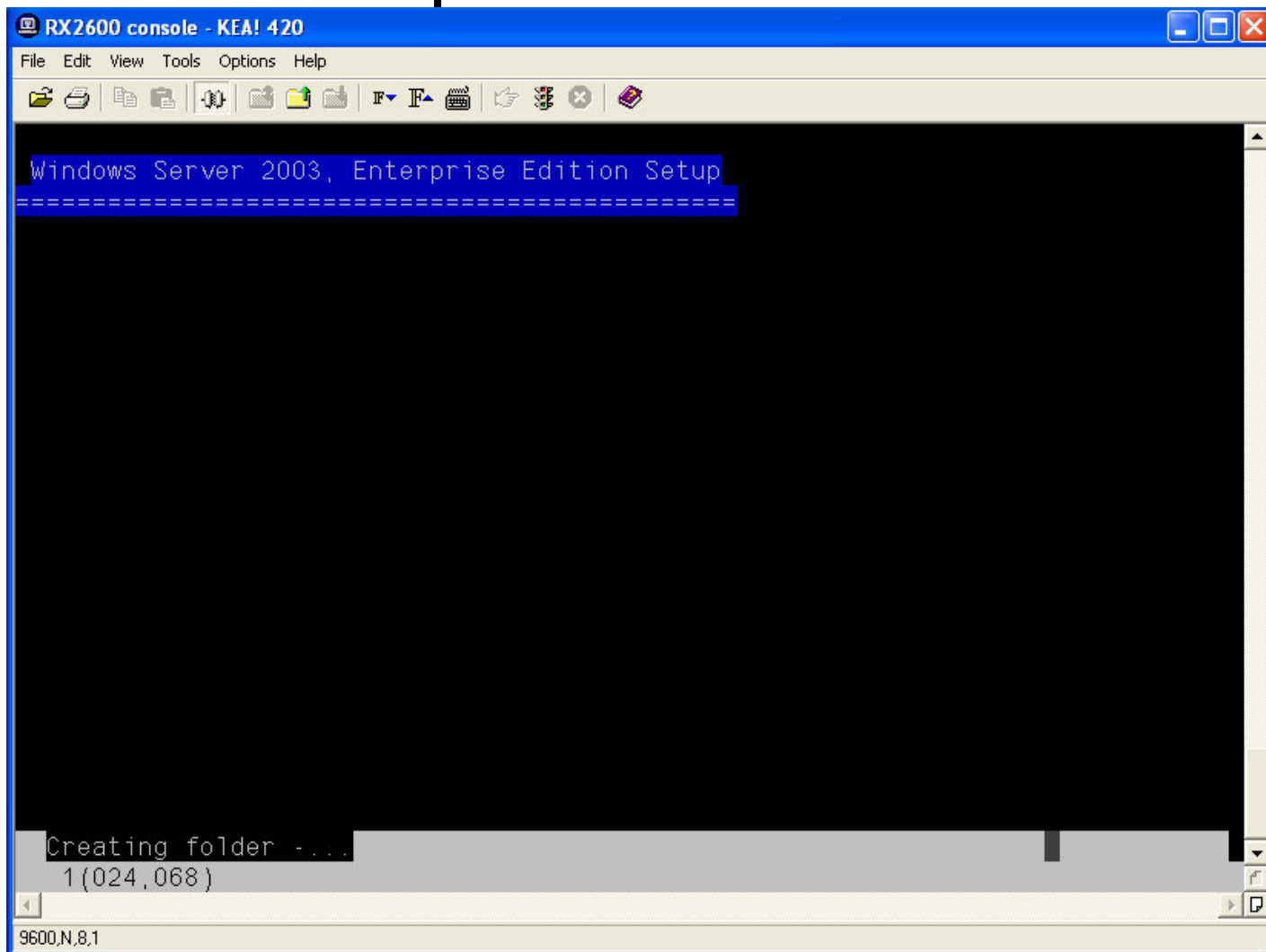
Microsoft Setup – Headless



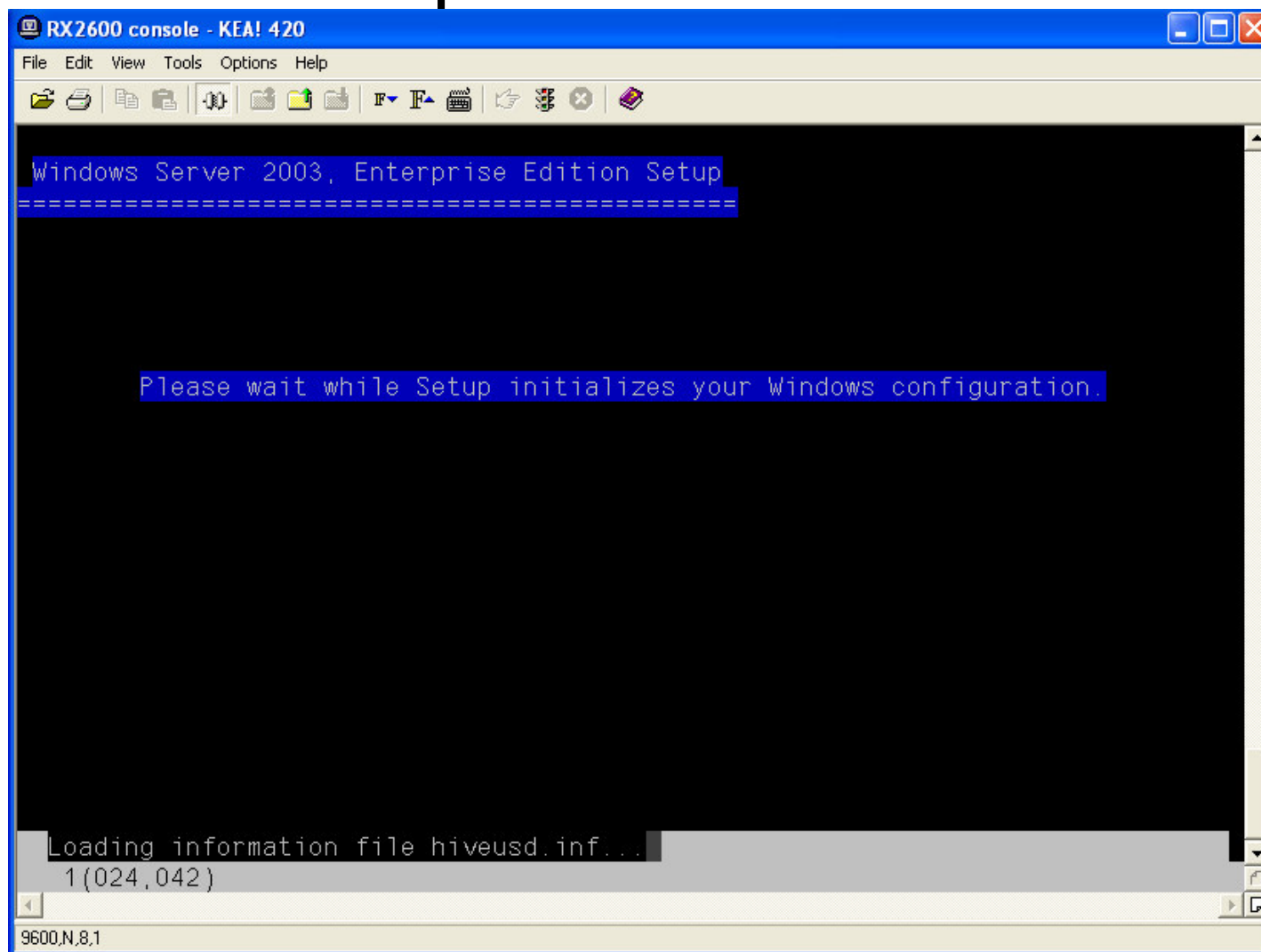
Microsoft Setup – Headless



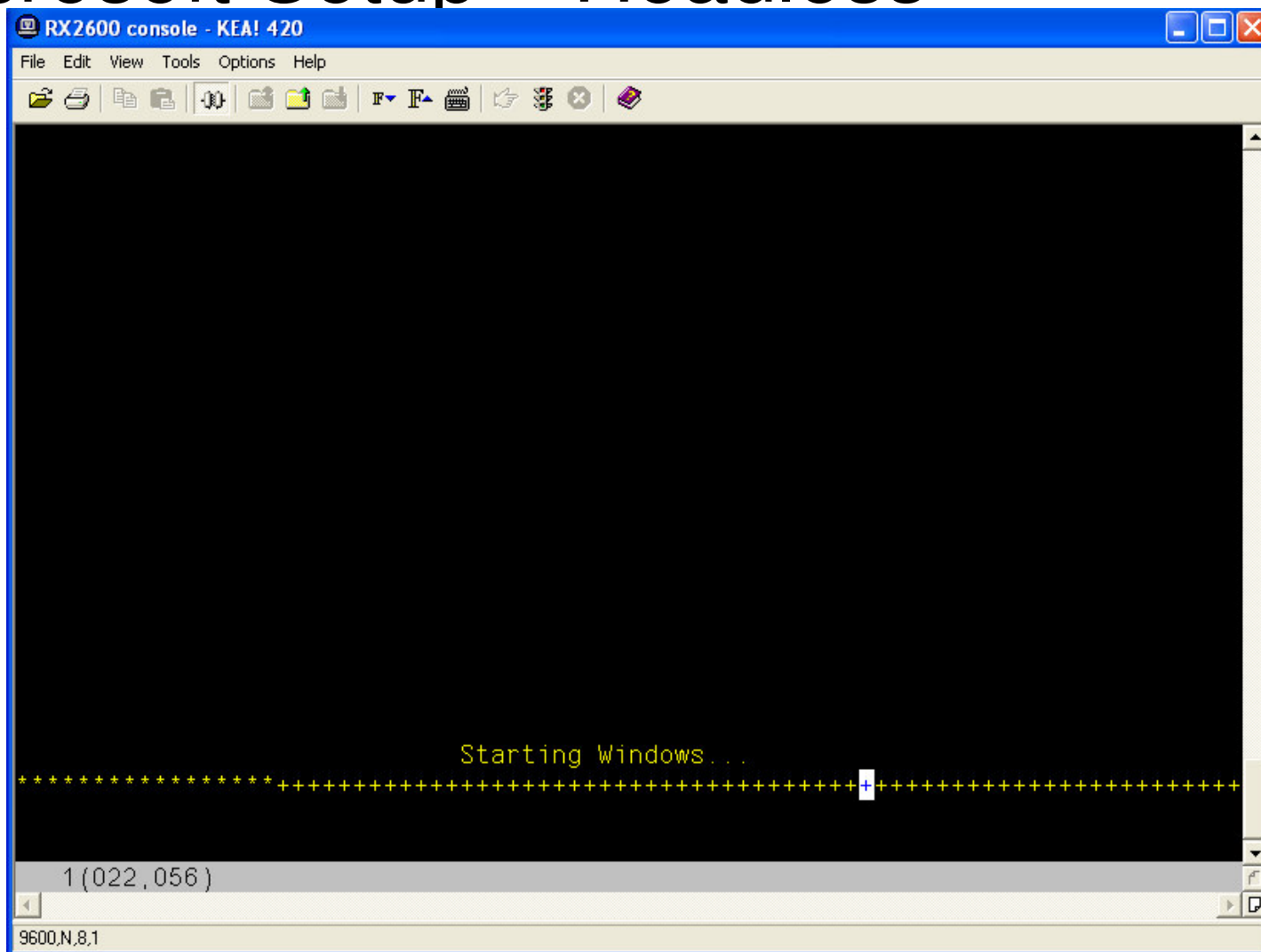
Microsoft Setup – Headless



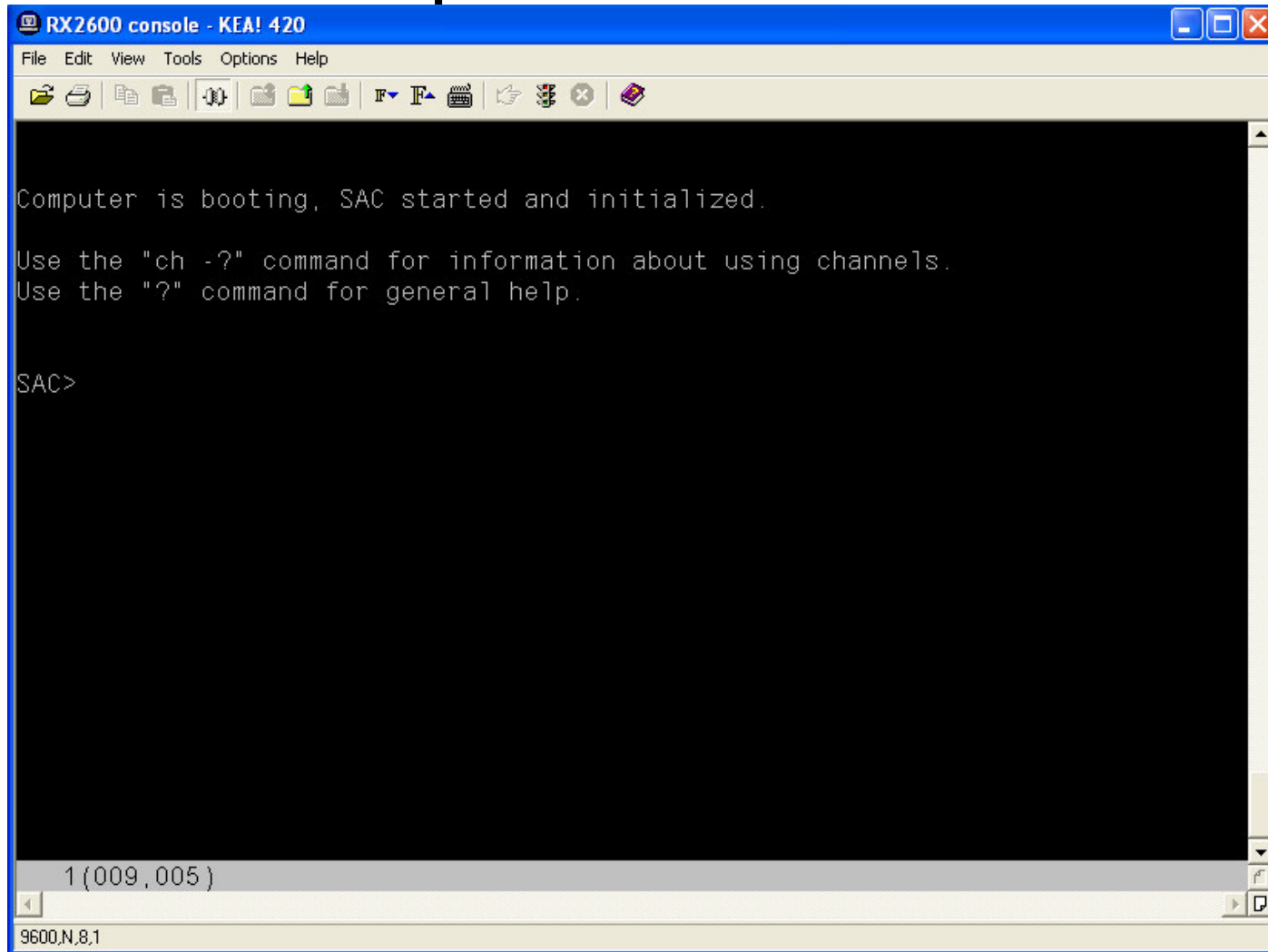
Microsoft Setup – Headless



Microsoft Setup – Headless

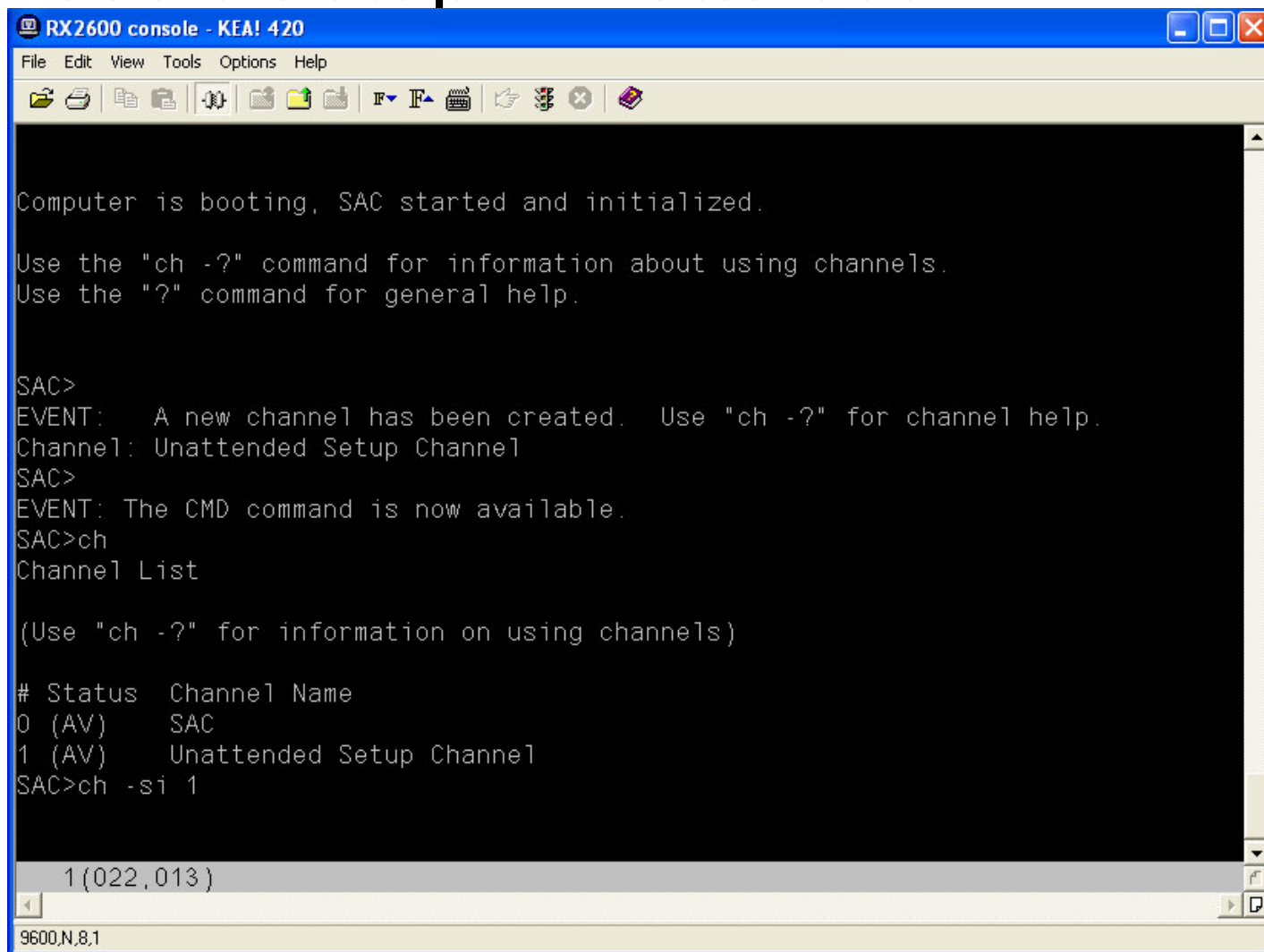


Microsoft Setup – Headless



```
RX2600 console - KEA! 420
File Edit View Tools Options Help
Computer is booting, SAC started and initialized.
Use the "ch -?" command for information about using channels.
Use the "?" command for general help.
SAC>
1 (009,005)
9600,N,8,1
```

Microsoft Setup – Headless



```
Computer is booting, SAC started and initialized.

Use the "ch -?" command for information about using channels.
Use the "?" command for general help.

SAC>
EVENT: A new channel has been created. Use "ch -?" for channel help.
Channel: Unattended Setup Channel
SAC>
EVENT: The CMD command is now available.
SAC>ch
Channel List

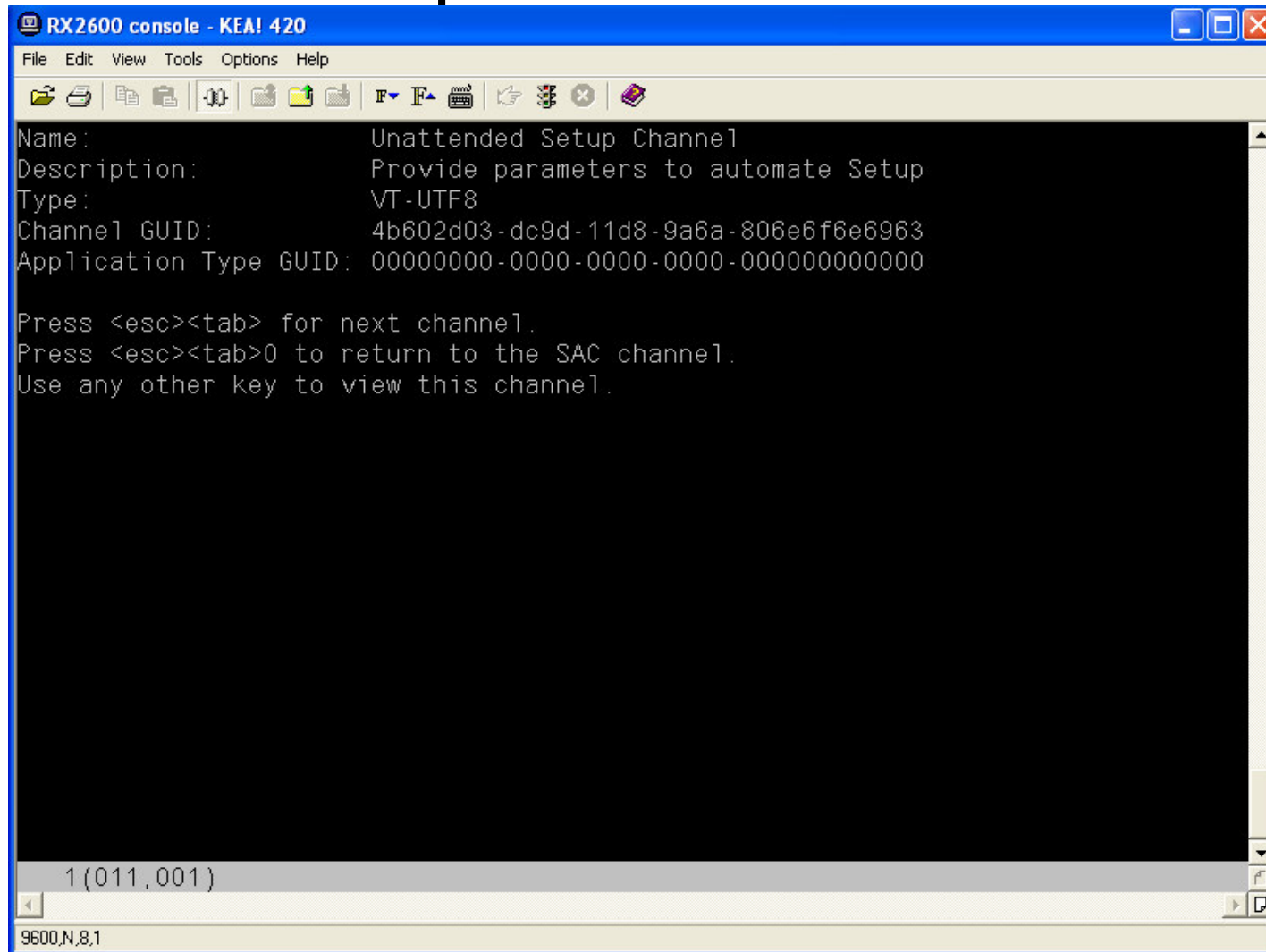
(Use "ch -?" for information on using channels)

# Status Channel Name
0 (AV) SAC
1 (AV) Unattended Setup Channel
SAC>ch -si 1

1(022,013)

9600,N,8,1
```

Microsoft Setup – Headless

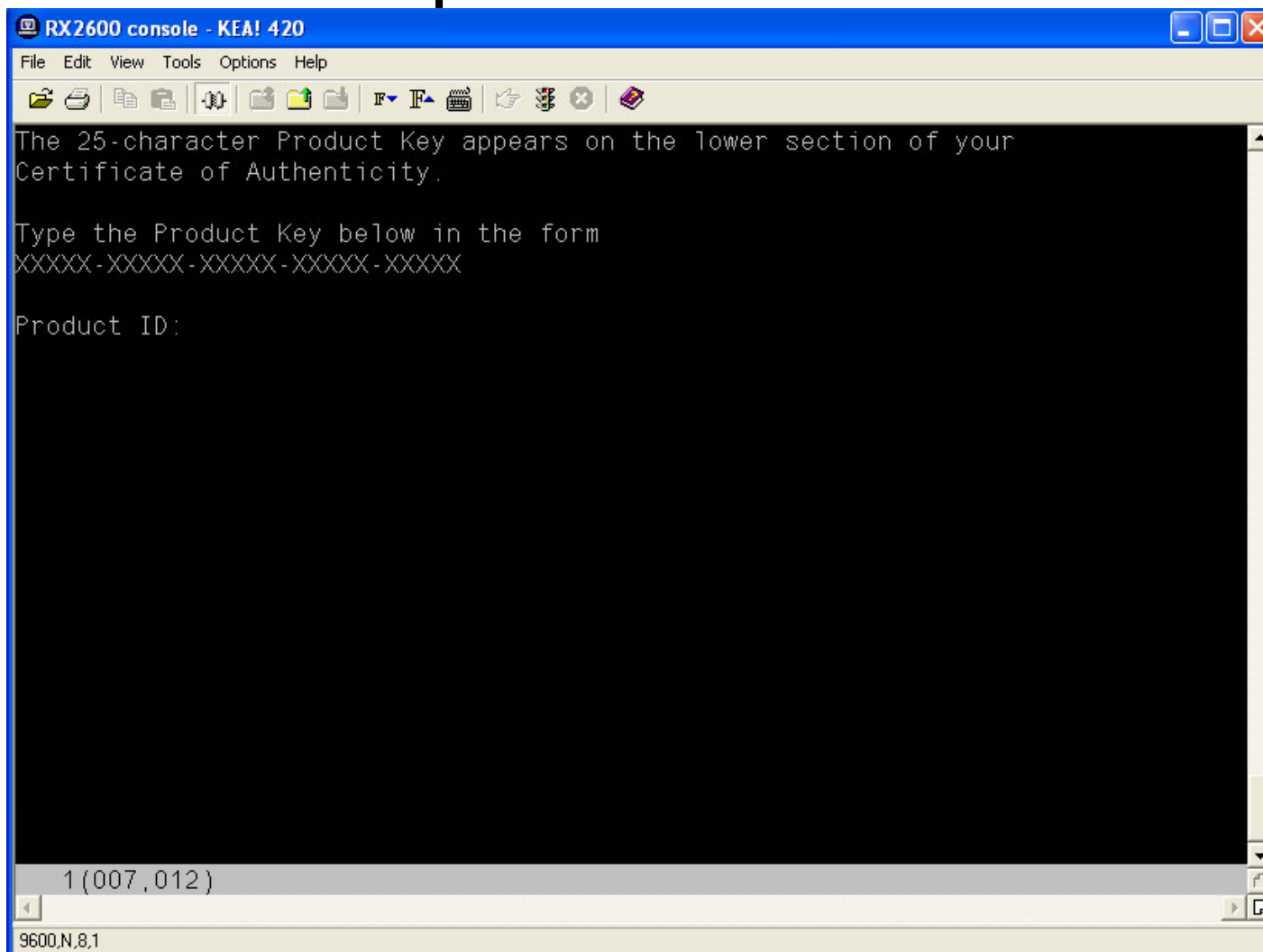


```
RX2600 console - KEA! 420
File Edit View Tools Options Help
Name: Unattended Setup Channel
Description: Provide parameters to automate Setup
Type: VT-UTF8
Channel GUID: 4b602d03-dc9d-11d8-9a6a-806e6f6e6963
Application Type GUID: 00000000-0000-0000-0000-000000000000

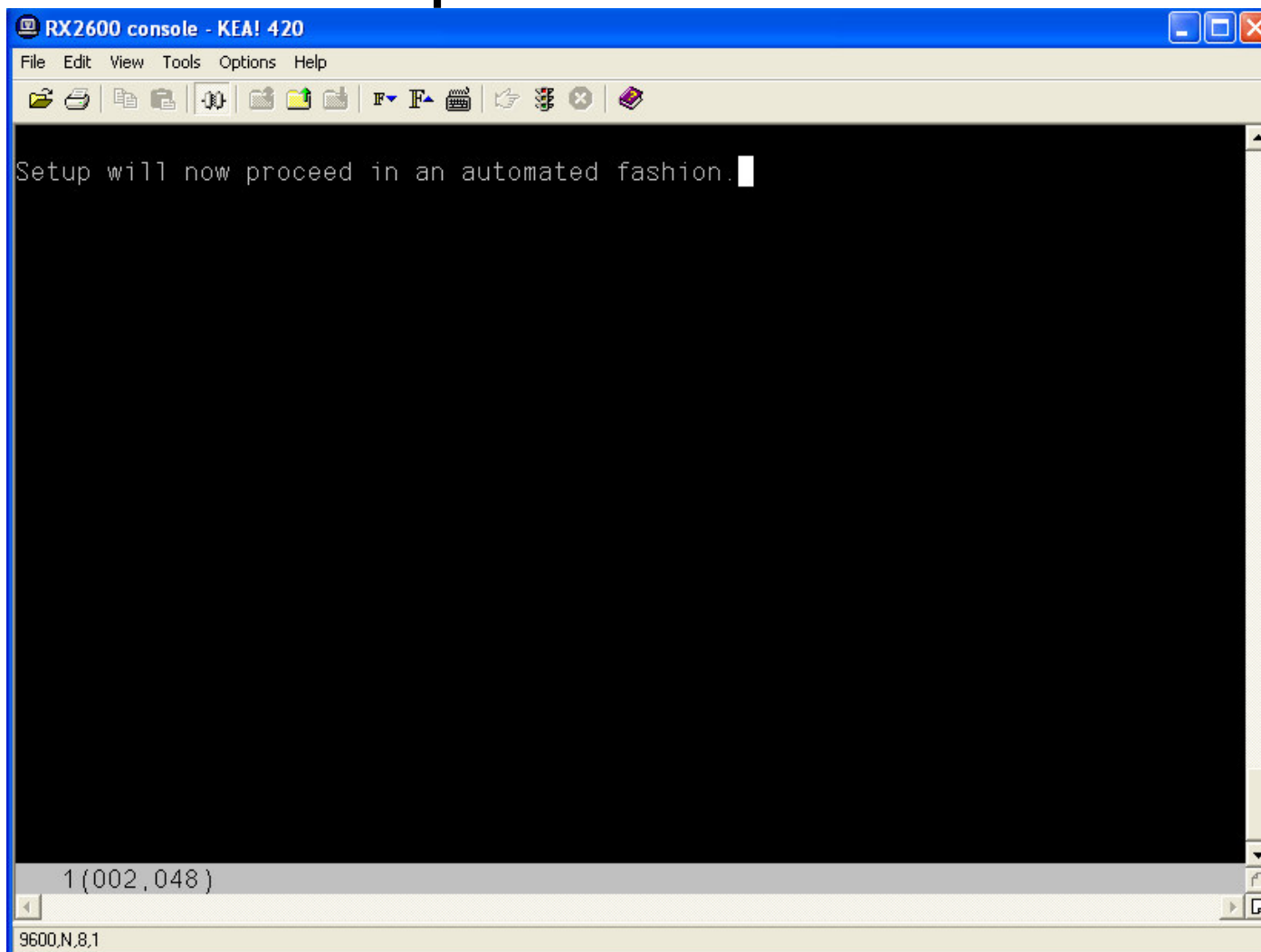
Press <esc><tab> for next channel.
Press <esc><tab>0 to return to the SAC channel.
Use any other key to view this channel.

1 (011,001)
9600,N,8,1
```

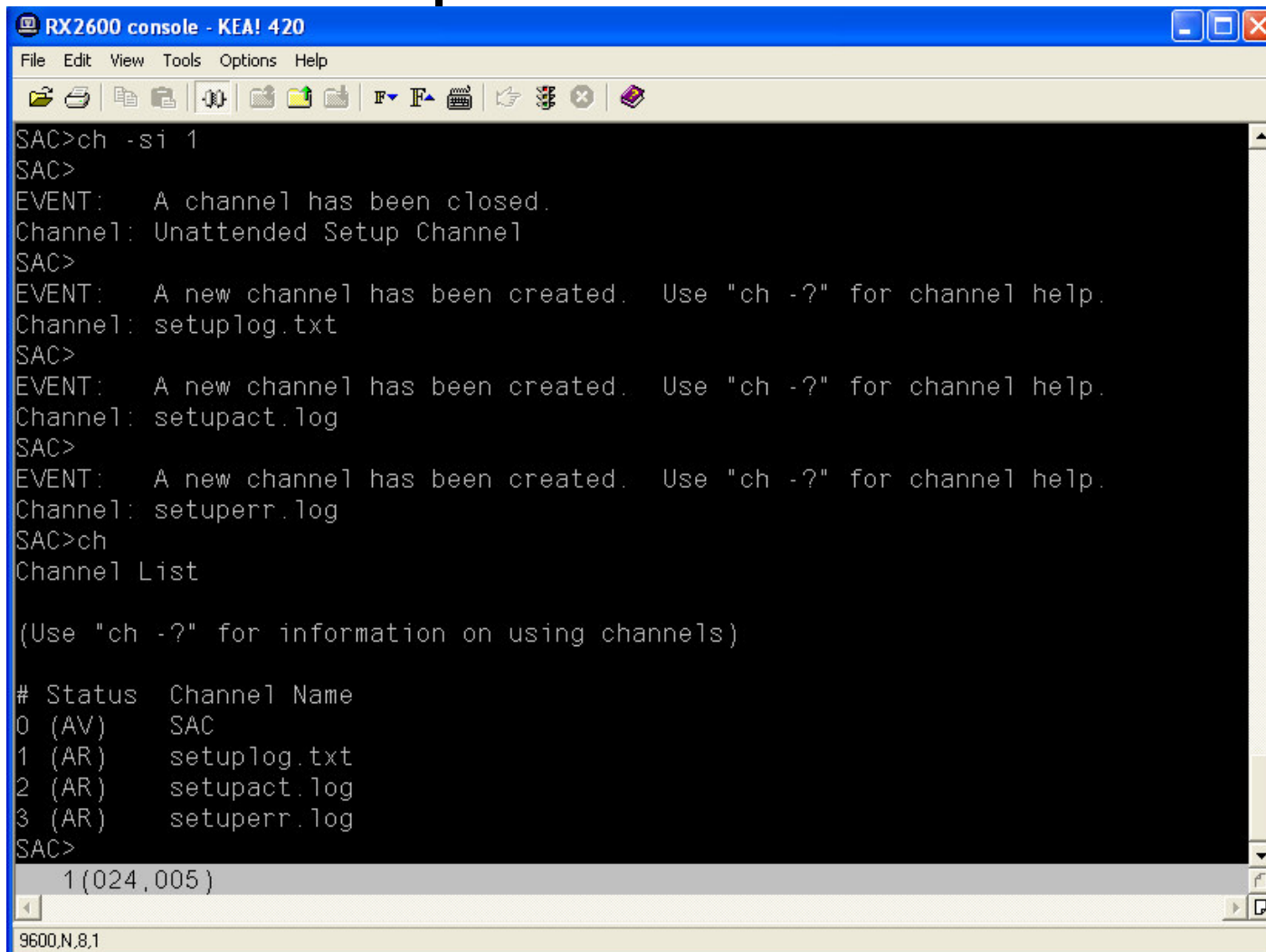
Microsoft Setup – Headless



Microsoft Setup – Headless



Microsoft Setup – Headless

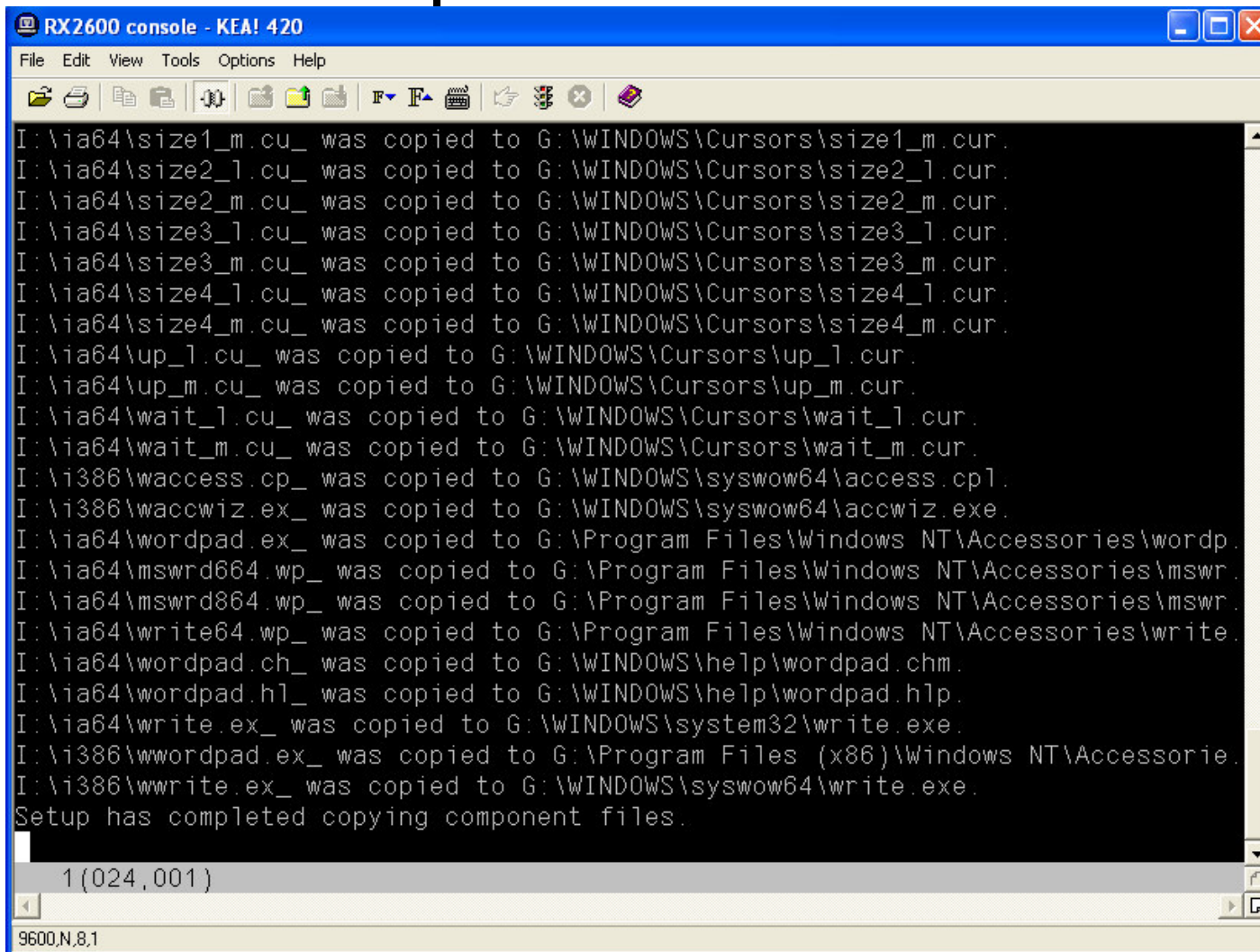


```
RX2600 console - KEA! 420
File Edit View Tools Options Help
SAC>ch -si 1
SAC>
EVENT:  A channel has been closed.
Channel: Unattended Setup Channel
SAC>
EVENT:  A new channel has been created.  Use "ch -?" for channel help.
Channel: setuplog.txt
SAC>
EVENT:  A new channel has been created.  Use "ch -?" for channel help.
Channel: setupact.log
SAC>
EVENT:  A new channel has been created.  Use "ch -?" for channel help.
Channel: setuperr.log
SAC>ch
Channel List

(Use "ch -?" for information on using channels)

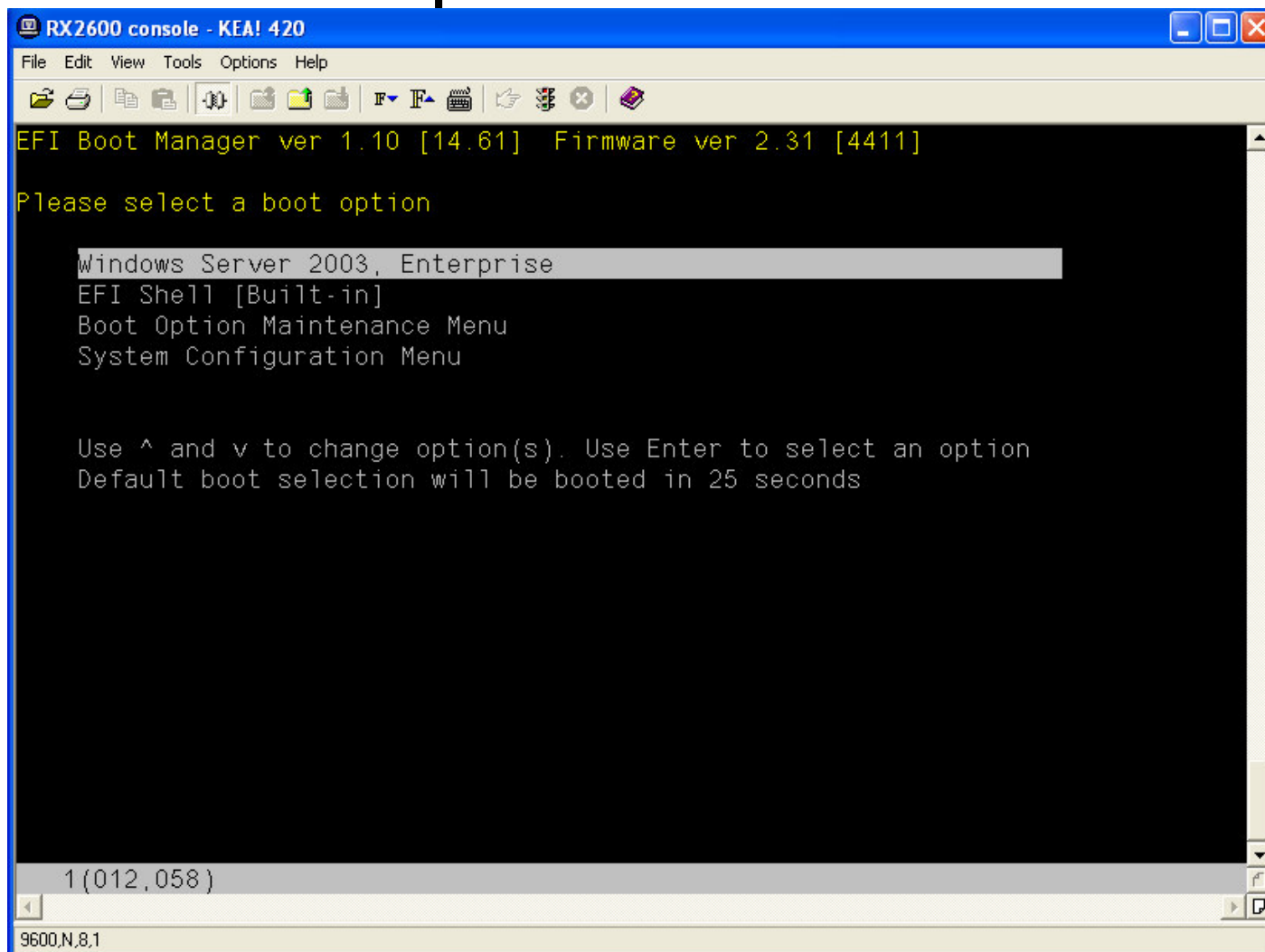
# Status  Channel Name
0 (AV)    SAC
1 (AR)    setuplog.txt
2 (AR)    setupact.log
3 (AR)    setuperr.log
SAC>
1 (024,005)
9600,N,8,1
```


Microsoft Setup – Headless



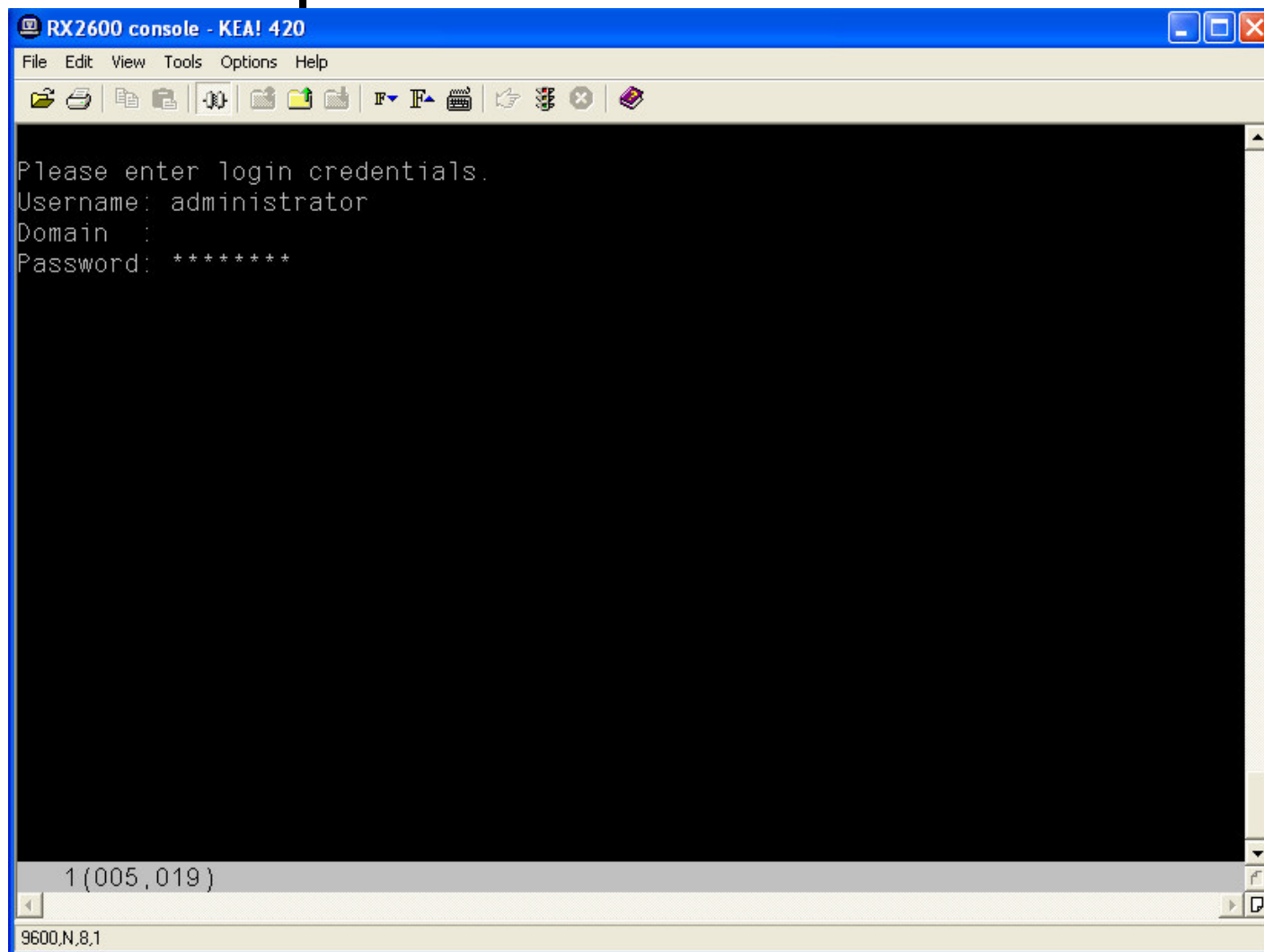
```
RX2600 console - KEA! 420
File Edit View Tools Options Help
I:\ia64\size1_m.cu_ was copied to G:\WINDOWS\Cursors\size1_m.cur.
I:\ia64\size2_l.cu_ was copied to G:\WINDOWS\Cursors\size2_l.cur.
I:\ia64\size2_m.cu_ was copied to G:\WINDOWS\Cursors\size2_m.cur.
I:\ia64\size3_l.cu_ was copied to G:\WINDOWS\Cursors\size3_l.cur.
I:\ia64\size3_m.cu_ was copied to G:\WINDOWS\Cursors\size3_m.cur.
I:\ia64\size4_l.cu_ was copied to G:\WINDOWS\Cursors\size4_l.cur.
I:\ia64\size4_m.cu_ was copied to G:\WINDOWS\Cursors\size4_m.cur.
I:\ia64\up_l.cu_ was copied to G:\WINDOWS\Cursors\up_l.cur.
I:\ia64\up_m.cu_ was copied to G:\WINDOWS\Cursors\up_m.cur.
I:\ia64\wait_l.cu_ was copied to G:\WINDOWS\Cursors\wait_l.cur.
I:\ia64\wait_m.cu_ was copied to G:\WINDOWS\Cursors\wait_m.cur.
I:\i386\waccess.cp_ was copied to G:\WINDOWS\syswow64\access.cpl.
I:\i386\waccwiz.ex_ was copied to G:\WINDOWS\syswow64\accwiz.exe.
I:\ia64\wordpad.ex_ was copied to G:\Program Files\Windows NT\Accessories\wordp.
I:\ia64\mswrd664.wp_ was copied to G:\Program Files\Windows NT\Accessories\mswr.
I:\ia64\mswrd864.wp_ was copied to G:\Program Files\Windows NT\Accessories\mswr.
I:\ia64\write64.wp_ was copied to G:\Program Files\Windows NT\Accessories\write.
I:\ia64\wordpad.ch_ was copied to G:\WINDOWS\help\wordpad.chm.
I:\ia64\wordpad.hl_ was copied to G:\WINDOWS\help\wordpad.hlp.
I:\ia64\write.ex_ was copied to G:\WINDOWS\system32\write.exe.
I:\i386\wwordpad.ex_ was copied to G:\Program Files (x86)\Windows NT\Accessorie.
I:\i386\wwrite.ex_ was copied to G:\WINDOWS\syswow64\write.exe.
Setup has completed copying component files.
1 (024,001)
9600,N,8,1
```

Microsoft Setup – Headless



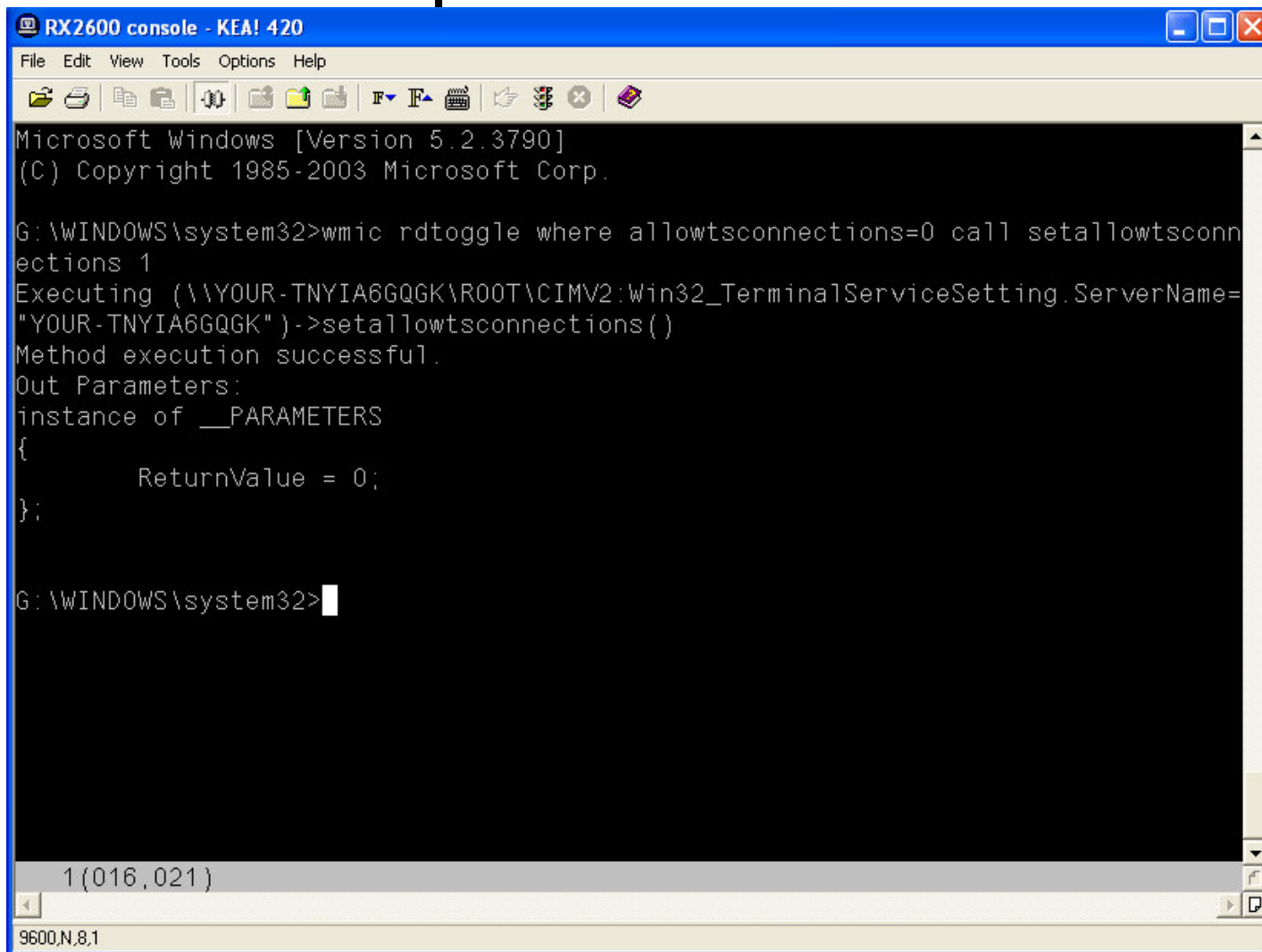
Microsoft Setup – Headless

Note
order!



```
RX2600 console - KEA! 420
File Edit View Tools Options Help
Please enter login credentials.
Username: administrator
Domain :
Password: *****
1 (005,019)
9600,N,8,1
```

Microsoft Setup – Headless



```
RX2600 console - KEA! 420
File Edit View Tools Options Help
G:\WINDOWS\system32>wmic rdtoggle where allowtsconnections=0 call setallowtsconnections 1
Executing (\\YOUR-TNYIA6GQGK\R00T\CIMV2:Win32_TerminalServiceSetting.ServerName="YOUR-TNYIA6GQGK")->setallowtsconnections()
Method execution successful.
Out Parameters:
instance of __PARAMETERS
{
    ReturnValue = 0;
};
G:\WINDOWS\system32>
```

1 (016,021)

9600,N,8,1



Microsoft Setup – HP Software

- After installing Windows:
 - Add SNMP using Add / Remove programs
 - Use the Smart Setup media to install the HP Agents, drivers, and tools



Microsoft Setup – Troubleshooting

- Same log files:
 - %WinDir%\SetupLog.txt
 - %WinDir%\SetupAPI.log
 - %WinDir%\SetupERR.log
 - %WinDir%\SetupAct.log
 - %WinDir%\WinNT32.log when started from WinNT32
- When running into problems, use IA64 specific MPSRPT_SETUPPerf



HP Quick Restore

- Quick Restore is based on a SYSPREP image done at HP
 - Allows integrated HP specific customizations
- Installation is 3 steps:
 - Boot WinPE from restore media
 - Restore the SYSPREP image
 - Reboot and execute post-SYSPREP mini-setup
- WinPE is Windows booted from R/O media
 - See more when discussing disaster recovery



HP Quick Restore

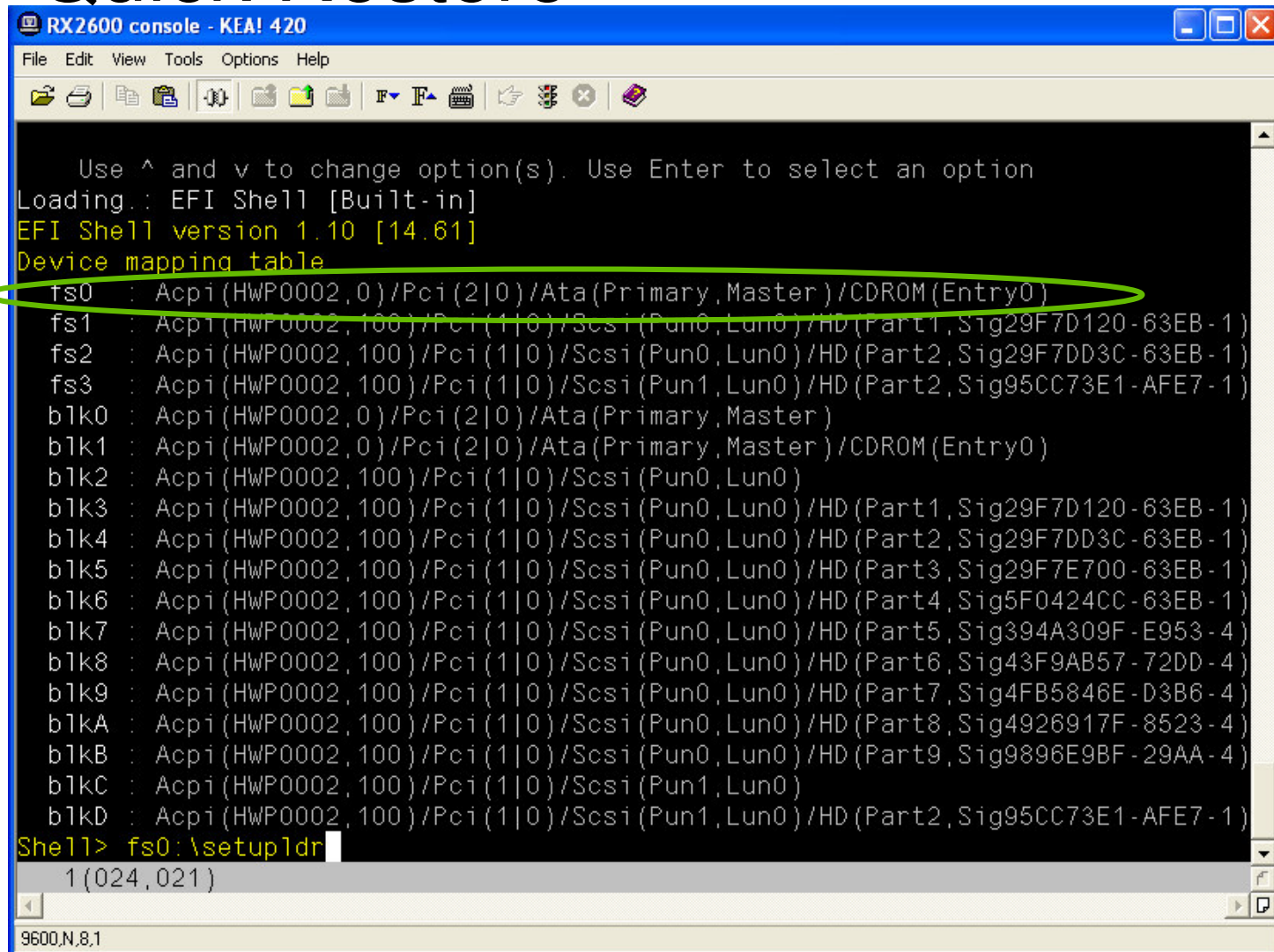
- Currently always format drive and restore on 1st disk found in directory C:\Windows
 - \\.\Adapert0\Drive0\Windows
 - Cannot do parallel install
 - Scheduled to change in near future
- Device enumeration order can cause problems: SAN device can show up before SmartArray devices
 - Unplug FC HBA when in doubt before trashing disks
 - Alluded to in DVD:\ReadMe.txt



HP Quick Restore – Patches

- Some patches and hot-fixes are integrated
 - Depends on the Quick Restore version
 - Look for file named ATTRIB.TXT on restore media, has list of all files (Including hot-fixes): Some are pre-installed, some are provided but not automatically installed
 - Check with HP if unsure
 - Still need to apply latest security hot-fix after installing

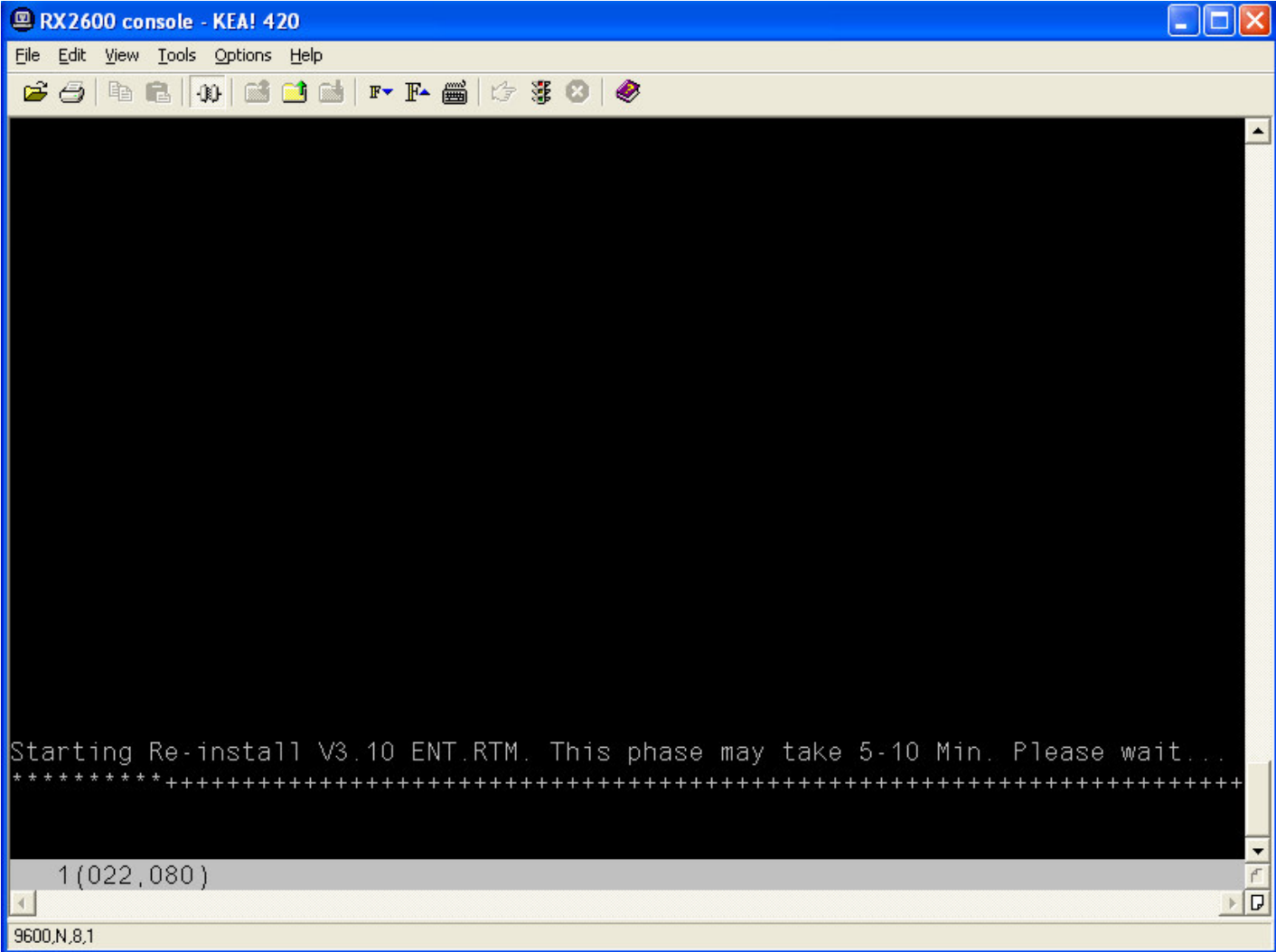
HP Quick Restore



```
RX2600 console - KEA! 420
File Edit View Tools Options Help
Use ^ and v to change option(s). Use Enter to select an option
Loading.: EFI Shell [Built-in]
EFI Shell version 1.10 [14.61]
Device mapping table
fs0 : Acpi(HWP0002,0)/Pci(2|0)/Ata(Primary,Master)/CDROM(Entry0)
fs1 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part1,Sig29F7D120-63EB-1)
fs2 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part2,Sig29F7DD3C-63EB-1)
fs3 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun1,Lun0)/HD(Part2,Sig95CC73E1-AFE7-1)
blk0 : Acpi(HWP0002,0)/Pci(2|0)/Ata(Primary,Master)
blk1 : Acpi(HWP0002,0)/Pci(2|0)/Ata(Primary,Master)/CDROM(Entry0)
blk2 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)
blk3 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part1,Sig29F7D120-63EB-1)
blk4 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part2,Sig29F7DD3C-63EB-1)
blk5 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part3,Sig29F7E700-63EB-1)
blk6 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part4,Sig5F0424CC-63EB-1)
blk7 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part5,Sig394A309F-E953-4)
blk8 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part6,Sig43F9AB57-72DD-4)
blk9 : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part7,Sig4FB5846E-D3B6-4)
blkA : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part8,Sig4926917F-8523-4)
blkB : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun0,Lun0)/HD(Part9,Sig9896E9BF-29AA-4)
blkC : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun1,Lun0)
blkD : Acpi(HWP0002,100)/Pci(1|0)/Scsi(Pun1,Lun0)/HD(Part2,Sig95CC73E1-AFE7-1)
Shell> fs0:\setupldr
1 (024,021)
9600,N,8,1
```

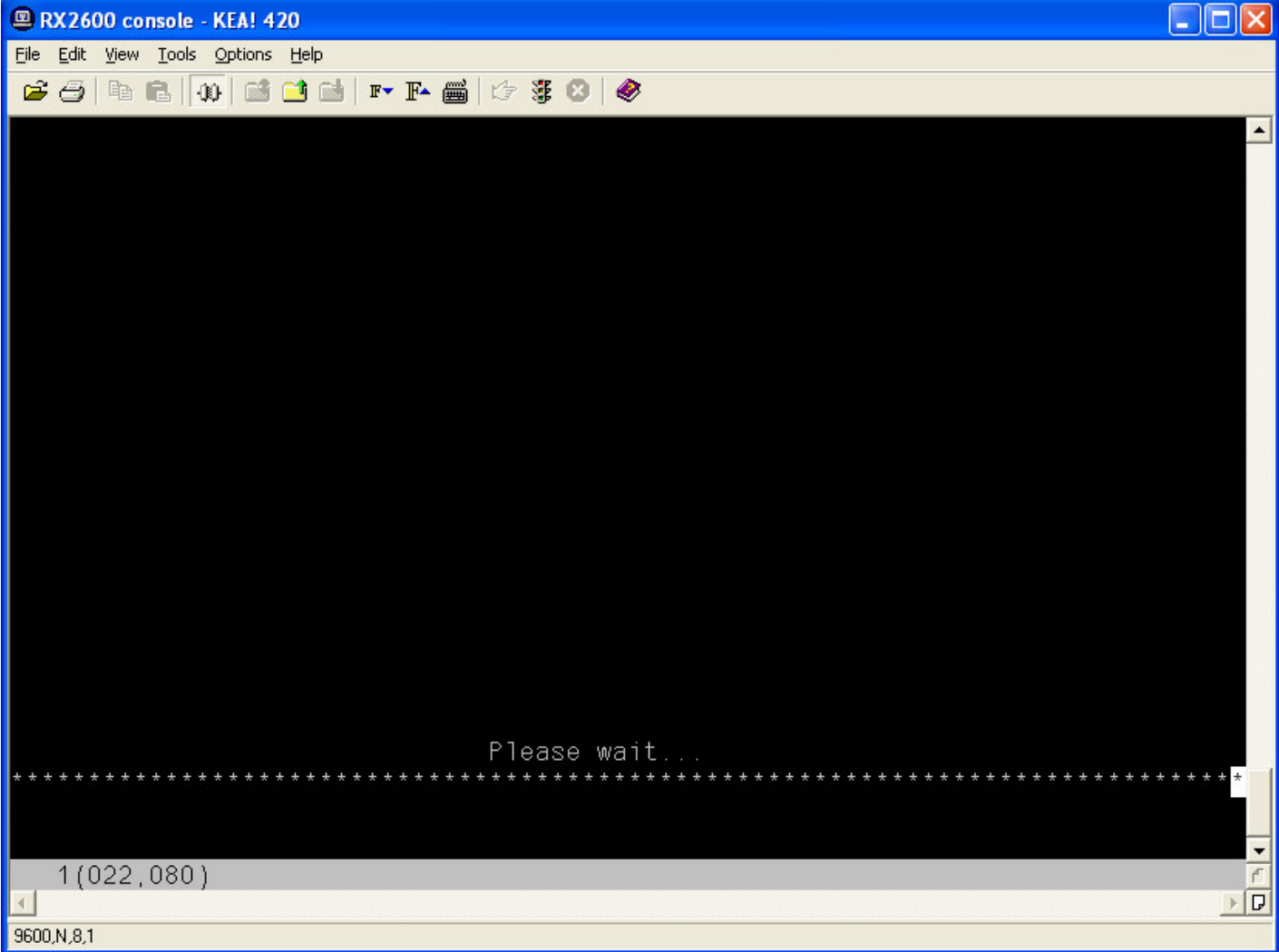


HP Quick Restore





HP Quick Restore



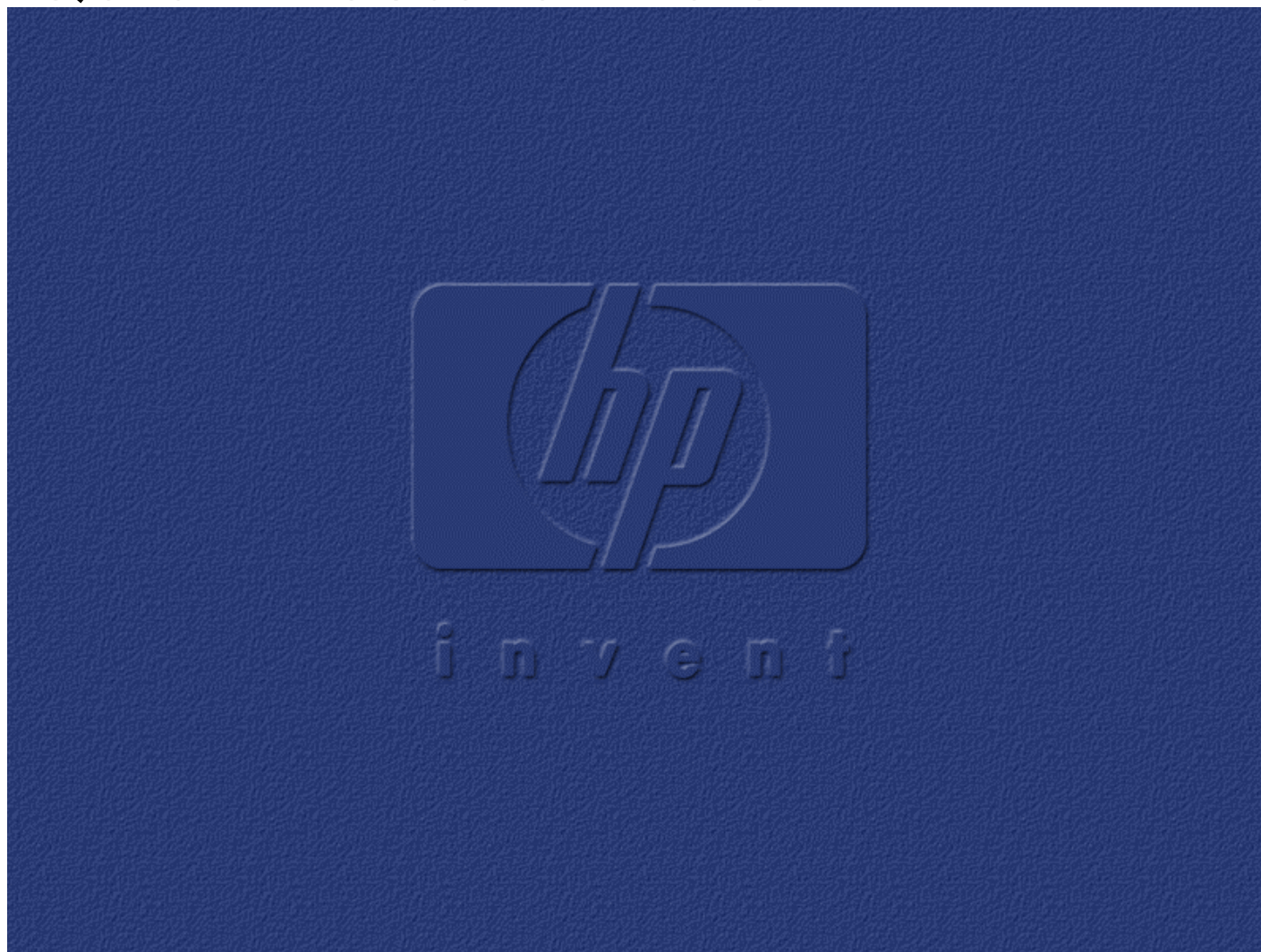


HP Quick Restore

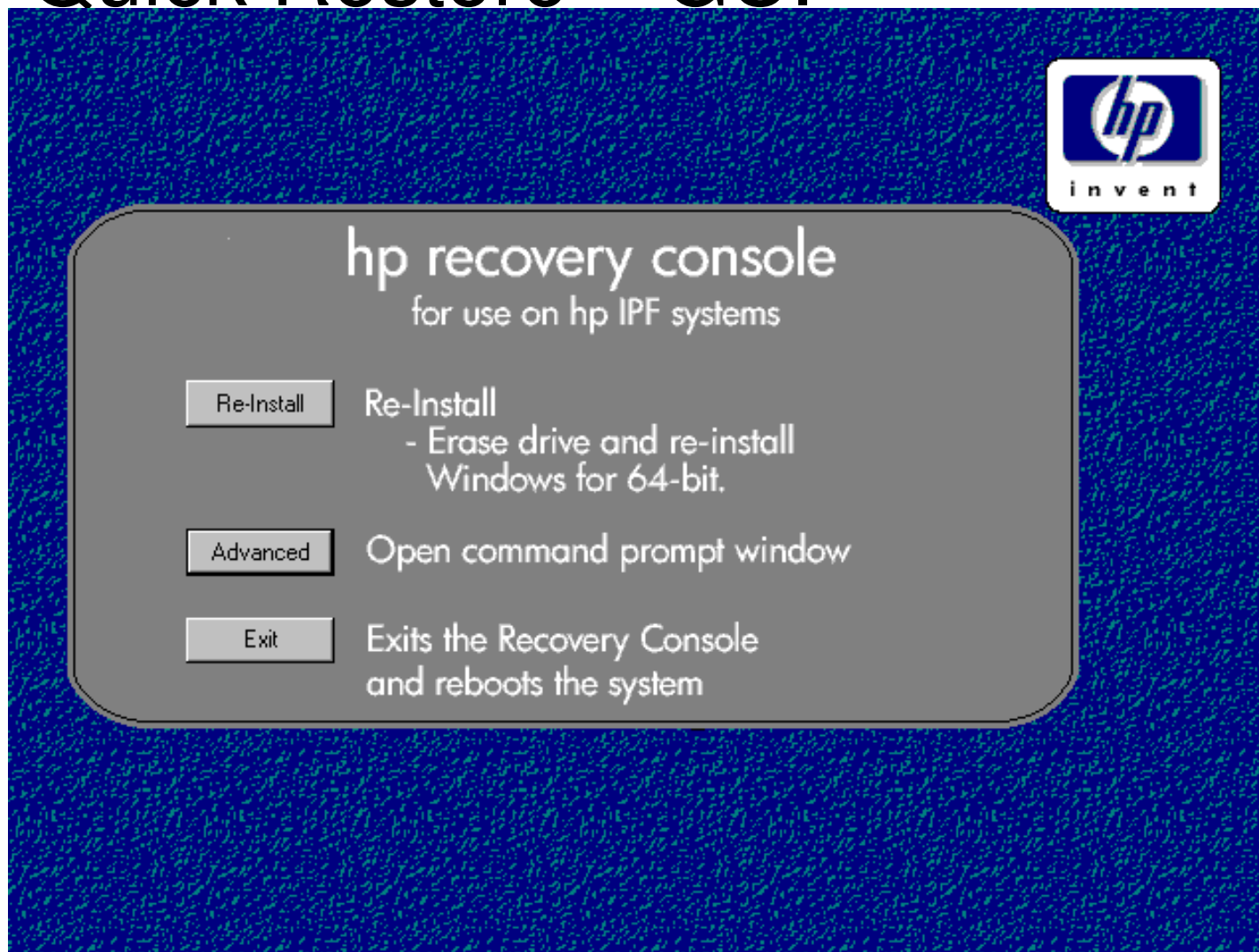
- WinPE is based on Windows XP
 - Hence it will use at most 2 processors
 - Do not panic if only 2 CPUs are detected at this time!



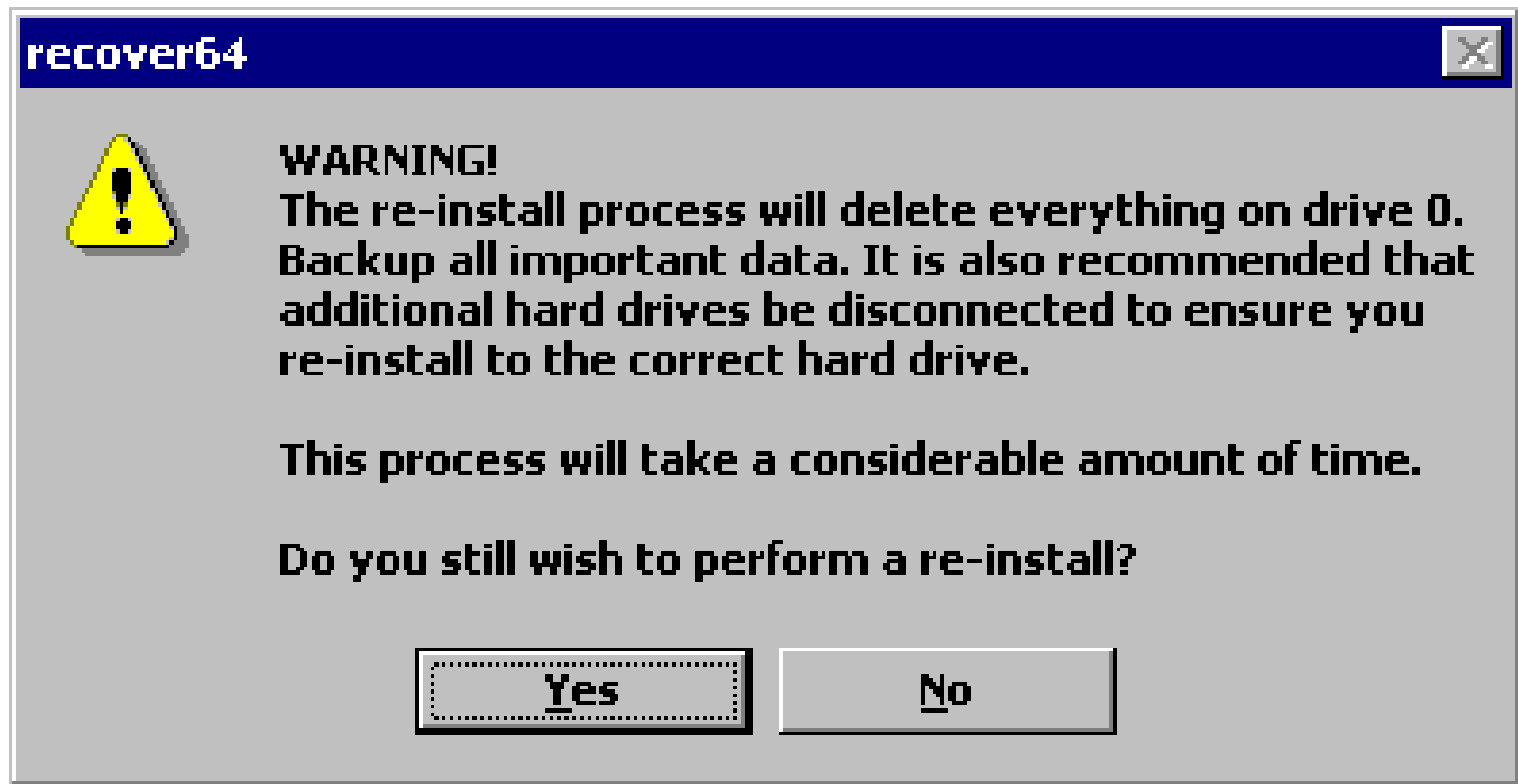
HP Quick Restore – GUI



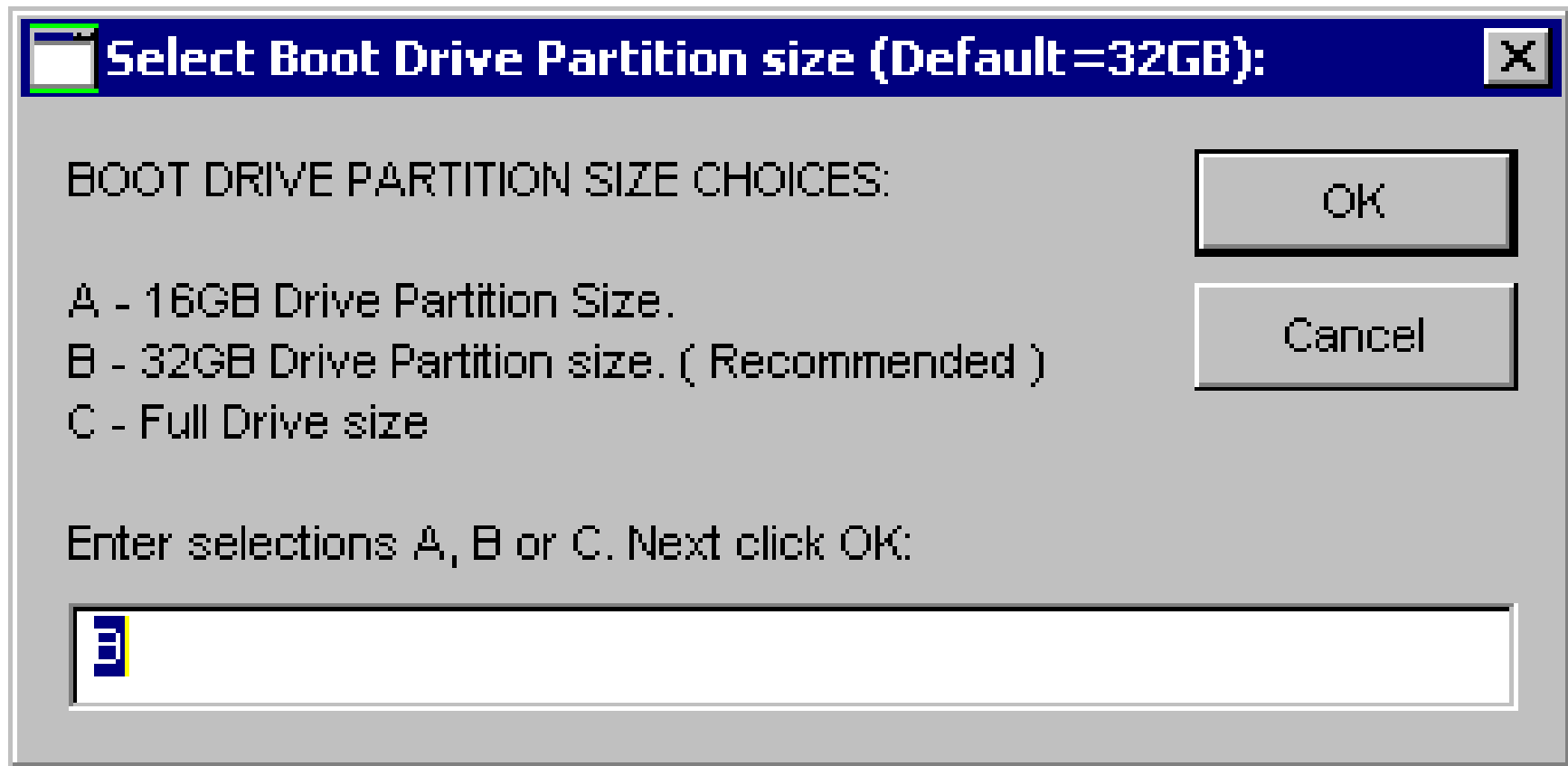
HP Quick Restore – GUI



HP Quick Restore – GUI



HP Quick Restore – GUI

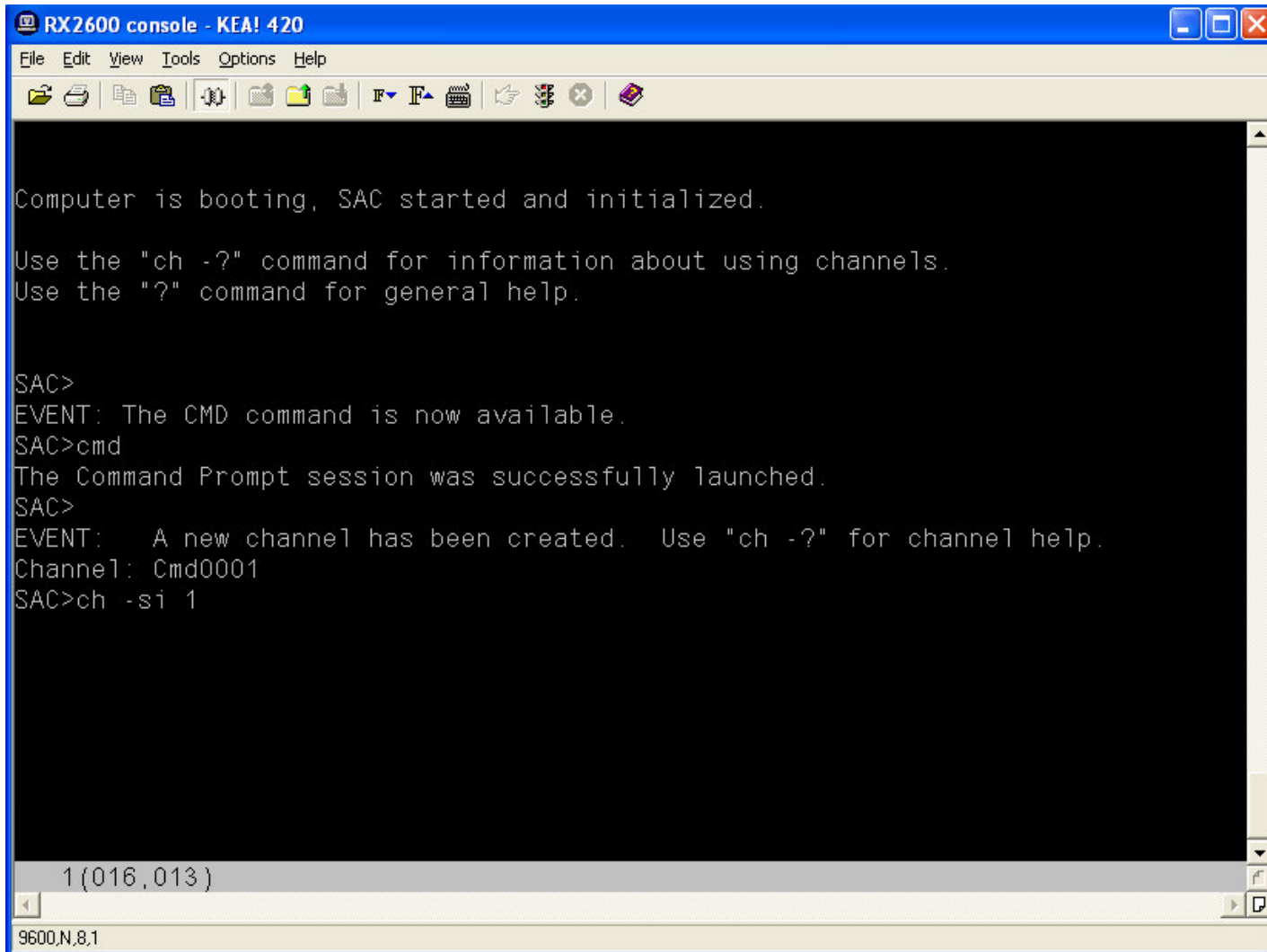




HP Quick Restore – GUI

- After reboot, identical to 32-bit post-SYSPREP mini-setup

HP Quick Restore – Headless

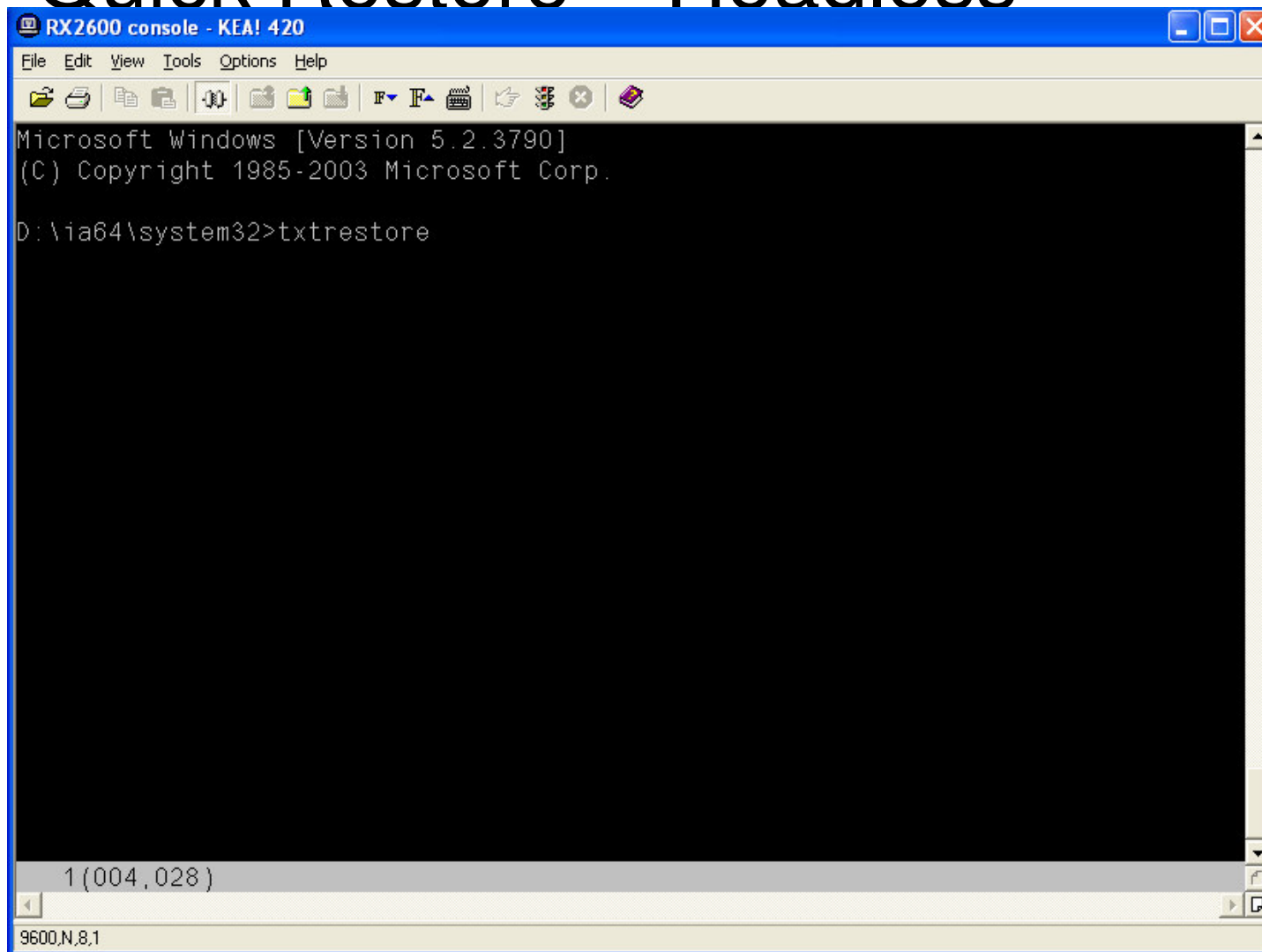


```
RX2600 console - KEA! 420
File Edit View Tools Options Help
Computer is booting, SAC started and initialized.
Use the "ch -?" command for information about using channels.
Use the "?" command for general help.

SAC>
EVENT: The CMD command is now available.
SAC>cmd
The Command Prompt session was successfully launched.
SAC>
EVENT: A new channel has been created. Use "ch -?" for channel help.
Channel: Cmd0001
SAC>ch -si 1

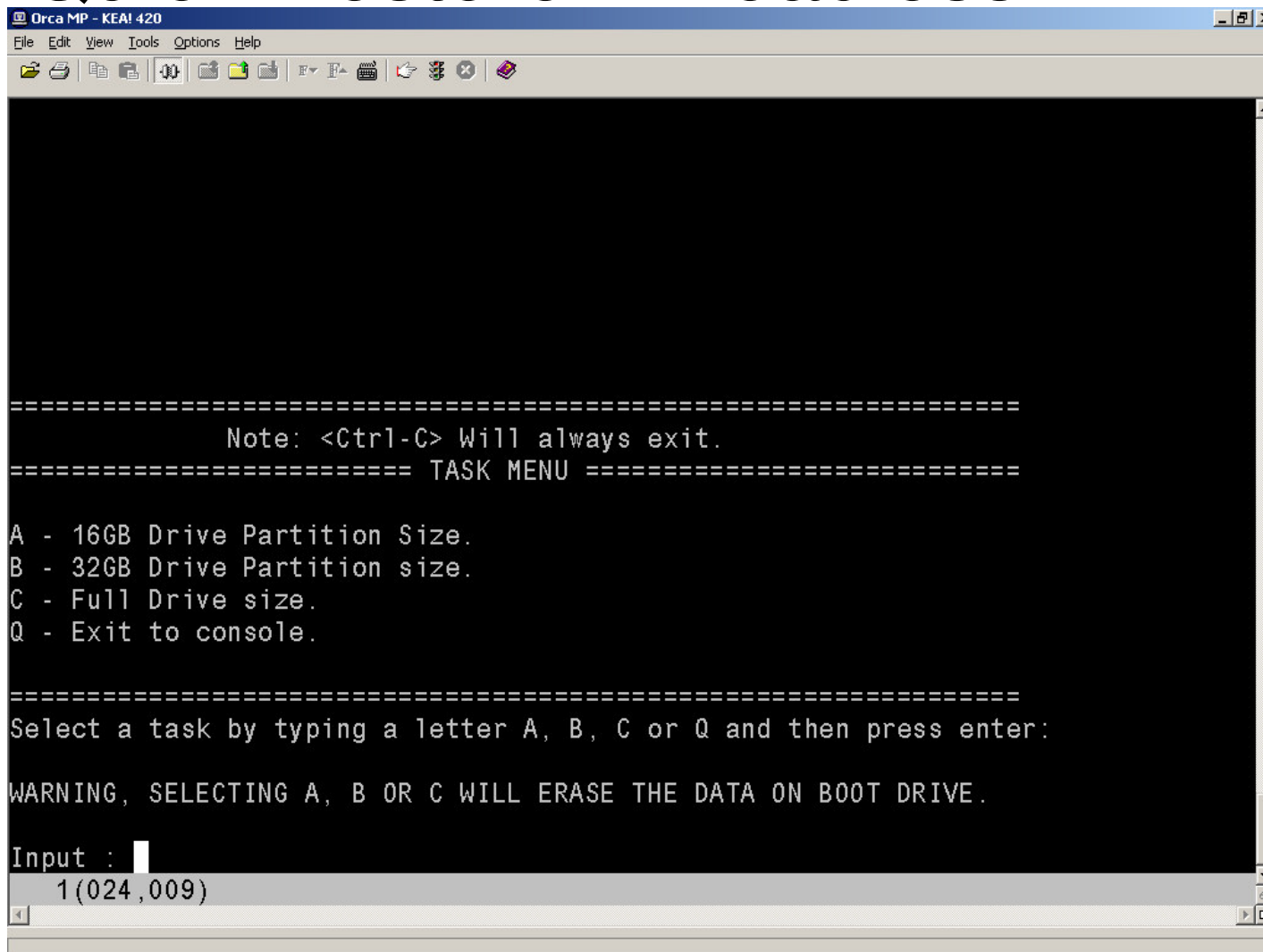
1(016,013)
9600,N,8,1
```

HP Quick Restore – Headless



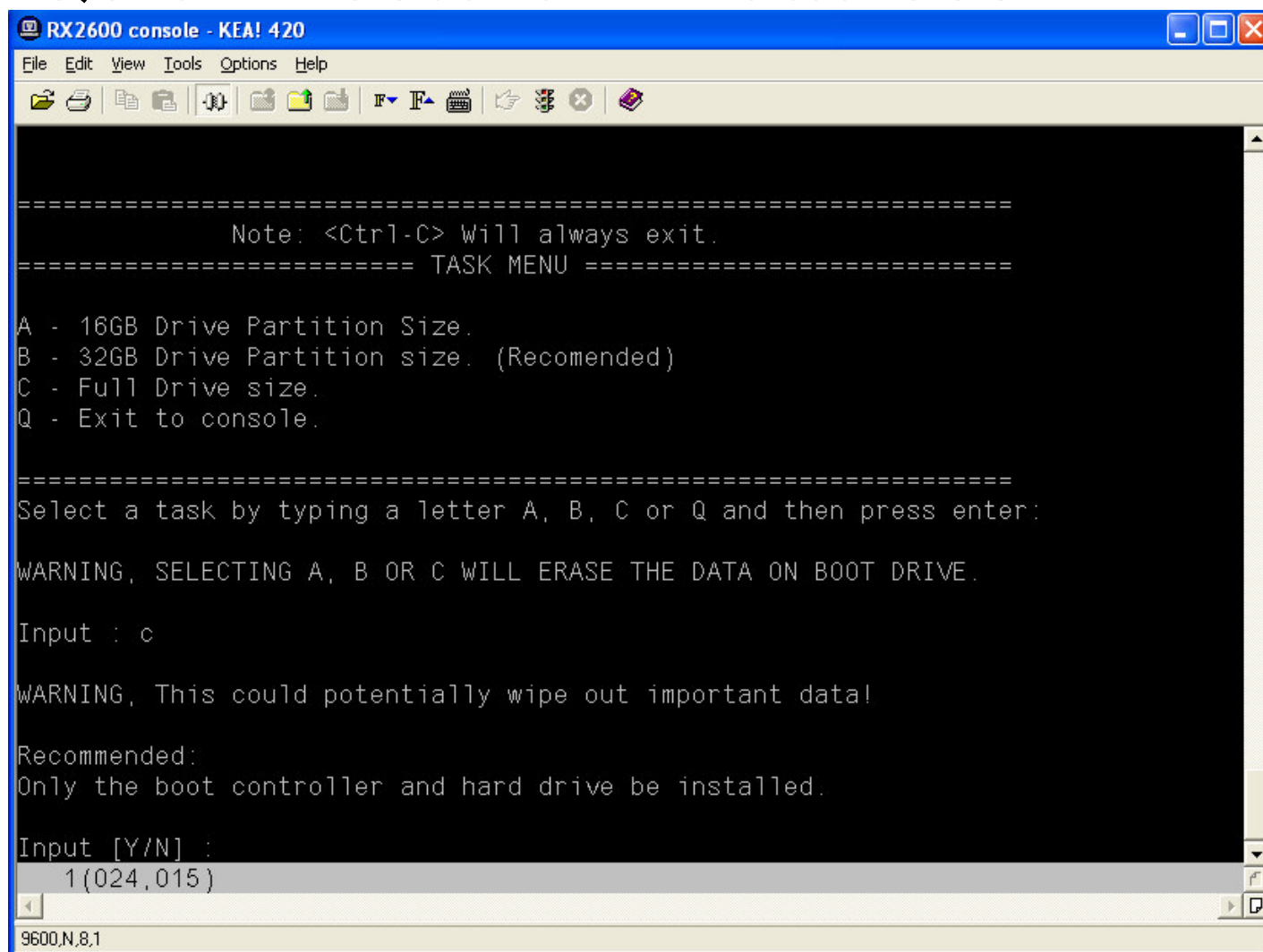
```
RX2600 console - KEA! 420
File Edit View Tools Options Help
Microsoft Windows [Version 5.2.3790]
(C) Copyright 1985-2003 Microsoft Corp.
D:\via64\system32>txtrestore
1 (004,028)
9600,N,8,1
```

HP Quick Restore – Headless



```
Orca MP - KEA! 420
File Edit View Tools Options Help
=====
Note: <Ctrl-C> Will always exit.
===== TASK MENU =====
A - 16GB Drive Partition Size.
B - 32GB Drive Partition size.
C - Full Drive size.
Q - Exit to console.
=====
Select a task by typing a letter A, B, C or Q and then press enter:
WARNING, SELECTING A, B OR C WILL ERASE THE DATA ON BOOT DRIVE.
Input : 
1(024,009)
```

HP Quick Restore – Headless



The screenshot shows a terminal window titled "RX2600 console - KEA! 420". The window contains a text-based menu for selecting drive partition sizes. The menu options are: A - 16GB Drive Partition Size, B - 32GB Drive Partition size. (Recommended), C - Full Drive size, and Q - Exit to console. A warning message states: "WARNING, SELECTING A, B OR C WILL ERASE THE DATA ON BOOT DRIVE." The user has entered 'c' at the "Input : c" prompt. A second warning message says: "WARNING, This could potentially wipe out important data!". Below this, it says "Recommended: Only the boot controller and hard drive be installed." The user is prompted for "Input [Y/N] :" and has entered "1 (024,015)". The status bar at the bottom of the window shows "9600,N,8,1".

```
=====
Note: <Ctrl-C> Will always exit.
===== TASK MENU =====

A - 16GB Drive Partition Size.
B - 32GB Drive Partition size. (Recommended)
C - Full Drive size.
Q - Exit to console.

=====
Select a task by typing a letter A, B, C or Q and then press enter:

WARNING, SELECTING A, B OR C WILL ERASE THE DATA ON BOOT DRIVE.

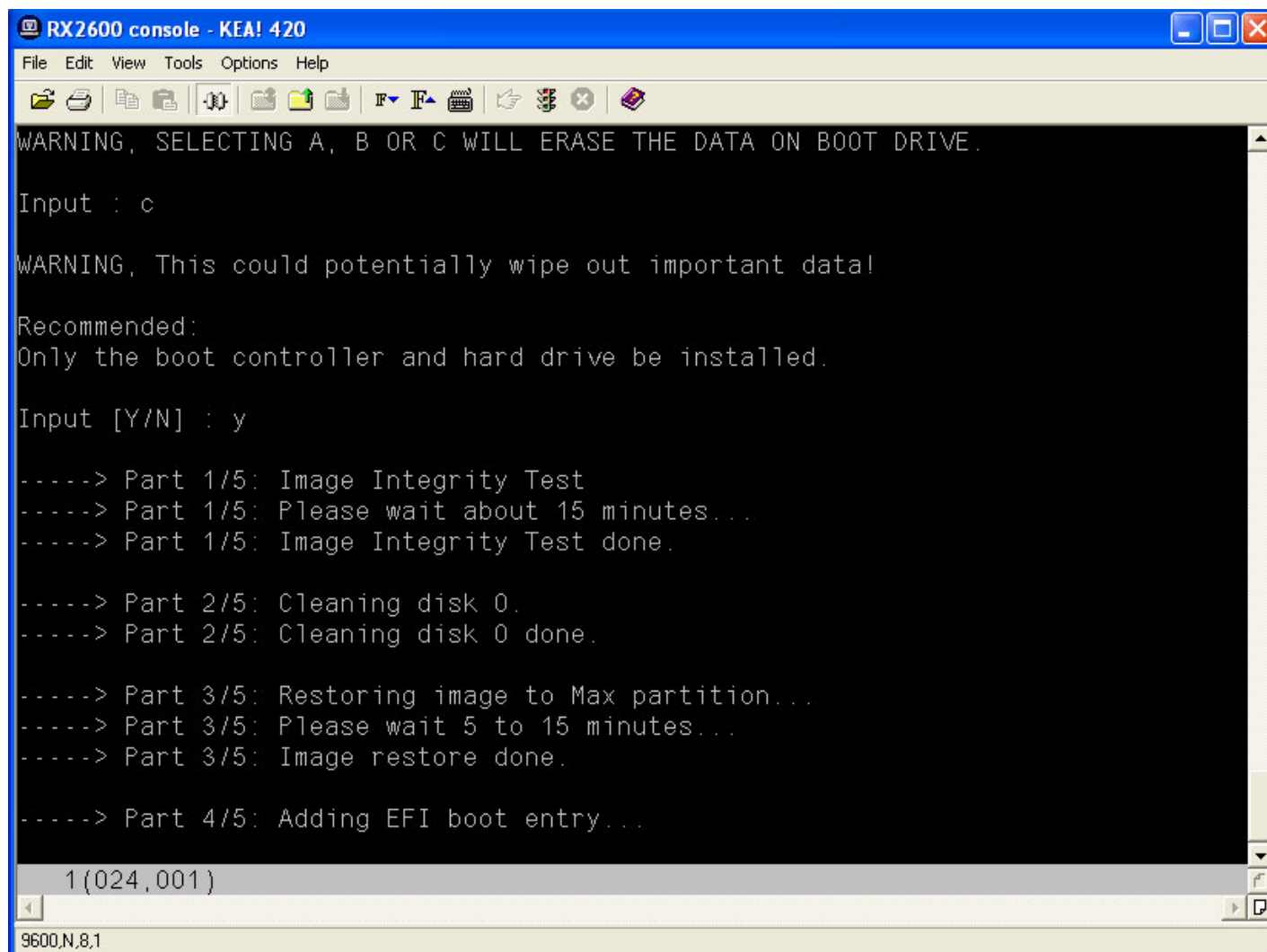
Input : c

WARNING, This could potentially wipe out important data!

Recommended:
Only the boot controller and hard drive be installed.

Input [Y/N] :
1 (024,015)
=====
9600,N,8,1
```

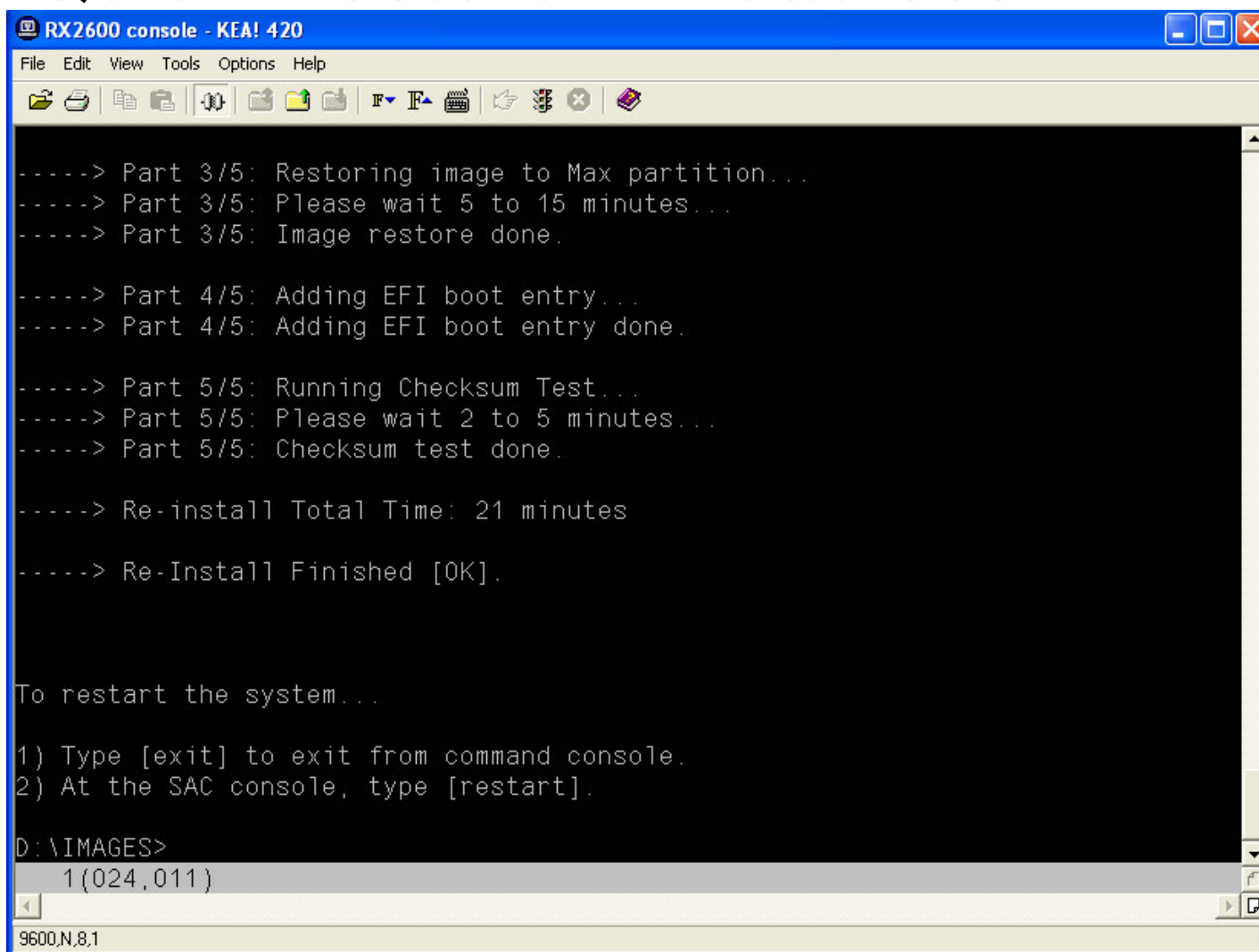
HP Quick Restore – Headless



The screenshot shows a terminal window titled "RX2600 console - KEA! 420". The window contains the following text:

```
File Edit View Tools Options Help
WARNING, SELECTING A, B OR C WILL ERASE THE DATA ON BOOT DRIVE.
Input : c
WARNING, This could potentially wipe out important data!
Recommended:
Only the boot controller and hard drive be installed.
Input [Y/N] : y
-----> Part 1/5: Image Integrity Test
-----> Part 1/5: Please wait about 15 minutes...
-----> Part 1/5: Image Integrity Test done.
-----> Part 2/5: Cleaning disk 0.
-----> Part 2/5: Cleaning disk 0 done.
-----> Part 3/5: Restoring image to Max partition...
-----> Part 3/5: Please wait 5 to 15 minutes...
-----> Part 3/5: Image restore done.
-----> Part 4/5: Adding EFI boot entry...
1(024,001)
9600,N,8,1
```

HP Quick Restore – Headless



The screenshot shows a console window titled "RX2600 console - KEA! 420" with a menu bar (File, Edit, View, Tools, Options, Help) and a toolbar. The main area displays the following text:

```
-----> Part 3/5: Restoring image to Max partition...
-----> Part 3/5: Please wait 5 to 15 minutes...
-----> Part 3/5: Image restore done.

-----> Part 4/5: Adding EFI boot entry...
-----> Part 4/5: Adding EFI boot entry done.

-----> Part 5/5: Running Checksum Test...
-----> Part 5/5: Please wait 2 to 5 minutes...
-----> Part 5/5: Checksum test done.

-----> Re-install Total Time: 21 minutes

-----> Re-Install Finished [OK].

To restart the system...

1) Type [exit] to exit from command console.
2) At the SAC console, type [restart].

D:\IMAGES>
1(024,011)
```

The status bar at the bottom of the window shows "9600,N,8,1".



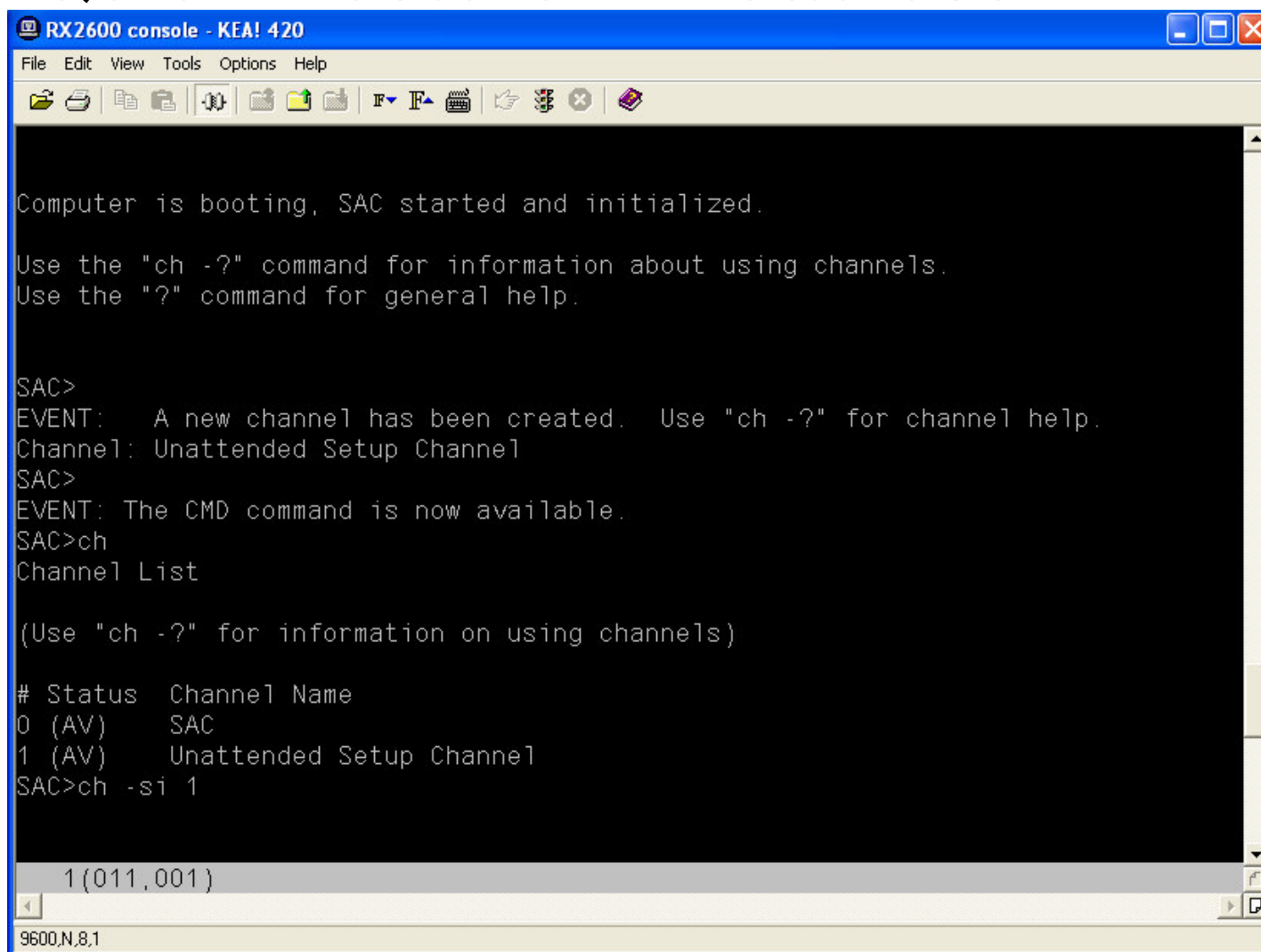
HP Quick Restore – Headless

```
Orca MP - KEA! 420
File Edit View Tools Options Help
Please wait while Windows prepares to start..
EVENT:  A new channel has been created.  Use "ch -?" for channel help.
Channel: Unattended Setup Channel
SAC>
EVENT: The CMD command is now available.
SAC>
```

1 (014,005)



HP Quick Restore – Headless



```
RX2600 console - KEA! 420
File Edit View Tools Options Help
Computer is booting, SAC started and initialized.
Use the "ch -?" command for information about using channels.
Use the "?" command for general help.
SAC>
EVENT: A new channel has been created. Use "ch -?" for channel help.
Channel: Unattended Setup Channel
SAC>
EVENT: The CMD command is now available.
SAC>ch
Channel List
(Use "ch -?" for information on using channels)
# Status Channel Name
0 (AV) SAC
1 (AV) Unattended Setup Channel
SAC>ch -si 1
1 (011,001)
9600,N,8,1
```



HP Quick Restore – Headless

```
Orca MP - KEA! 420
File Edit View Tools Options Help
Name: Unattended Setup Channel
Description: Provide parameters to automate Setup
Type: VT-UTF8
Channel GUID: 1da0bf42-2c41-11d8-b1ac-806e6f6e6963
Application Type GUID: 00000000-0000-0000-0000-000000000000

Press <esc><tab> for next channel.
Press <esc><tab>0 to return to the SAC channel.
Use any other key to view this channel.

1(011,001)
```





HP Quick Restore – Headless

```
Orca MP - KEA! 420
File Edit View Tools Options Help
END-USER LICENSE AGREEMENT FOR
MICROSOFT SOFTWARE

MICROSOFT WINDOWS SERVER 2003, DATACENTER EDITION

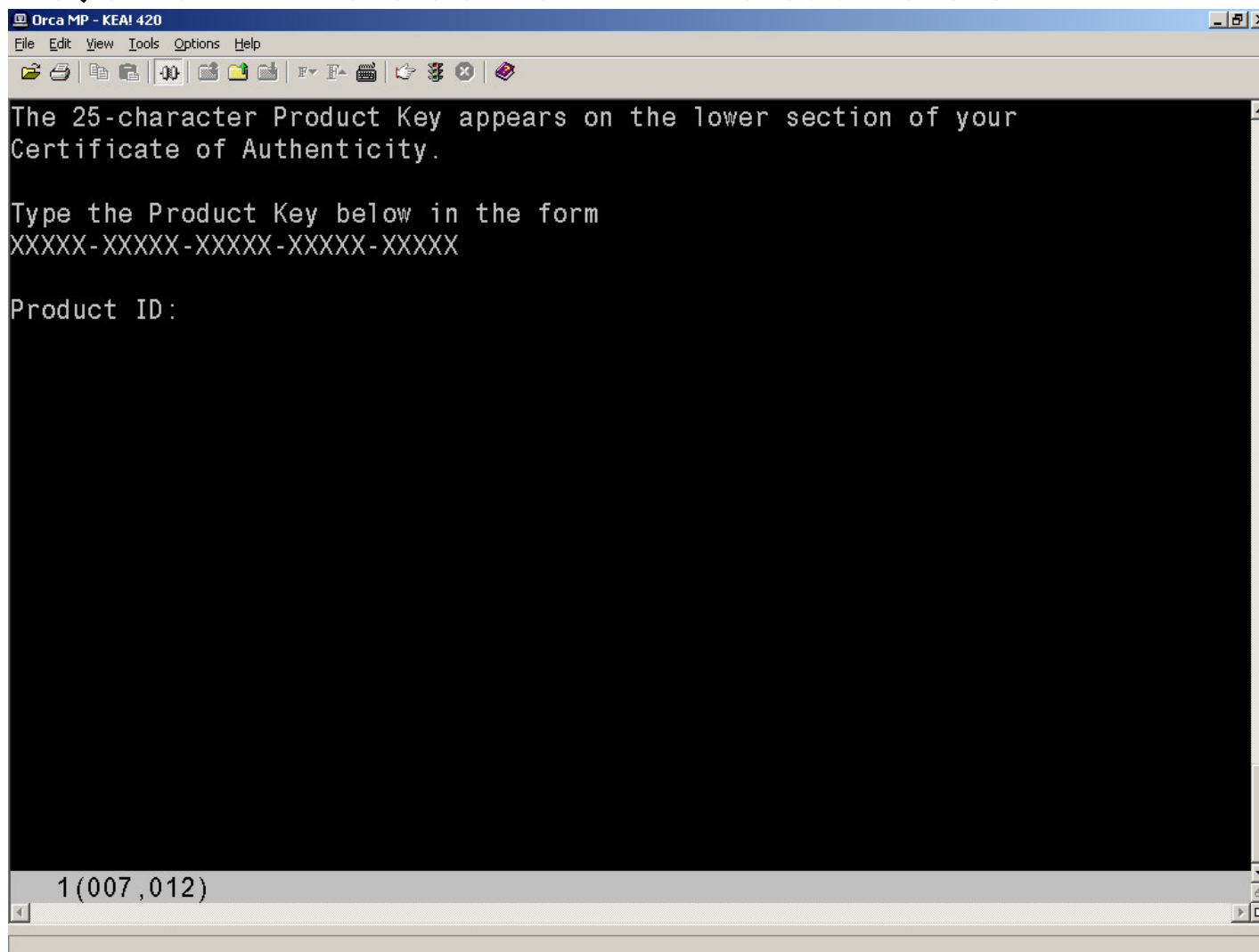
IMPORTANT-READ CAREFULLY: This end user
license agreement ("EULA") is a legal agreement between you
(either an individual or a single legal entity) and the
manufacturer ("Manufacturer") of the computer system ("Computer")
with which you acquired the Microsoft software identified above
("Software"). The Software includes computer software, and may
include associated media, printed materials, "online" or
electronic documentation and Internet-based services. Note,
however, that any software, documentation, or web services that
are included in the Software, or accessible via the Software, and
Press F8 to accept or ESC to decline the EULA.
Press PAGE DOWN for next page.

1 (018,001)
```



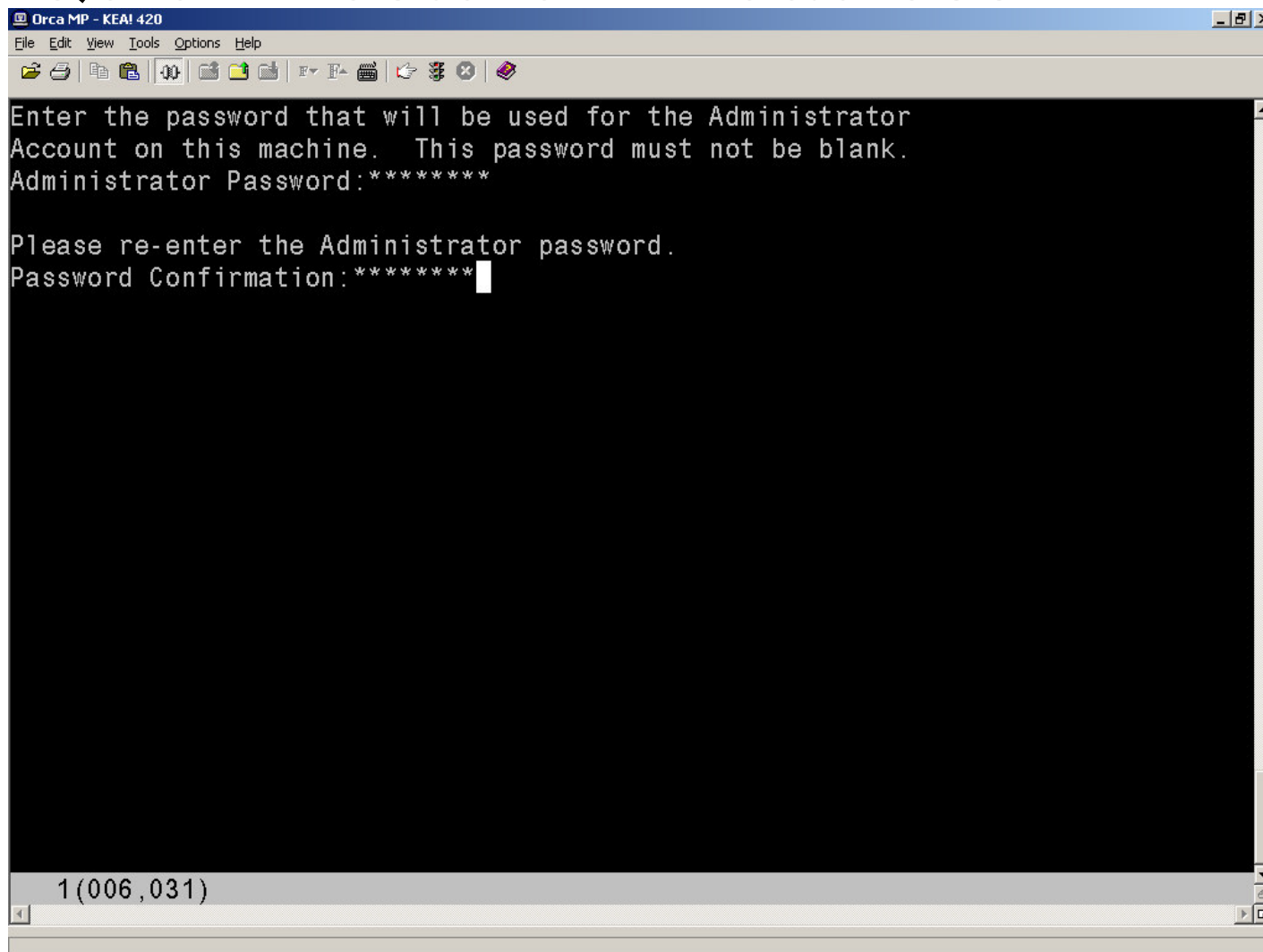


HP Quick Restore – Headless



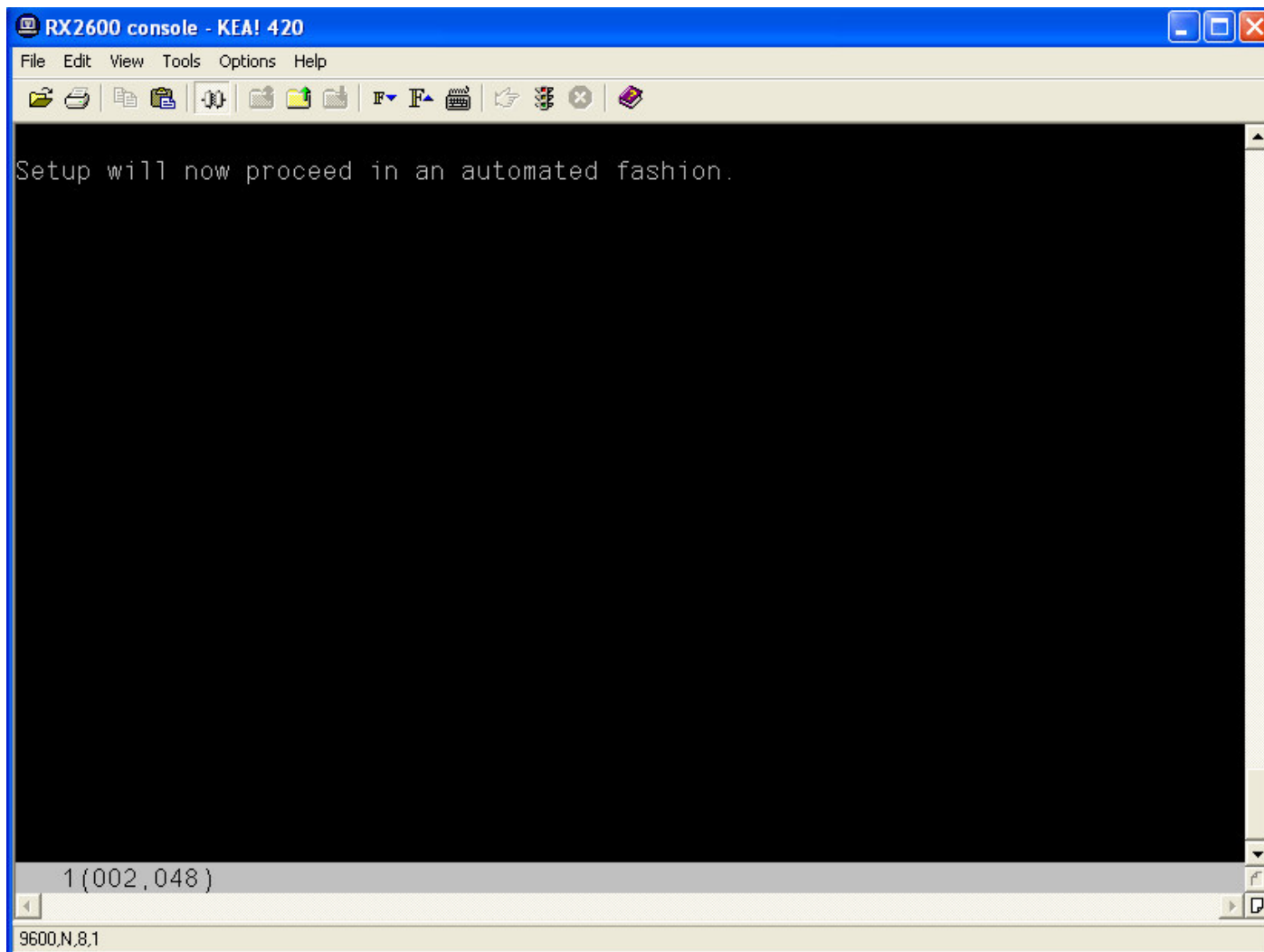


HP Quick Restore – Headless

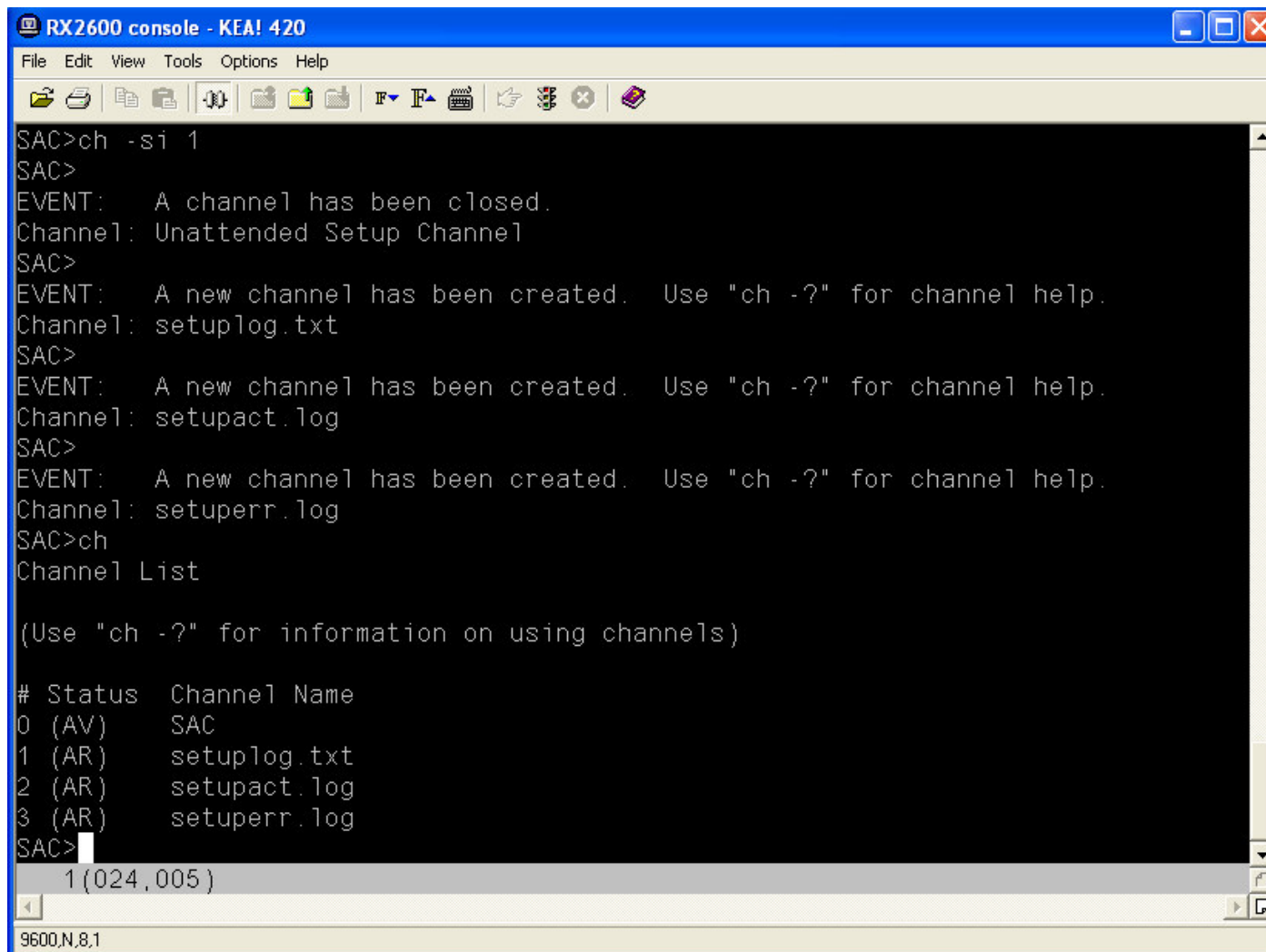




HP Quick Restore – Headless



HP Quick Restore – Headless



```
RX2600 console - KEA! 420
File Edit View Tools Options Help
SAC>ch -si 1
SAC>
EVENT: A channel has been closed.
Channel: Unattended Setup Channel
SAC>
EVENT: A new channel has been created. Use "ch -?" for channel help.
Channel: setuplog.txt
SAC>
EVENT: A new channel has been created. Use "ch -?" for channel help.
Channel: setupact.log
SAC>
EVENT: A new channel has been created. Use "ch -?" for channel help.
Channel: setuperr.log
SAC>ch
Channel List

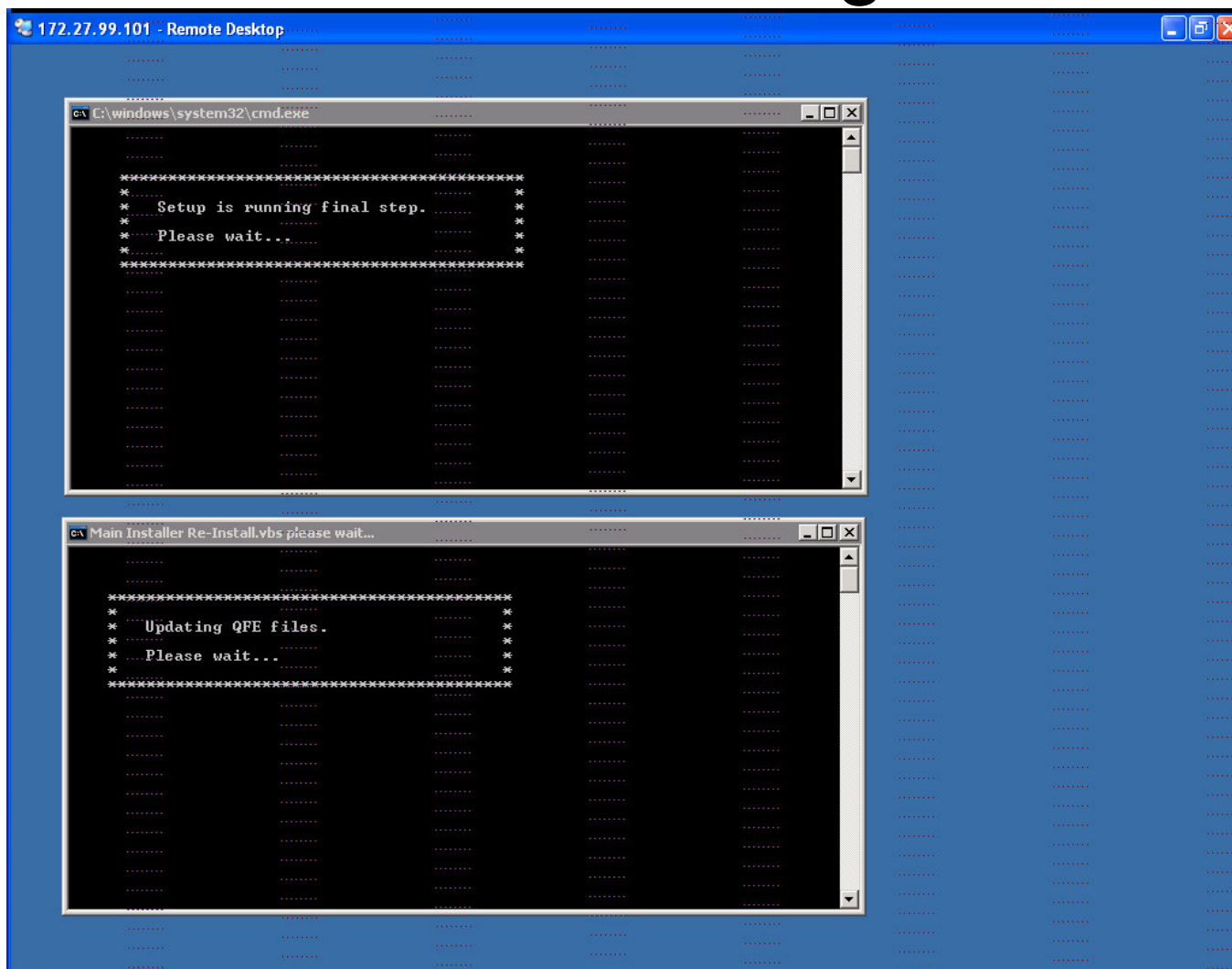
(Use "ch -?" for information on using channels)

# Status Channel Name
0 (AV) SAC
1 (AR) setuplog.txt
2 (AR) setupact.log
3 (AR) setuperr.log
SAC>
```

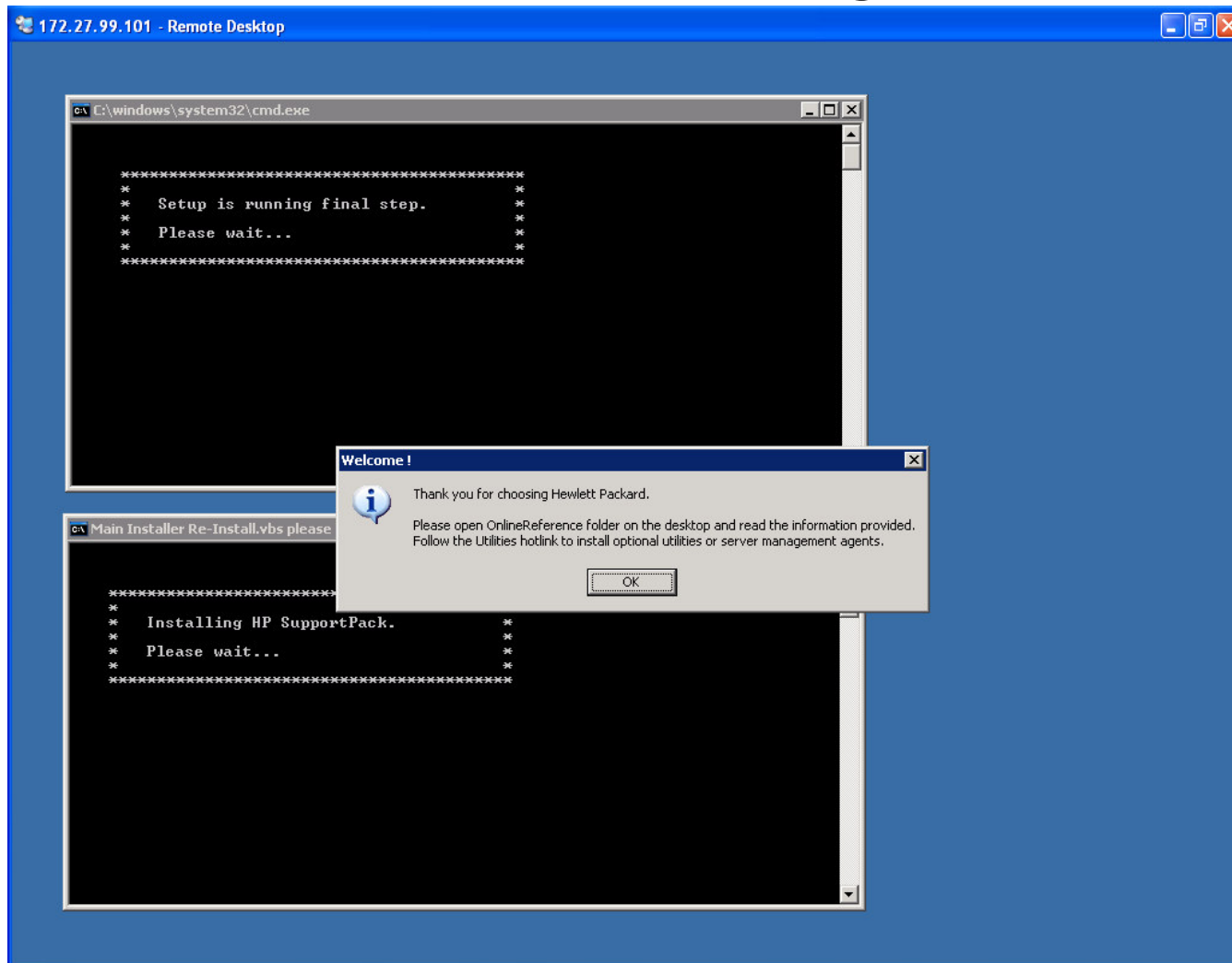
1 (024,005)

9600.N.8.1

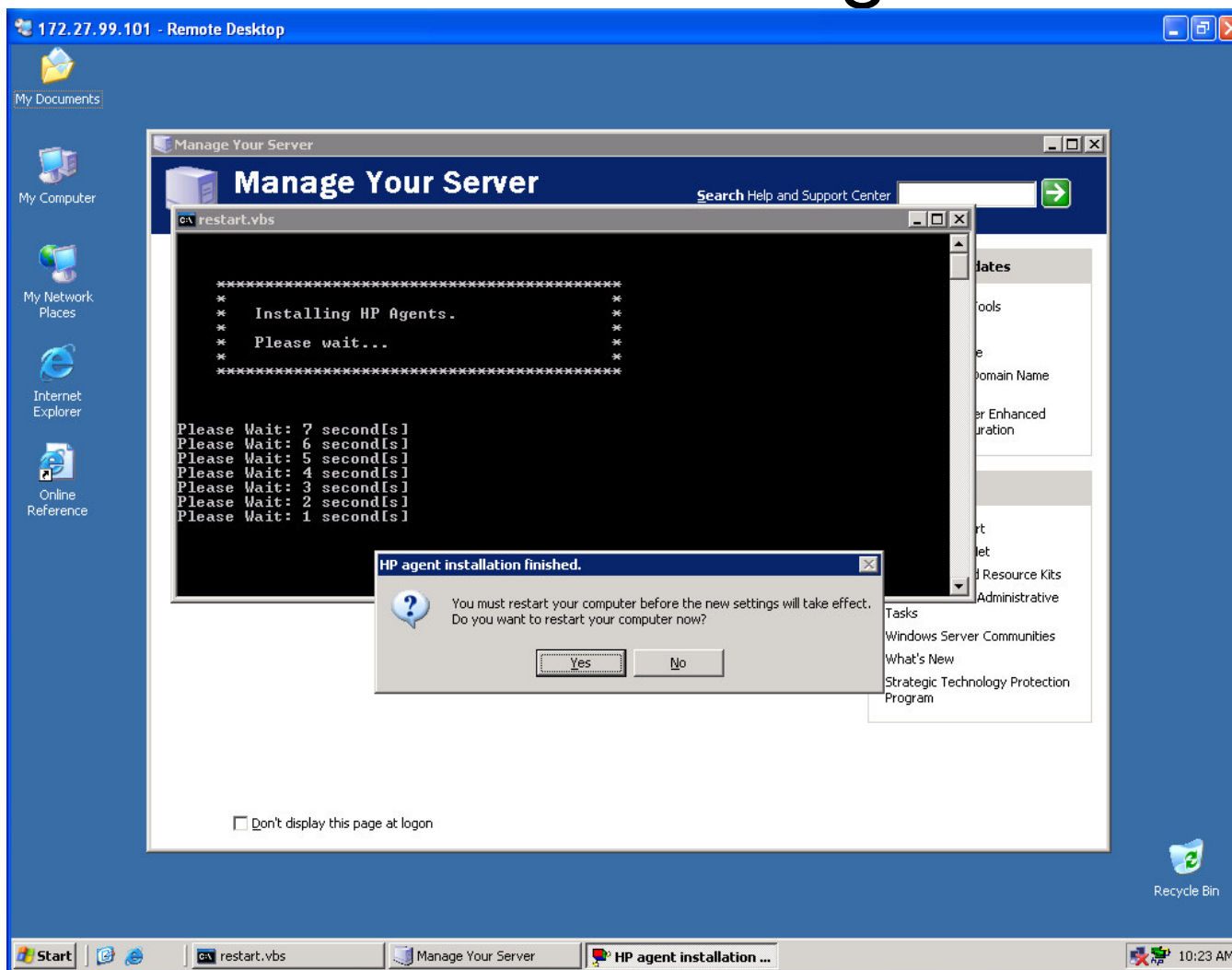
HP Quick Restore – 1st login



HP Quick Restore – 1st login



HP Quick Restore – 1st login





HP Quick Restore – Troubleshooting

- Problems during restore do not leave any log files
 - Make sure to record messages
- Problems during post-SYSPREP setup uses standard log files:
 - Same log files in %WinDir% as during a normal SysPrep first boot
- Installed hot-fix list in %WinDir% as KB#####.log or using WMIC:

```
WMIC QFE GET HotFixID,Description
```



Management



Management – Built-in Tools

- **Built-in Windows Management tools are identical**
 - MMC is only application that allows mixing 32-bit and 64-bit environments
 - Most tools are present in 64-bit version and 32-bit version (Via the WoW64)
 - 32-bit version of some tools might show confusing information due to reflection and redirection
 - Because some tools allow only 1 copy to run, starting a 64-bit tool is not enough to guarantee you are running the 64-bit version (RegEdit, NTBackup, ...)

Management – Built-in Tools

- Be aware of the version you are using, Help About shows when you are running 64-bit tool





Management – Microsoft Tools

- Management application not available native
 - Plan for a native 64-bit MOM server
 - 32-bit MOM 2005 will manage 64-bit systems with included 64-bit agent
 - 32-bit SMS 2003 SP1 will manage 64-bit clients
 - No Remote Control, use Terminal Server
- ResKit tools not supported on 64-bit systems
 - Lots of tools are therefore “Use at your own risk”
- MBSA currently not available for 64-bit systems

Management – 32-bit tools

- Simple 32-bit tools should run on IA64 machines as long as:
 - No drivers (No 32-bit kernel code allowed)
 - No svchost based services, only stand-alone .exe
 - Vendor specifically indicate support on 64-bit systems
- Beware of 32-bit application installation method
 - BAT file and other un-usual install techniques are likely to cause grief
 - 16-bit setup application are handled specially
- If a 32-bit application has problem, the install procedure is the 1st place to look!

Management – Remote Management



- Keep management tools remote when ever possible
 - Keep high-end / high-\$ machine for high-end server tasks
- Vendor should specifically indicate support for 64-bit systems
- Install minimum number of applications on server for best availability

Management – Remote Management



- Investigate a management network
 - Not interfere with production client / server activity
 - Also reduce exposure to Telnet password grabbing

Management – Different Thinking

- Most tasks can be accomplished the same way; however, some tasks require different thinking. For example:
 - To force a crash on a hung server, do not use KB244139 but rather use SAC> CrashDump command. Creates the same STOP 0xE2 foot-print!
 - GPT disk booting requires boot option with right GUID. A good disk with valid system files is not bootable without this. **Make backup of boot option after every change.**



Management – Login script

- Make sure you modify your login scripts to check architecture and do only what is appropriate on IA64 machine
- Be careful when using GPO for software deployment, take architecture in consideration

Management – Disaster Recovery

- The key is planning!
 - Test before needed
 - Check with backup vendor is they support WinPE
 - Make backup of your boot options after EVERY change, cannot be rebuild once lost! Practice and test moving system disks...
- Be sure to ask “what if” and have a solid fall-back / back-off plan



Management – Disaster Recovery

- Some options unavailable on IA64:
 - Command console not available:
WINNT32 /CMDCONS does not work on 64-bit Windows
 - ASR not available:
Hard-coded requirement for floppy
See Hotfix MS KB820364 for USB floppy
See Hotfix MS KB817708 for more hotfixes



Management – Disaster Recovery

- HP media specific restrictions:
 - HP Media auto-answer does not allow the Repair option
 - Parallel / multi install not possible with current HP media
 - Only installs to \\.\Adapert0\Drive0\Windows
- MS Media specific restrictions:
 - No access to WinPE



Management – Disaster Recovery

- Available alternatives:

- WinPE – Boot the HP restore media. WinPE gives you similar capabilities to Winternals ERD Commander!
- Safeboot – Easiest to modify boot entry to include /SAFEBOOT option rather than <F8>
- Snapshot copy of boot disk – Check with the vendor for limitations
- Good backup – NtBackup can be used from WinPE (VGA mode only)
- Rebuild



Management – Consolidation

- Large Integrity servers can be use to consolidate multiple smaller 32-bit SQL servers
 - Make sure the applications have compatible requirements: Downtime, management domains, security domain, add-in and plug-ins, ...
- WSRM is available on 64-bit
 - Use to solve technical issues
 - Do not use to solve political issues



SQL Server 2000



64-bit SQL Server 2000

- Built-in SP3
- Should install hotfix MS03-031 before connecting to network
- Most information available in MSDN and not TechNet
- Only core functionality ported to 64-bit
- Leverages Windows 2003 64-bit components
 - MDAC 2.8 stack
 - DTC
 - HTML Help
 - MMC



64-bit SQL Server 2000 – Installation



- Completely different installation procedure
 - 32-bit install is InstallShield based
 - 64-bit install is MSI based
- No remote installation
- Connectivity-Only option is not available
- Code samples are not installed

64-bit SQL Server 2000 – Installation



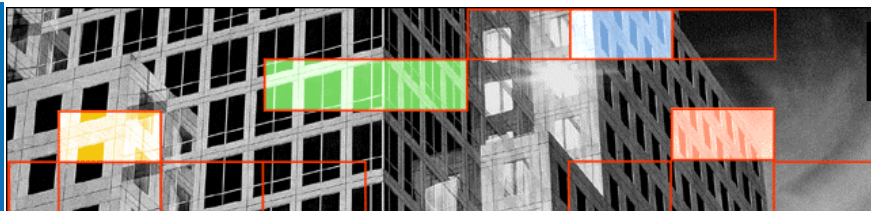
- Network Library configuration not available from setup
 - Setup enables Shared Memory, Named Pipes, and TCP/IP → Use the SQL Server Network Utility to change the settings that enable or disable protocols
 - Configure client network libraries using the Client Network Utility (cliconfg.exe) included with the 64-bit versions of the Windows Server 2003 family

64-bit SQL Server 2000 – Installation



- Limited child feature selection
 - Tools feature installs all tools; there is no option to select individual tools
 - Server Components are limited to SQL Server and the Full-Text Search Engine
- Non-cluster instance are removed or changed with the Add or Remove Programs

64-bit SQL Server 2000 - Installation



Install Components

Microsoft SQL Server 2000 Enterprise Edition

- Install Database Server
- Install Analysis Services
- Install English Query

Back

Microsoft SQL Server Developer Edition (64-bit) Setup

Feature Selection

Select the program features you want installed.

Click an icon in the following list to change how a feature is installed.

- SQL Server
 - SQL Server Management Tools
 - Server Components
 - Data Files
 - Full-Text Search Engine
 - Analysis Services
 - Analysis Server
 - Data Files
 - SQL Repository
 - Data Files
 - Client Components
 - Books Online

Feature description

This feature requires 0 KB on your hard drive. It has 0 of 2 subfeatures selected. The subfeatures require 0 KB on your hard drive.

Installation path

Disk Cost...

Help << Back Next >> Cancel



64-bit SQL 2000 – Clustering

- No node limit unlike 32-bit version
- Cannot use Add or Remove Programs to add or remove features in a clustered instance
 - You must use the Setup.exe graphical interface or the command line



64-bit SQL 2000 – Analysis Services

- Only for the SQL Server OLE database provider and SQL Server ODBC driver
 - OLE DB provider for ODBC is not supported (not existent)
 - Other DB providers (Oracle) may be available
- SP3-based so Remote Analysis Manager (client) must be SP3 also

64-bit SQL 2000 – Data Migration

- Plug in the disks and go!
 - On-disk structure is 100% the same
 - To attach a 32-bit database to a 64-bit instance use detach/attach or backup/restore in 32-bit Enterprise Manager
 - You can move databases back and forth between 32-bit and 64-bit versions of SQL Server
 - Migrating data from SQL Server version 7.0 is also supported using the same methods





64-bit SQL 2000 – Documentation

- This release of Books Online table of contents is organized by platform:
 - 64-bit content is grouped together in a node entitled "SQL Server 2000 (64-bit)"
 - 32-bit topics are grouped together in a node called "SQL Server 2000"



64-bit SQL 2000 – NUMA Handling

- Special NUMA friendly version of SQL exists
 - Adds free page list and connection affinity features
 - Require great care when configuring
- Available from MS as SQL server build 8.00.925.0 or greater
 - T825 enables
 - There is more to it, make sure to involve SQL resources
 - Test and characterize before going in production
- Nowhere close to NUMA awareness of SQL 2005



SQL Server 2000 – Management

- Only remote management is supported, from a 32-bit system using the 32-bit management tools

SQL Server 2000 – Other Differences



- Since only the core functionality was ported to 64-bits, there is a slew of other differences!
 - Make sure you check the release notes and Microsoft MSDN for all the details before starting deployment!
 - A test environment can of great use



Help



You are not alone!

- Documentation and software online at:
http://h20000.www2.hp.com/bizsupport/TechSupport/Product.jsp?locale=en_US&prodTypeId=15351&prodSubCatId=71811
- If you get stuck you can call on us
 - Warrantee support 800-593-6631 (phone number in documentation)
 - Range of support contract are available
 - Per incident support available



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