

Prinergy, Synapse InSite, and BestRIP

Windows 2000 installation using Ghost Image

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A	June 7, 2001	Keith Chan	First Release.
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1. INTRODUCTION

This document provides procedures to install Windows 2000 (W2K) for Prinergy 2.x, Synapse InSite, or BestRIP running on Creo-approved Intel server platforms.

This document provides step-by-step procedures on Windows 2000 installation and configuration using a Ghost image prepared specifically for each platform. Contact Technology Infrastructure Systems Group for the Win2K Stand Installation Template if there is no suitable Ghost image or for other non-standard hardware.

Supported platforms include Xeon processor based Dell PowerEdge Servers of 400SC, 700, 1600SC, 2600, 2650, and 4600, the legacy Pentium III CPU based servers of 1400, 2400, 2500, 4400, 6400, and EMC/DG Aviion 2300 and 3700 servers. EMC/DG AV2700 and AV2200 have limited/conditional support.

Note: The W2K Resource CD (21-0151A) referred to in this document **must** be, at a minimum, **Revision Q**. This will ensure that you have all the correct versions of device drivers used during system integration.

Make sure that you have the following software before beginning installation.

Table 1: Necessary Software

Disk	Type	Version	Comments	Systems
Windows 2000 Server and SP4	CD	2000 SP4	Operating system and Service Pack 4	All
W2K Resource CD	CD	Creo P/N: 21-0151A	Drivers and Firmware updates	All Dell
Prinergy software	CD	2.x.x	Prinergy software	All Prinergy Systems
BestRIP software	CD	x.xx	OEM RIP software	All BestRIP servers
Blank floppies	Floppy	N/A	For creating driver disk from Prinergy Resources CD if needed	All Prinergy servers

The most current listing of Ghosts can be found on the Resource CD under **\Recovery\Readme.rtf**. A listing of those Ghosts at the time of this writing is provided for convenience.

Table 2: List of Ghosts

Server	OS	SP	Med	Class	Workflow	Partitions	OS Drive	Latest Production Image
AV2200	Win2K	3	CD	Server	All	3	D:	21-0053B
AV2300	Win2K	3	CD	Server	All	3	D:	21-0051B
AV2700	Win2K	3	CD	Server	All	3	D:	21-0052B
AV3700	Win2K	3	CD	Server	All	3	D:	21-0050B
GX260	Win2K	3	CD	Pro	Veris			
GX260	Win2K	3	CD	Pro	Prinergy			21-0156A
GX270	Win2K	3	CD	Pro	Veris			651-00070A
GX270	Win2K	3	CD	Pro	Prin/Connect/Direct			651-00052A
GX270	Win2K	3	CD	Pro	Insite			651-00052A
GX270	Win2K	4	CD	Pro	Integris			651-00042C
PE400	Win2K	4	CD	Server	Evo, Director, Integris, Veris	1	C:	651-00092A-C
PE400	Win2K	4	CD	Server	InSite	3	C:	651-00137A-A
PE400	Win2K3	0	CD	Server	All	1	C:	651-00112A-01
PE700	Win2K	4	CD	Server	Prinergy, Impact	3	D:	651-00168AB
PE700	Win2K	4	CD	Server	Evo, Director, Integris, Veris	1	C:	651-00168AB
PE700	Win2K	4	CD	Server	InSite	3	C:	651-00168AB
PE700	Win2K	4	DVD	Server	Contains all Win2K Images	n/a	n/a	651-00168AB
PE1400	Win2K	3	CD	Server	All	3	D:	21-0092B
PE1600	Win2K	3	CD	Server	All	3	D:	651-00021A
PE2400H	Win2K	3	CD	Server	All	3	D:	21-0048B
PE2400L	Win2K	3	CD	Server	All	3	D:	21-0049B
PE2500	Win2K	4	CD	Server	All	3	D:	651-00158A-A
PE2600	Win2K	4	CD	Server	Prinergy/Impact	3	D:	633-00400A-B
PE2600	Win2K	4	CD	Server	Evo/Director	1	C:	633-00305A-B
PE2600	Win2K	4	DVD	Server	Contains all Win2K Images	n/a	n/a	651-00174A-A
PE2600	Win2K3	0	CD	Server	All	1	C:	651-00094A-01
PE2600	NT4.0		CD	Server	Impact	3	D:	651-00027A-H
PE2650	Win2K	4	CD	Server	Prinergy/Impact	3	D:	651-00091A-B

PE4400	Win2K		CD	Server	All	3	D:	21-0046B
PE4400	Win2K	3	CD	Server	Render	3	D:	21-0047A
PE4600	Win2K	4	DVD	Server	All	n/a	n/a	651-00190A-A
PE4600	Win2K	4	CD	Server	Prinergy	3	D:	651-00190A-A
PE4600	Win2K	4	CD	Server	Evo	1	C:	651-00190A-A
PE6400	Win2K	3	CD	Server	All	3	D:	21-0045B-J

Note: At this point, it is assumed that the server hardware is configured correctly, and the server is ready for Windows 2000 to be installed.

1.1 Procedure overview

New systems ship on Dell servers, therefore, the procedure outlined in this document is optimized for these systems. Where there are specific differences for a DG server, these are noted in the text.

Table 3: Setup Overview

Operating System Installation	Steps
Section 3: Ghost OS from Server ghost image CD (platform-specific)	1. Boot system into Windows XP DOS prompt off the Ghost CD. (Or create the bootable floppy) to access the FAT32/FAT RECOVERY partition. 2. Ghost (v8) OS server image onto server.
Remove the server from LAN (if connected)	This is a security measure to ensure that the server is not infected with any viruses over the network. We will place the server back on the LAN after its security is tightened.
Section 4: Sys Prep Tool Mini-setup wizard	1. License Win2K, name server, set administrator password, do initial communications configuration, etc. 2. Reboot server.
Section 5 and 6: Add new hardware and set up disks (if necessary)	1. Setup PERC, PCI to PCI Bridge (ONLY if prompted). 2. Verify Digi multi-serial-port PCI card. Reinstall driver if necessary. 3. Setting up disks (partitions, stripe sets if required)
Section 7: Synchronize server name references in registry	Using REGFIND to rename the server from its original name.
Section 8: Configure performance settings	1. Verify virtual memory. 2. Verify and configure networking (including NIC settings and Appletalk binding)
Section 9: Tighten Security	1. Install IIS if configuring InSite web server. Starting with revision G of Server OS ghost images, IIS is, by default, not installed. 2. Apply current post SP4 cumulative MS security patches/hotfixes.
Place Server on LAN	

Section 11: Install AIT/DLT and UPS software	See *Configuring Tape devices on Windows 2000 server.*
Section 12: Verify Post SP4 hotfixes/patches.	SP4 + IE 6's security patches are applied in the ghost images (rev. M ONLY).
Section 14: Win2K spot check	

2. HARDWARE CONFIGURATION REFERENCE

The hardware must be configured before installing Windows 2000, refer to the Server Hardware Setup documents for instructions.

Dell Server Specific Configurations

Please refer to the *Dell Hardware Setup procedure (document number 72-3572A-P)* for all relevant information regarding Dell PowerEdge Server platforms.

EMC/DG Server Specific Configurations

Please refer to the *DG Hardware Setup For Prinergy 2.x procedure (document number 72-3573A)* for all relevant information regarding EMC/DG Aviion Server platforms.

See the following table for information on W2K compatibility issues for EMC/DG servers.

Table 4: Aviion Minimum Firmware Revs

Server	Compatibility Issues with W2K?	Minimum BIOS version	Comments
AV3700	No	PhoenixBIOS 4.0 Release 6 (BIOS production release 13 Build xxx)	If running earlier version of BIOS, may not see Clarion SCSI RAID on 2944UW Adaptec SCSI controller.
AV2300	No	PhoenixBIOS 4.0 Release 6 (L440GX + BIOS production release 11.1 Build 102)	If server experiences keyboard/mouse lockups after a few hours of user inactivity, 600MHz processor may be faulty.
AV2700	Yes	6.00.33	Officially not supported under W2K. Workaround may be available. Check TechPlanet Library, and *DG Hardware Setup for Prinergy 2.x* document.
AV2200	Yes	PhoenixBIOS 4.0 Release 6 (N440BX + BIOS production release 10.0 Build 71)	Officially not supported under W2K. Creo will support in its best effort.

2.1 Drive Designations

Platforms have various types of disk drive configurations.

Table 5: Impact and Prinergy Drive Letters, InSite (non PE700)

Drive	Partition	Type	Information
0	C:	NTFS	W2K NT Loader, boot files
0	D:	NTFS	W2K paging, operating system, Prinergy executables, third-party executables
	H:	N/A	CD-ROM
0 or 1	E:	NTFS	Prinergy DataLog (on BestRip servers, BestRip Job Queue, and output data storage and spooling.
1	No drive	FAT32	GHOST + W2K OS images (not available on BestRIP server)
1	J:	NTFS	Database and ITP data files (Not required by Renderstation or BestRIP)
2+	G, K – Z	NTFS	Additional RAID. Database and Jobs (Not required by Renderstation or BestRip)

Table 6: Evo and Director Drive Letters

Drive	Partition	Type	Information
0	C:	NTFS	W2K NT Loader, boot files, operating system, Prinergy executables, third-party executables, Prinergy DataLog (on BestRip servers, BestRip Job Queue, and output data storage and spooling.
	H:	N/A	CD-ROM
1	J:	NTFS	Database and ITP data files (Not required by Renderstation or BestRIP), Ghost Images
2+	G – Z	NTFS	Additional RAID. Database and jobs (Not required by Renderstation or BestRip)

Table 7: InSite drive letter designations (PE700)

Drive	Partition	Type	Information
0	Dell	Custom	Used for Dells Utility Partition. Used for System Tests and Configuration.
0	C:	NTFS	W2K NT Loader, boot files, paging, operating system, Workflow executables, third-party executables, temp files.
0	E:	NTFS	InSite DataLog, Temp files,
1	J:	NTFS	Jobs Drive volume 1. Database and jobs will be kept here. Disk 1 may be a single physical drive or a raid 5 set of drives configured as 1 LUN.
2+	G: - Z:	NTFS	Additional job volumes from capacity given by external direct attached raids.
	H:	N/A	CD-ROM

3. GHOSTING THE OS FROM THE SERVER GHOST IMAGE CD

3.1 Ghosting W2K From an OS Image

Note: The servers must be DISCONNECTED from the LAN until after the OS has been installed, MS Hotfixes have been applied and IIS has been removed, and made secure (see *Section 9 Tightening Security).* This will ensure that the server is not vulnerable to viruses from the LAN before its security has been tightened.

1) Ensure that you have the Prinergy W2K Dell Resource CD (21-0151A-Q) and Server Ghost Image CD for the particular server platform (Dell PE 400SC, 700, 1600SC, 2600, 2650, 4600, 6600, 6400, 4400, 2500 2400H, 2500L/2400L, 1400, 1400 BestRIP).

2) Insert the appropriate Ghost CD as listed in Table 2: List of Ghosts and reboot your server. It will automatically start Ghost.

3) From the main menu, select **Local > Disk > From Image,** and then press Enter. Select the desired GHOST image file on the CD and then press **Enter**.

4) Highlight the first hard disk from the drive list and press **Enter**.

5) Ensure the New Size is equal to the Old Size. **Adjust as necessary** and hit **OK**.

6) Hit **Yes** to proceed with the restore.

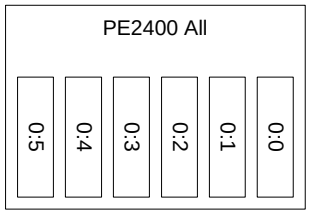
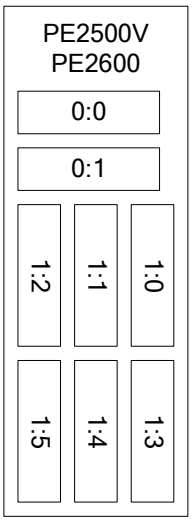
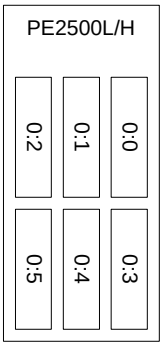
7) Upon completion of the restore power down the server.

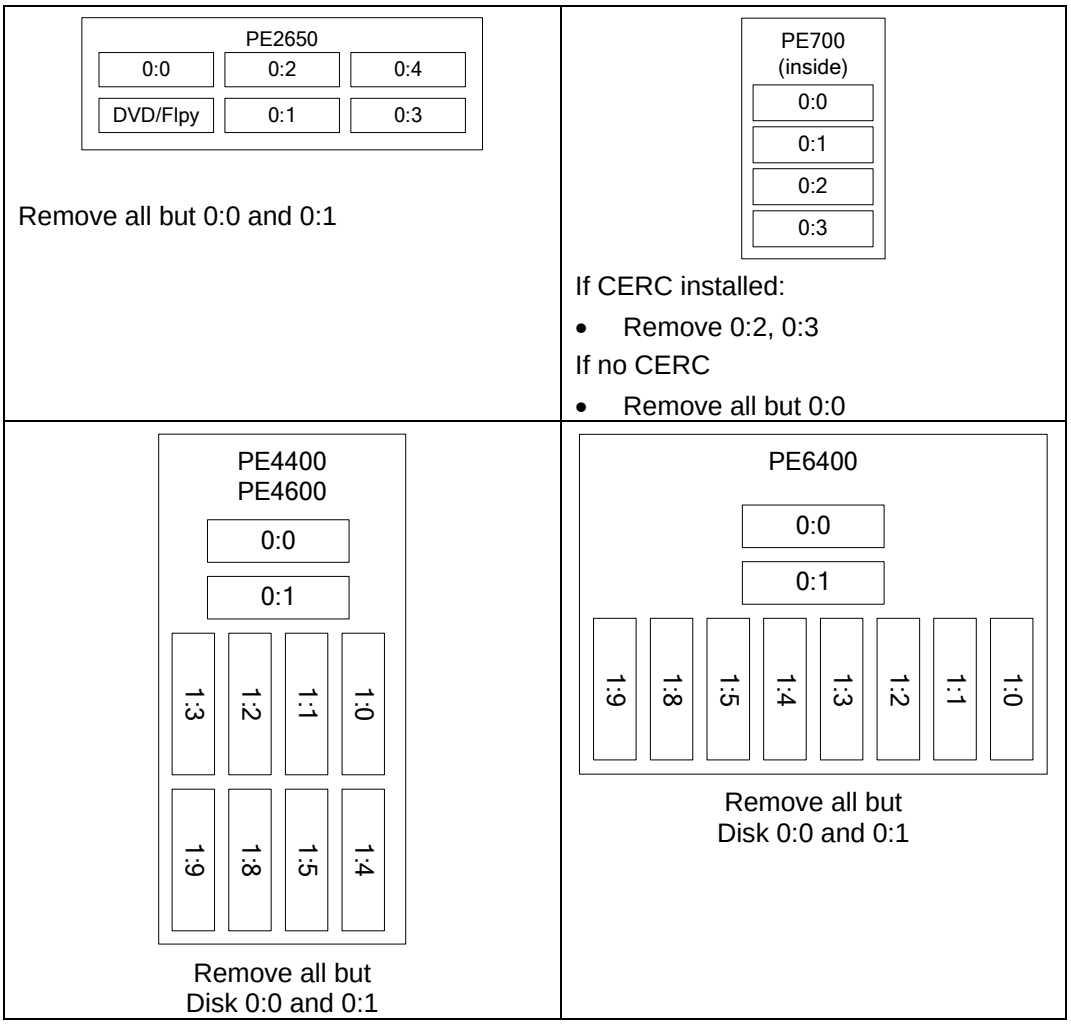
8) **For all Servers you MUST remove the following drives.**

   a) Power down the server.

   b) Remove all externally connected RAIDs and physically installed disks in the drive cage except for the SYSTEM disks.

Table 8: Drive Layout for Removal

 If PE2400L (No Perc) • Remove all but 0:0 If PE2400H/V (Perc 2Si) • Remove all but 0:0 and 0:1	 Remove all but Disk 0:0 and 0:1	 If PE2500L (no Perc) • Remove all but 0:0 If PE2500H (Perc 3Di) • Remove all but 0:0 and 0:1



9) Remove the floppy from the drive. Press Enter to accept the Reset Computer prompt and power up the server.

10) Upon booting up, W2K may warn you that you should run AUTOCHK to repair possible partition corruption. You can safely ignore this warning message.

WARNING: Make sure that you NEVER interrupt the Autocheck process while it is running.

4. SETTING UP SYSTEM PREPARATION TOOL MINI SETUP WIZARD

The system will boot up with a Microsoft mini setup wizard. Respond to the prompts below:

1) Click **Next** at the Welcome to Windows 2000 Setup Wizard prompt.

2) At the License Agreement dialog, select **I accept this agreement**, and then click **Next**.

3) Click **Next** at the Regional Settings prompt.

4) At the Personalize Your Software prompt:

   a) In the **Name** field, enter **Prinergy Server** (or **BestRIP Server**).

b) In the **Organization** field, enter the appropriate customer company name, and then click **Next**.

5) Enter the W2K Product Key (off the OEM certificate sticker adhered near the bottom front of the right-hand side panel), and then click **Next**.

Note: If you have a Windows 2003 Product Key label we are allowed downgrade rights and you can use the following key:
CXJD4 – DWWM9 – 887XH – K7JQ7 – BQG4Y

Note: If this is an upgrade of an NT4 server, then make sure to arrange for a proper license certificate purchased on site and use a temporary product key code supplied here to get through your installation. The code is: CXJD4-DWWM9-887XH-K7JQ7-BQG4Y

6) Set **Licensing Mode** to **Per Server** and set the number of connections to 10 for Primary servers (including Prinergy Access), and 5 for other servers (including Prinergy Secondary servers/Renderstations, Synapse InSite servers, Prinergy Satellite servers, and BestRIP servers), and then click **Next**.

7) Set the machine name, using the following convention:

YCSxn for all Prinergy servers and for Synapse InSite for Prinergy servers:

x = **P** for Primary Server or **S** for Secondary Server (Note that the terms “primary” or “secondary” are not NT/W2K related.)

n = the number of the machine shipping (e.g. YCSP023, YCSS300)

BWSn for Synapse InSite for Brisque servers

n = the number of the machine shipping (e.g. BWSP023)

PW00n for Synapse InSite for Brisque servers

n = the number of the machine shipping (e.g. PW00023)

8) Enter/confirm the Administrator password= **Cr3oServ**, and then click **Next**.

9) Enter the area code (such as 604) in the Modem Dialing Information dialog, and then click **Next**.

10) Set the correct date and time, and time zone, and then click **Next**.

11) If the prompt appears, select Remote Administration Mode at the Terminal Services Setup screen, and then click **Next**.

12) At the **Networking Settings Setup** screen, select **Typical Settings,** and then click **Next**.

13) At the **Workgroup or Computer Domain Setup** screen, click **Next** (Setup starts copying files, wait…)

14) Click **Finish** to reboot server when prompted. Do not re-install the disks yet.

5. DETECTING NEW HARDWARE

Once the system is booted up, it may detect hardware changes in the target system (compared to that of the source system where the ghost image was created) and display the **Found New Hardware Wizard** dialog. **Respond to these dialogs accordingly ONLY if they appear**.

5.1 PERC 2/Si or 3/Di Integrated Raid Controller

5.1.1 Device Driver Digital Signature

If the target system's PERC controller has **BIOS Version 2.5-0 (Build 2991) or higher,** then the **Found New Hardware** dialog of the **Dell PERC 2/Si or 3 /Di RAID Controller** may not appear. Instead it will show the dialog of the **Digi ClassicBoard 4 PCI Controller.** Proceed to *Section 5.2 MultiPort Serial Adapter (DellRenderstation ONLY)* below.

If the target system's PERC controller has **BIOS Version 2.1-3 (Build 2939) or lower,** it is likely that the **Found New Hardware** dialog of the **Dell PERC 2/Si or 3 /Di RAID Controller** will appear. If so, do the following steps:

1) Click the **Yes** tab at the **Digital Signature Not Found** prompt, and then click **Finish.**

2) If the System Settings Change dialog appears and prompts you to restart the computer, click Yes.

3) Upgrade the Dell PERC 2/Si or 3 /Di RAID Controller to BIOS Version 2.7-1 Build 3170 (or higher).

   - Double-click the **D:\BIOS_FW\4600\Perc-FW*.EXE** BIOS file to create two bootable BIOS Firmware diskettes. (Replace 4600 with the appropriate target platform model number, that is, 2400, 2500, etc.)
   - Reboot the system with diskette #1 inserted in the floppy drive.
   - Follow instructions on the screen to flash the new BIOS.

5.1.2 PCI Standard PCI-to-PCI Bridge

If the **Found New Hardware** dialog of the **PCI Standard PCI-to-PCI bridge** device appears, do the following steps:

1) Click Next, select Search for a suitable driver for my device (recommended), and then click Next.

2) Select **Specify a location,** click **Next.** click **Browse,** select **%SystemDrive%\DRIVERS\PERC2DC\ NODEV.INF** (for Perc 2 systems) or **D:\DRIVERS\PERC3DI\OEMSETUP.INF** (for Perc3 systems), and then click **Open, OK.**

3) In the **Driver Files Search Results** window showing the **%SystemDrive%\winnt\inf\machine.inf** file, click **Next, Finish** to complete the driver loading process.

5.2 Multi Port Serial Adapter (Dell Renderstation only)

5.2.1 Verifying the Digi ClassicBoard or AccelePort 4P

If with the **Found New Hardware** prompt you see **PCI Simple Communications Controller** then this is the Digi controller. Do the following:

1) Install the driver:

   a) Select **Search for a suitable driver** and hit **Next**.

   b) Select **Specify a location** and hit **Next**.

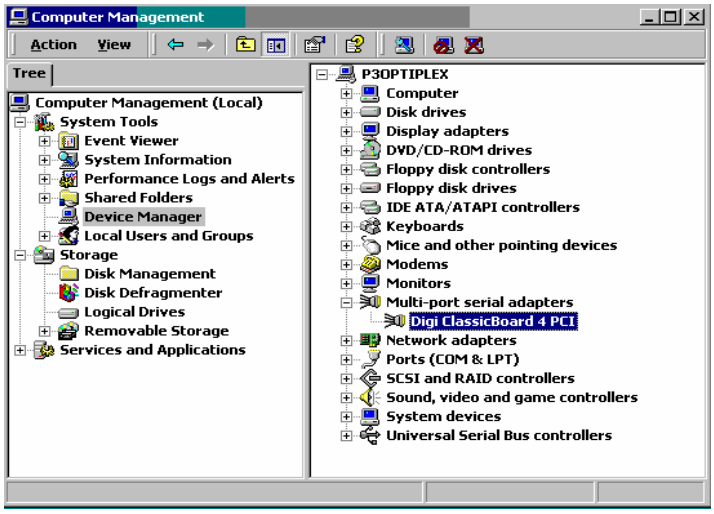
   c) Select either from your **%SystemDrive%\Drivers\Digi** or from your **ResourceCD\W2Kdrives\Digi** the appropriate driver (Classic or Accelport) and hit **OK**.

   d) Follow the prompts to complete the installation of the driver.

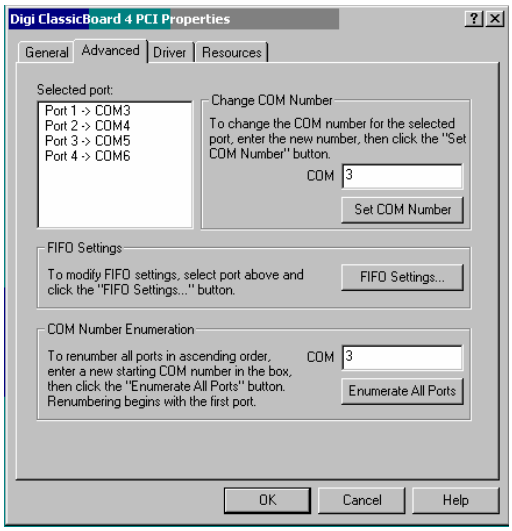
2) Verify that the driver is loaded properly, and check for the existence of COM3-COM6

   Note: If the ***Digi AccelePort 4P*** is installed make sure that you have version 4.0.229.2 of the device driver. See the Digi Driver Problem with Revision H Ghost Image CD troubleshooting item on TechPlanet.

   Select **Device Manager** from the **Computer Management** MMC console, verify that the ***Multi-port serial adapters > Digi ClassicBoard 4 PCI*** (or ***Digi AccelePort 4P*** or ***Equinox SST 4P***) device appears in the Device Manager's device list as shown below:



   Right-click on ***Digi ClassicBoard 4 PCI*** (or ***Digi AccelePort 4P*** or ***Equinox SST 4P***), and then select **Properties** to open the device properties window. Select the **Advanced** tab. It should show ports 1-4 mapped to COM3-6 (the detail in the example will vary depending on the Adapter installed in the system):



Click **Cancel** to exit if the system device is shown as illustrated above. If the system device is not shown, then follow the procedure in the next section: *Correcting the Driver Settings*.

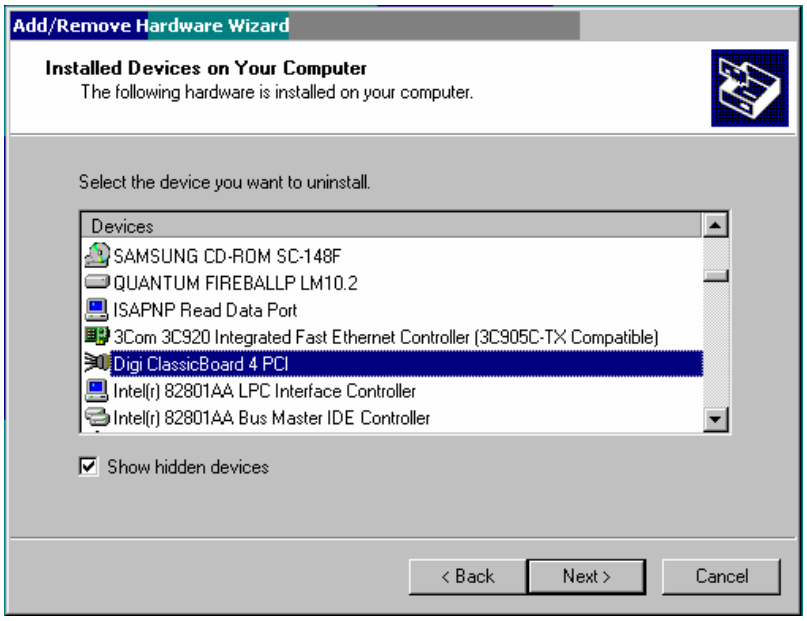
3) Correcting the Driver Settings if step 2) above fails.

a) Select **Start>Settings>Control Panel>Add/Remove Hardware**. The Add/Remove Hardware Wizard appears.

b) Click **Next.** The **Choose a Hardware Task** dialog appears.

c) Check the **Uninstall/Unplug a device** option, and then click **Next**. The Choose a Removal Task dialog appears.

d) Check the **Uninstall a device** option, and then click **Next. The Installed Deices on Your Computer** window appears:

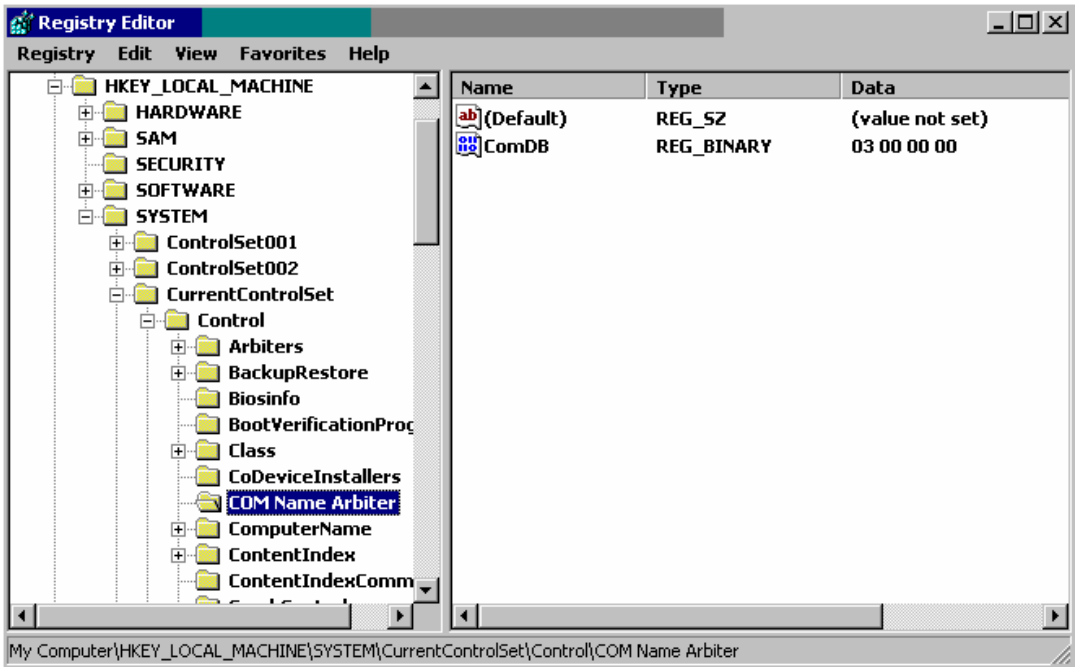


e) Check the **Show hidden devices** check box, then scroll down the list until the ***Digi ClassicBoard 4 PCI*** (or ***Digi AccelePort 4P*** or ***Equinox SST 4P***) device

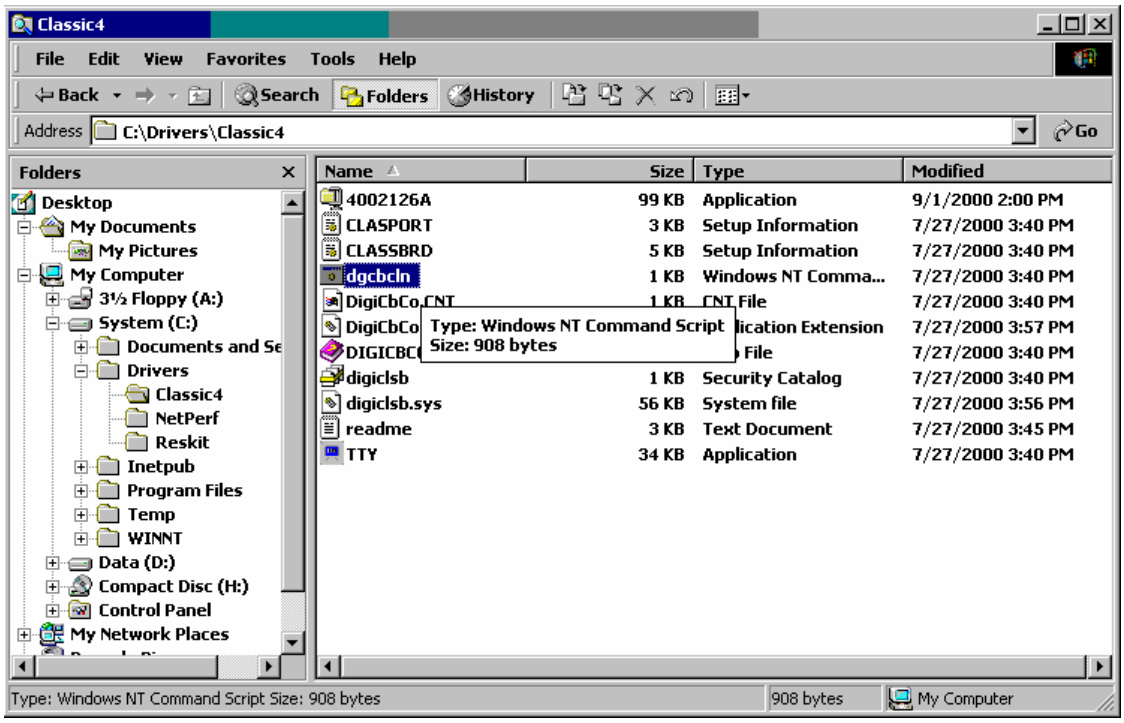
is found, click on the device (high-lighted as seen above), and then click **Next**. The Uninstall a Device window appears:

f) Select the **Yes, I want to uninstall this device** option, and click **Next**, wait for the dialog window disappears to complete uninstalling the device. (If two instances of this device are shown, you MUST repeat these steps again to remove the 2nd device on the list)

g) Start the **regedit** utility to verify/modify the key as shown in picture below:



h) Start the Digi driver cleanup steps by double-clicking on the file (**DGCBCLN.CMD**) shown in figure below off the Digi W2K driver file set available in the **H:\W2KDRVR\DIGI\CLASSIC4** directory of the W2K Resource CD. This step is not required for the Equinox SST adapter.



i) Reboot the server. Logon to the Administrator account, and then follow the setup procedure below to re-install a fresh version of this driver.

4) If the Digi ClassicBoard is not set up correctly, or the ghost image does not include it, use the following instructions to configure the board and update the driver.

5.2.2 New COM Ports Assignment

All Dell servers with the device connection kit are configured with a one of the multi port (4-ports) serial adapters mentioned above. Port assignments are as follows:

	COM1 (Embedded)	COM2 (if availabe, or USB if not)	COM3 (Digi P1)	COM4 (Digi P2)	COM5 (Digi P3)	COM6 (Digi P4)
MODEM	X					
UPS		X				
Workstation Serial Interface			X			
Recorder Diagnostic				X		
Head Diagnostic					X	
Harmony Densitometer I/F						X

Connections between the output device serial cables and the Renderstation are as follows:

Modem Serial cable – COM1 port (embedded on the motherboard)

UPS black cable – COM2 port (embedded on the motherboard, Not available on PE1600SC, use COM6 for this server's UPS connection or a USB connection)

Recorder COM1 – Digi Adapter cable's P1 connector

Recorder Diag – Digi Adapter cable's P2 connector

New Found Hardware: Multi Port Serial Adapter

If the **Found New Hardware** dialog of the **Digi ClassicBoard 4 PCI Controller** (or ***Digi AccelePort 4P*** or **Equinox SST-4P card**) appears, follow the steps below to load the **Multi Port Serial Adapter** device driver:

a) Click **Next,** Select **Search for a suitable driver for my device (recommended),** and then click **Next.**

b) Select **Specify a location,** and then click **Next.** Click **Browse,** select the **%SystemDrive%\Drivers\Digi\CLASSIC4\v2.x\CLASPORT.INF** file, and then click **Open, OK.** (or the **D:\DRIVERS\DIGI\AccelePort 4P\XL**.INF** file for the AccelePort 4P card or **D:\DRIVERS\SST*.INF** file for the **Equinox SST-4P** card)

c) At the **Driver Files Search Results** window showing **d:\winnt\oem1.inf** file, click **Next.**

d) Click the **Yes** tab at the **Digital Signature Not Found** prompt, and then click **Finish** to complete the driver loading process**.**

e) On 2500/2400/4400 Server with a **Dell PERC 2/Si or 3 /Di RAID Controller**, you may now see the system pops up another **Found New Hardware** dialog for the **PCI Standard PCI-to-PCI bridge** device. Follow the steps described in *PCI Standard PCI-to-PCI* section above.

5.3 Removing SeaLevel DUOCOM (COM3 & 4) for EMC/DG Servers

WARNING: Remove this board and its W2K settings from the server is strongly recommended since it was discovered that this card is not compatible with W2K and it's potential to cause BSOD.

6. SETTING UP DISKS

6.1 Disk Configuration Reference

Configure the drive lettering as outlined below:

Note: H: is the CD-ROM

G:, J:, K: to Z: are the user data drives

6.1.1 Dell Servers for Prinergy, InSite (non PE700)

Disk0:

- 1st Partition "No drive letter" is the Dell proprietary Utility partition
- 2nd Partition "C" holds the W2K loader and boot files; file system is NTFS
- 3rd Partition "D" holds the W2K Operating System, other applications; file system is NTFS

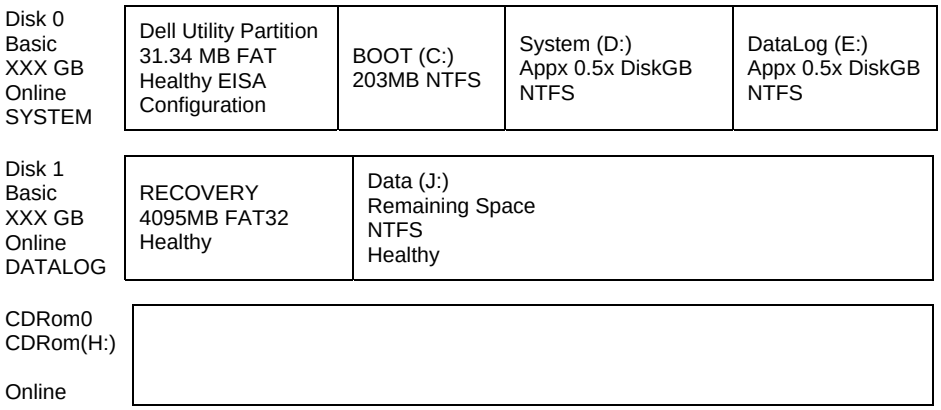
- 4th Partition "E" is the DataLog drive for Prinergy applications; file system is NTFS; Dell 1400SC/1600SC/2500/2600/2650/4400/4600/6400 Servers with 18GB or larger drives ONLY.

Disk1:

- 1st Partition **<UnassignedDriveLetter>** "**RECOVERY**" is the partition holding Ghost BaselineW2K OS images (no drive letter); file system is:
    - 4095MB for FAT32 (use this as standard)

- If a 9GB drive and (Dell PE2400/2500 or Renderstation 4400)
    - 2nd Partition <**E:**> "**DataLog**" drive for Prinergy applications and IIS root directories; file system is NTFS; Dell PE2400/2500 and Renderstation 4400, 9GB drives ONLY.

- If any other system, or a larger then 9GB system drive for (Dell PE2400/2500 or Renderstation 4400)
    - 2nd Partition <**J:**> "**Data**" drive for System ITP test files, Prinergy Oracle database, customer data, and IIS root directories; file system is NTFS;



6.1.2 1400SC Dell Server for BestRIP

Disk0:

- 1st Partition "No drive letter" is the Dell proprietary Utility partition
- 2nd Partition "C" holds the W2K loader and boot files; file system is NTFS
- 3rd Partition "D" holds the W2K Operating System, other applications; file system is NTFS
- 4th Partition "E" is the Data drive (E: drive); file system is NTFS.

6.1.3 PE700 Dell Server for InSite

Disk0:

- 1st Partition "No drive letter" is the Dell proprietary Utility partition
- 2nd Partition "C:" holds the W2K loader, Operating System, Pagefile other applications; file system is NTFS
- 3rd Partition "E:" holds the Temp file system is NTFS
- 4th Partition "J:" is the Data drive; file system is NTFS.

Disk1: (optional)

- 1st Partition "K:" is the Data drive, pagingfile (2nd); file system is NTFS.

6.1.4 EMC/DG Servers

Disk0:

- 1st Partition "C" holds the W2K loader and boot files; file system is NTFS
- 2nd Partition "D" holds the W2K Operating System, Prinergy applications; file system is NTFS

Disk1:

- 1st Partition "RECOVERY" is the partition holding Ghost BaselineW2K OS images (no drive letter); file system is FAT32 4095MB in size.
- 2nd Partition "E" DataLog drive for Prinergy applications and IIS root directories; file system is NTFS.

6.2 Setting up Disk Configuration

6.2.1 Configuring 18GB or larger Disks on Dell Servers

Use this procedure for Dell PE 400SC / 700 / 1600SC / 2600 / 2650 / 4600 / 6600 / 6400 / 4400 / 2500V/H servers with 18GB or larger disks.

Note: This procedure is not necessary when setting up a 1400 BestRIP server.

1) Right-click **My Computer,** and then select **Manage**. The Computer Management Console appears.

2) Select **Computer Management (Local) > Storage > Disk Management**. The Disk Management view appears.

3) In the Write Signature and Upgrade Disk Wizard dialog box, select **Cancel**.

   WARNING: If you accept this prompt by selecting Next, W2K will convert all un-partitioned disk(s) to the new Dynamic disk type, which should be set for external Raid disk set(s) only. Note that DOS will not recognize the Dynamic disk type.

   Note: The disk layout should appear with the correct configuration. If the configuration is not correct, create partitions as needed.

4) If a small red **STOP** sign appears on the new/blank disk(s), then right click on the sign and select the **Write Signature** option to put the W2K disk signature onto these disks before volume(s) can be created on them.

5) Close the Computer Management Console if no additional disks need to be configured, otherwise, continue with the procedures below as needed.

6.2.1.1 Configuring One Internal Data Disk

On the 6400/4400/2500/1400 Server with 18GB system disks or 700 / 1600SC / 2600 / 2650 / 4600 / 6600 server with 36GB or larger system disks, a system with one additional internal disk is configured as another single volume (G: drive).

1) Right-click the un-partitioned Disk2 and select **Create Partition…**. The Create Partition wizard appears. Click **Next.**

2) Select **Primary Partition**, click **Next** (partition size = entire volume), and then click **Next.**

3) Assign Drive Letter = **J:**, File System to use = **NTFS**, Allocation unit size = **Default** and Volume label = Data, then check the Perform a Quick Format option, and then click **Next**, **Finish** to complete creating a partition.

4) Close the Computer Management Console if no additional disks need to be configured.

6.2.1.2 Configuring Two or More Internal Data Disks

On the 6400/4400/2500 Server with 18GB system disks and 2600/4600/6600 Server with 36GB or larger system disks, a system with multiple internal disks (two or more) will have those internal disks combined with the default RECOVERY disk and configured as a single RAID-5 set off the PERC Raid Controller.

1) Right-click the un-partitioned Disk1, and then select **Create Partition…**. The Create Partition wizard appears. Click **Next.**

2) Select **Primary Partition**, and then click **Next**.

3) Enter **2047** (if a 9GB disk) or **4095** (for larger then 9GB disks) for partition size, and then click **Next**.

4) Assign **Drive Letter** = **None**, **File System to use = FAT32 for 4GB partition, Allocation unit size = Default** and **Volume label = RECOVERY,** then check the **Perform a Quick Format** option, and then click **Next, Finish** to complete creating a partition.

5) Repeat the above steps on the 2nd part of Disk1 create another primary partition with the following settings: **Drive Letter** = **J**, **File System to use = NTFS, Allocation unit size = Default** and **Volume label = Data,** then check the **Perform a Quick Format** option and then click **Next**, **Finish** to complete creating the 2nd partition on Disk1.

6) Close the Computer Management Console if no additional disks need to be configured.

6.2.1.3 Configuring a Single External RAID Volume

On all Servers with a single external RAID 5 LUN:

1) Right-click the un-partitioned Disk1 and select **Create Partition…** The Create Partition wizard appears. Click **Next**.

2) Select **Primary Partition** and click **Next,** Enter **4095** of partition size and click **Next**.

3) Assign **Drive Letter** = **None**, **File System to use = FAT32, Allocation unit size = Default** and **Volume label = RECOVERY,** then check the **Perform a Quick Format** option and then click **Next**, **Finish** to complete creating a partition.

4) Repeat the above steps on the 2nd part of Disk1 create another primary partition with the following settings: **Drive Letter** = **G:**, **File System to use = NTFS, Allocation unit size = Default** and **Volume label = Data,** then check the **Perform a Quick Format** option and then click **Next**, **Finish** to complete creating the 2nd partition on Disk1.

5) Right-click on the drive icon (i.e. Disk number 2) and select **Upgrade to Dynamic Disk…** to convert this external FC Raid5 set to the W2K Dynamic Disk type.

6) Right-click the un-partitioned Disk2 and select **Create Partition…**. The Create Partition wizard appears. Click **Next**.

7) Select **Primary Partition**, click **Next**, leave the entire partition size, and then click **Next**.

8) Assign **Drive Letter** = **G:**, **File System to use = NTFS, Allocation unit size = Default** and **Volume label = RAID5DATA,** then check the **Perform a Quick Format** option and then click **Next**, **Finish** to complete creating a partition.

9) Close the Computer Management Console if no additional disks need to be configured.

6.2.1.4 Configuring Multiple External RAID Volumes

In Prinergy systems, there is no restriction for job storage on a single logical volume. Therefore, we strongly advise that multiple large volumes are not configured into a single stripe set, because this has a high risk of losing data. This configuration would also require extra administrative steps in recovering the stripe set and its data when moving the RAID unit between different servers.

Instead, we strongly recommend that multiple Raid5 volumes be configured as multiple NTFS volumes.

6.2.2 Configuring 9GB Disks on Dell Servers

Use this procedure for Dell PE 2400/2500/RS4400 servers with 9GB disks.

Use this procedure to set up internal disks in Windows 2000 for a 2400 or 2500 server with 9GB disks, or when configuring a 4400 as a Renderstation.

1) Right-click **My Computer,** and then select **Manage**. The Computer Management Console appears.

2) Select **Computer Management (Local) > Storage > Disk Management**. The Disk Management view appears.

3) In the Write Signature and Upgrade Disk Wizard dialog box, select **Cancel**.

WARNING: If you accept this prompt by selecting Next, W2K will convert all un-partitioned disk(s) to the new Dynamic disk type, which should be set for external Raid disk set(s) only. Note that DOS will not recognize the Dynamic disk type.

Note: The disk layout should appear with the correct configuration. If the configuration is not correct, continue with the following steps. If 3 or 4 internal data disks are installed, Disk 1's second partition size will be larger than the indicated size.

4) If a small red **STOP** sign appears on the new/blank disk(s), then right click on the sign and select the **Write Signature** option to put W2K disk signature onto these disks before volume(s) can be created.

5) Restore the Local User Environment Variables back to the default settings of TEMP and TMP = **E:\Temp** by completing the following steps:

- Create the Temp directory on E: drive by opening a DOS window and entering `MD E:\Temp`.
- Open the **Computer Properties** window by right clicking on **My Computer** and selecting **Properties**.
- To open the **Environment Variables** window, select the **Advanced** tab, and then select **Environment Variables…**
- Set the two Local User Environment Variables of TEMP and TMP = **E:\Temp** and click **OK**, then click **OK** again to save the changes and exit.

6) Close the Computer Management Console if no additional disks need to be configured.

6.2.2.1 Configuring One Internal Data Disk

1) Right-click the un-partitioned Disk2 and select **Create Volume…**. The Create Partition wizard appears. Click **Next** to continue.

2) Select **Primary Partition**, and then click **Next**, leave the entire partition size of **8676MB**, and then click **Next**.

3) Assign **Drive Letter** = **J**, **File System to use = NTFS, Allocation unit size = Default** and **Volume label = Data,** then check the **Perform a Quick Format** option and then click **Next**, **Finish** to complete creating a partition.

4) Close the Computer Management Console if no additional disks need to be configured.

6.2.2.2 Configuring Multiple Internal Data Disks

If the server has two internal data disks, it should be configured with two single 8.6 GB volumes G: (Disk2) and J: (Disk3). Follow the instructions for setting up single data disk twice. If a 2400H system has 3 internal disks, you must configure it to a single RAID-5 set off the PERC 2/Si Controller. (See the section on *Disk Setup for 2400* in the document *72-3572A Dell Server Hardware Setup for Prinergy 2.x.*)

For a 1600SC/1400/2500L/2400L system with multiple internal data disks, a W2K logical stripe set of three additional disks can be created.

Note: A logical stripe set of several disks is a volume without redundancy. Backing up data periodically is highly recommended.

1) Verify that Disk 2, 3, and 4 are blank/un-partitioned. Delete any partition(s) that are shown by right clicking on the disk(s) and selecting **Delete Volume**

2) Right-click on the drive icon (disk number) of the un-partitioned Disk2 and select **Upgrade to Dynamic Disk…** and the wizard dialog window appears. Check Disk 2, 3 and 4, and then click **Next** to convert the disks to **Dynamic Disk** type.

3) Right-click on Disk2 and select the **Create Volume…** option, and then click **Next**.

4) Select **Striped volume** in the Volume type window and click **Next**, select Disk 3 and 4 (from the All available dynamic disks window on the left) and click **Add>>** and click **Next**, then assign **Drive letter = J:**

5) Set File System to use = NTFS, Allocation unit = Default, Volume label = RAID0, check Perform a Quick Format, and then click <**Next>**, <**Finish**> to complete creating a striped-set.

7. SYNCHRONIZING SERVER NAME REFERENCES IN THE REGISTRY

If you are using a **PE400, PE700, PE2600, PE2650, PE4600** you can **skip** this section.

1) Re-Synch the Old Server Name with the New Server Name:

   Verify that W2K has started up correctly and perform the following two commands to change the old server name left in the registry:

   a) Start a DOS window and change the directory to D:\DRIVERS\RESKIT, then enter:
   ```
   REGFIND w2kxx –r newname (note: replace xx with the platform
   number, i.e. 26, 46, 66, 64, 25, etc.)
   ```

   b) And then enter:
   ```
   REGFIND W2Kxx –r NEWNAME
   ```

2) Verify that there are no error messages shown in the Event log. If there are, perform the appropriate corrective action to clear the error(s).

3) Clear all logs in the Event log to remove references to the baseline server name in the system and application logs.

4) Shut down Windows 2000, and power off the server.

5) With power off, restore the disk drive connection, and re-insert all physical disks back into the drive cage if drives were removed in Section 3.1Ghosting W2K From an OS Image above.

6) Once W2K has started up, use **Computer Manage > Disk Management** console to re-assign drive letters to match that listed in section 6.1 Disk Configuration Reference.

8. CONFIGURING PERFORMANCE SETTINGS

8.1 Verifying Virtual Memory

1) Right-click **My Computer** and select **Properties**.

2) Select the **Advanced** tab, and then select **Performance Options…**

a. Set **Application Responses** to **Optimize Performance for Background Services**.

b. Set **Virtual Memory** by selecting **Change…**, then selecting you OS drive and setting **Initial Size = Maximum Size** (= 1.5 x of physical RAM installed. For example, if the system has 1GB RAM installed, then enter 1536). Click **OK**, **OK**.

c. (PE700 only): If a second physical disk is used, create **an additional** paging file on this drive where Maximum Size = Initial Size = 1.5x Physical RAM.

3) Select **Environment Variables…**

a. Set **User Variables** for Administrator to **TEMP = TMP = E:\Temp.** Repeat the same for System Variables, and then click **OK**.

4) Select **Startup and Recovery…**

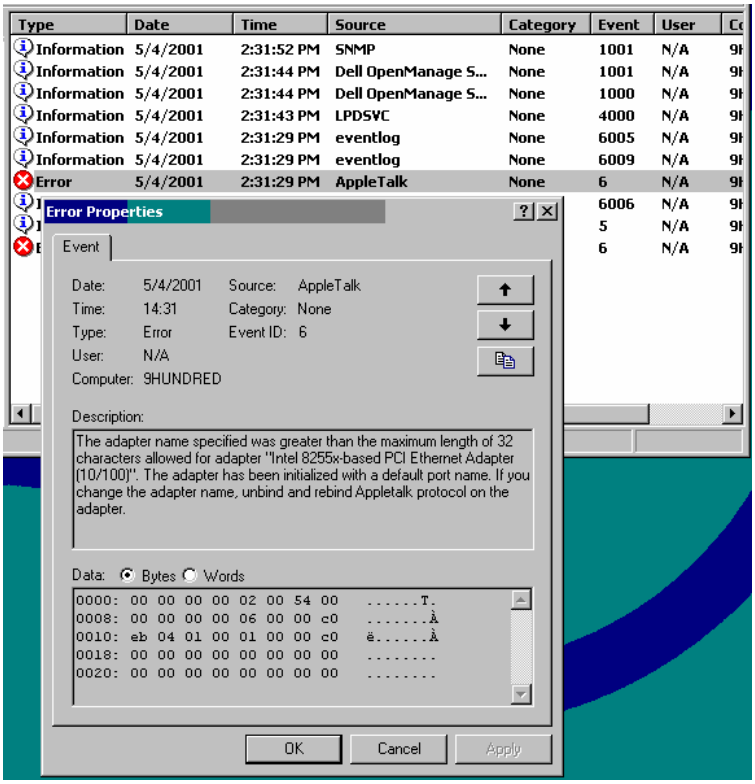
a. Set Display list of Operating Systems to **5** seconds. Uncheck Automatically Reboot, and then click OK, OK to confirm.

5) Click **No** to the restart the computer prompt.

8.2 Configuring networking

8.2.1 Unloading and Reloading NIC Driver

If the system Event Log shows an error (see the example in figure below), unload and reload the onboard Intel NIC driver or the onboard Intel or BroadCom Gigabit NIC on 1600SC/2600/4600/6600 to correct the error. See instructions below:



1. Right-click **My Computer** and select **Manage**.

2. Select the **Device Manager** option.

3. Under Network Adapter in the right hand window, right-click **Intel® 8255x or 82544GC Based Network Connection (or BroadCom NetXtreme Gigabit Ethernet)** device driver. Select Uninstall then click **OK** to **Confirm Device Removal and** unload the NIC driver.

4. Right-click the server name in the same window and select **Scan For Hardware Changes.** A **Found new hardware wizard** window will pop up. The wizard may find the new driver automatically. Otherwise, load the NIC device driver using the device driver available in the `D:\DRIVERS\I1KXTV6` or `D:\DRIVERS\BC-V267C` directory:

    a. Click **Next**, select **Search for a suitable driver for my device (recommended)**, and then click **Next**. Check the **Specify a location** option, and then click **Next.**

    b. In the **Insert the manufacturer's installation disk into…** dialog, type in `D:\DRIVERS\I1KXTV6` or `D:\DRIVERS\BC-V267C`, and then click **OK.** If these directory and driver files do not exist on the system D: drive, copy them off the W2K Resource CD.

    c. Check the **Install one of the other drivers** option, and then click **Next**.

    d. Select the driver option from the list with the **Provider = Manufacturer = Intel**, and then click **Next**.

    e. Click **OK** to the **Insert Disk** dialog, and then type in the same path (i.e. `D:\DRIVERS\I1KXTV6` or `D:\DRIVERS\BC-V267C`) as above in the **Files Needed** dialog, and then click **OK**. Wait while the system copies files.

    f. Click **Finish** at the prompt.

8.2.2 Verifying NIC Driver Settings (including AppleTalk binding)

Next, make sure that the Network Interface Card has the correct driver settings, and verify that AppleTalk is binding to the appropriate NIC.

1. From the desktop, right-click **My Network Places**. Select **Properties.**

2. A window will open. Right-click **Local Area Connection** icon and select **Properties**. The **Local Area Connection Properties** dialog box will open.

3. Enable the **Show icon in taskbar when connected** check box.

4. Click **Configure**, and then select the **Advanced** tab.

5. Set the **Adaptive Technology** (Not applicable for Gigabit NIC) setting to **Off**.

6. Set **Speed & Duplex** to **AUTO DETECT.**

    You may also choose to match the settings to the local network switch connection type. This will allow you to achieve maximum network throughput. Click **OK** and wait for the Adapter properties to complete making changes.

7. Select (highlight) **AppleTalk Protocol**.

8. Click **Properties** to ensure a valid AppleTalk "Zone" appears in the Zone field. If the Accept inbound connections on this adapter option is available, check this check box and click **OK**.

9. Uncheck **NetBEUI Protocol** to disable this protocol if it's installed.

10. Select (highlight) the **Internet Protocol (TCP/IP)** option and select **Properties > Advanced** > **WINS**. Uncheck **Enable LMHOSTS lookup. S**elect **Enbale NetBIOS over TCP/IP** and click **OK**, **OK**.

11. Select (highlight) **File and Printer Sharing for Microsoft Networks**, and then select **Properties.**

12. Select **Maximize data throughput for network applications** option, and then click **OK**, **OK** to complete the NIC settings.

13. Close the **Network and Dial-up Connections** window.

9. TIGHTENING SECURITY

You must tighten its security against potential virus attacks by: removing if required, and running both the MS Hotfixes and the **secureiis.vbs** (if IIS is installed).

9.1 MS Hot Fixes

Creo qualifies the latest Microsoft Security Patches within 1 week of release from Microsoft and utilizes Microsoft's Software Update Services (SUS). On a daily basis at a random time customer machines will contact the Creo SUS server to download, but not install, the latest security patches.

A listing of the latest Creo qualified patches for Windows can be found:

http://techplanet.creo.com/software_solutions/networking_os/windows_support/content/docs/MSW2K_Updates_Tested_with_Prinergy.pdf

Since SUS v1.0 doesn't have the ability to force a check for updates we will run the standard Windows Update to download the latest updates.

1) Select **Start > Run** and type: **WUPDMGR.EXE**

2) Select **Scan for Updates**.

3) Select **Review and Install Updates**.

4) Look through the updates. If there are any **Service Pack** updates hit **Remove**.

5) Select **Review and Install Updates**.

6) Select **Install Now**.

7) Reboot the Server when complete.

9.2 Removing or Installing IIS

IIS is not installed in the revision J of W2K ghost images. Check the configuration sheet to see what kind of server you are integrating. Then look at the table below to decide whether you need to install or remove IIS.

Server	Follow This Procedure
Prinergy Primary server (including Prinergy Satellite server, or Prinergy Access server). Prinergy secondary server or Renderstation. BestRIP server	Do Nothing: if Revision G of ghost image is loaded. Remove IIS: if Revision F of ghost image is loaded.
InSite web server	Install IIS: Execute MS post SP4 Security patches.

9.2.1 Removing IIS (If Revision F of OS Ghost Image is loaded)

Use this procedure to remove IIS from a Prinergy server. This procedure is **not** intended for InSite web servers.

1. Make sure Prinergy is shut down on all systems.
2. Under the **Start** button, select **Settings** > **Control Panel** > **Add and Remove Programs.**
3. On the left hand side pane, select **Add/Remove Windows Components**. The Windows Components Wizard dialog box will open.
4. Scroll down to **Internet Information Services (IIS),** and **Terminal Service** then clear the checkbox next to both services. Click **Next.**
5. Reboot the server.

If you have **removed** IIS, you will not see the DCom errors that appear on a server with that has IIS **disabled**.

9.2.2 Installing IIS

IIS and SecureIIS is now installed by the InSite4 DVD install script. No action required here.

10. INSTALLING AND CONFIGURING REMOTE ACCESS AND PCANYWHERE

Creo Workflow is moving away from PcAnywhere and is using FastVNC instead. Currently only the PE400, PE700, PE2600, PE2650, PE4600 are ghosted with VNC.

10.1 Installing and Configuring RRAS

By default, for a Workgroup-based network environment, the system loaded from revision F of the ghost image already has the “Accept Incoming Connection” setup.

If you do have a domain based network environment go to section 10.1.2 Set Up Routing and Remote Access Server (For a Domain environment).

Note: Once the target System Modem Remote Access is configured and verified to be working properly, the System is ready for Prinergy Software Installation.

10.1.1 Set Up Accept Incoming Connection (Workgroup, non Domain Environment)

If in **Start > Settings > Network and Dial-up Connections**, you already have Incomming Connections, then skip this section.

1) To setup for Remote Dial-in access, select **Start > Settings > Network and Dial-up Connections**, then select **Make New Connection**. The Network Connection Wizard window appears. Click **Next.**

2) Select **Accept incoming connections** option, click **Next**. The Device Connection window appears.

3) Check **US Robotic 56K Ext PnP** (or the **MultiTech MTZBA92** modem, which ever device is listed) as the default modem connection device and click **Next**

4) Select **Do not allow Virtual Private Connections** option at the prompt and click **Next**

5) Check **Administrator & CreoService** users to be allowed to connect and click **Next**

6) Click **Next** at the Network Components list to allow all network protocols to be used for connection communication

7) Click **Finish** to the default name of **Incoming Connections** to complete the setup

8) Proceed to Section 10.2 Installing and Configuring pcAnywhere below to setup pcAnywhere if revision F of OS ghost image is loaded. If revision G of ghost image is loaded pcAnywhere is preloaded (i.e. skip installing and configuring pcAnywhere).

10.1.2 Set Up Routing and Remote Access Server (For a Domain environment)

Ensure you log into the Domain. Also ensure your Domain Account is included in the Local Administrators group.

10.1.2.1 Enabling the Remote Access Server

1) To open Routing and Remote Access, select **Start > Programs > Administrative Tools**, and then select **Routing and Remote Access**. Its MMC is displayed.

2) By default, the local computer is listed in the console tree. Right-click the server and then select **Configure and Enable Routing and Remote Access**. A wizard is displayed.

3) Click **Next**.

4) Click **Manually configured server**, and then Click **Next**.

5) Click **Finish**. The Routing and Remote Access dialog box is displayed.

6) Click OK to the Error Message “Unable to add this computer to the list of valid remote access servers in the AD” if prompted.

7) Click **Yes** to start Remote Access.

10.1.2.2 Configuring the Remote Access Port

An RAS port is a communication channel that supports a single point-to-point connection. By default Windows 2000 configures 10 ports for VPN. Disable these ports because they are unnecessary.

1) In the Routing and Remote Access MMC, right-click **Ports** and select **Properties**.

2) In the Devices window, double click on **WAN Miniport (PPTP)**. The Configure Device – WAN Miniport (PPTP) window appears.

3) Clear the following selections:

   - Remote access connection (inbound only)
   - Demand-dial routing connection (inbound and outbound)

4) Click **OK**.

5) Repeat the steps 2 – 4 on the WAN Miniport (L2TP) device.

6) Repeat the steps 2 – 4 on the Direct Parallel device. Click **OK**.

10.1.2.3 Changing the RRAS IP Address Pool Size

By default the RAS server uses DHCP to lease IP addresses in blocks of 10 and stores them in the registry. The server leases additional addresses in blocks of 10 as needed. Since we will never use 10 addresses, we will modify the behavior by editing the registry. Even though we will be disabling the DHCP relay agent in the next step, changing this behavior is still desirable even if the customer chooses to use DHCP in the end.

1) Open the Registry Editor by, from the **Start** menu, selecting **Run**. The Run window appears.

2) In the **Open** box, type `regedit` and click **OK**. The Registry Editor window appears.

3) Browse to **HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\RemoteAccess\Parameters\IP**.

4) In the **Edit** menu select **New / DWORD Value**. In the **Value Name** field, type `InitialAddressPoolSize`.

5) In the **Value** field, type `1`. In the **Radix** section, select **Decimal**. Click **OK**.

10.1.2.4 Disabling the DHCP relay agent

The Dynamic Host Configuration Protocol (DHCP) relay agent relays DHCP messages between DHCP clients and DHCP servers on different IP networks. We will be using a static pool of addresses to assign to RAS clients and will not be using this feature. If this feature is enabled, RAS will automatically lease unnecessary addresses from the DHCP server.

1) In the Routing and Remote Access MMC, expand IP routing and select **DHCP Relay Agent**.

2) In the right window, in the Interface column, Right-click **Internal** and select **Properties**. The Internal Properties window appears.

3) Uncheck **Relay DHCP packets**, and then click **OK**.

10.1.2.5 Configuring Remote Access

The default settings were chosen during setup. We must customize the configuration for our needs. Temporary IP addresses will be used for the static IP pool and will be customized on site.

1) In the Routing and Remote Access MMC, **Right-click the server name** (local) and select **Properties**. The server name (local) properties appear.

2) In the **General** tab, uncheck **Router**.

3) In the **IP** tab, **Enable** the following:

   - Enable IP forwarding
   - Allow IP-based remote access and demand dial connections

4) In the IP address assignment, select **Static address pool** and then select **Add**. The New Address Range window appears.

   - In the **Start IP address** field, type `10.1.1.1`.
   - In the **End IP address** field, type `10.1.1.2`.

   These are temporary addresses and will be changed onsite. Click **OK**.

5) In the **NetBEUI** tab (if NetBEUI is available), ensure **Allow NetBEUI** is enabled and that **The entire network** is selected.

6) In the **AppleTalk** tab, uncheck **Enable AppleTalk remote access**.

7) Click **OK** and the Routing and Remote Access dialog box appears.

8) Click **Yes** and Remote access will be stopped and restarted.

10.1.2.6 Granting Dial-in Permissions

After the Remote Access server is installed and configured, you must specify from which users the remote access server can accept a connection. To simply the configuration we will not be using Remote Access policies or granting RAS permission to domain users.

1) Right-click **My Computer** on the desktop and select **Manage**.

2) In the console tree, expand Local Users and Groups and select **Users**.

3) In the right window, Right-click the **Administrator** account and select **Properties**.

4) In the **Dial-in** tab, select **Allow access** in the **Remote Access Permissions section**.

5) Click **OK**.

6) Repeat steps 3 –5 for the **CreoService** account.

10.2 Installing and Configuring pcAnywhere

This section does not apply to the PE400, PE700, PE2600, PE2650, PE4600 Servers since they are configured with TightVNC. Skip section 10.2.

pcAnywhere is remote control software that takes control of the remote host's desktop. This is a GUI interface that lets you control the host and gives us the ability to monitor and diagnose problems as if we were on site.

There are two versions of pcAnywhere:

- Host version running on the server to be controlled
- Client version used to control the host.

pcAnywhere Host is not pre-installed in the W2K ghost image (revision F) but it's pre-loaded in revision G and later of the W2K ghost image. You must install "Host ONLY" and configure it to allow full access to all valid callers. This should not pose a security risk because the service is set to manual. There are already several layers of security that must be passed before you can start the pcAnywhere service. You must dial in using an account that has dial-in permission, be authenticated as an administrator, and start the pcAnywhere service, before connecting with pcAnywhere client.

To configure pcAnywhere:

1) Launch pcAnywhere by selecting Start > Programs > Symanatec pcAnywhere.

2) Click **Skip** at the registration screen, if it appears.

Configuring the network connection:

1) Select **Hosts** on the toolbar.

2) Right-click the icon labeled **Network, Cable, DSL** and select **Properties**.

3) On the **Connection Info** tab select **NetBIOS** and **TCP/IP**. Select **Apply** to save the changes.

4) On the **Security Options** tab, set the encryption type to **pcAnywhere** and click **Apply**.

5) Select the **Callers** tab. In the **Authentication type** box, select **pcAnywhere**. Then click the **New item** button.


The Caller Properties dialog box appears.

6) On the **Identification** tab, in the **Login Name** box, type `CreoService`.

7) In the **Password** box, type `pathfinder`.

8) In the **Confirm Password** box, type `pathfinder`.

9) On the **Privileges** tab, select **Superuser**.

10) Click **Apply**, **OK**.

11) Repeat steps 2 through 6 to add the Administrator user. (username Administrator, password: creo)

12) Click **OK** to finish configuring **Hosts** settings.

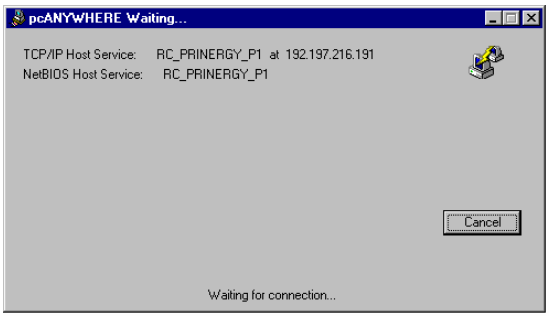
Starting the host service:

13) Double click on the **Network, Cable, DSL** icon.

14) The **pcANYWHERE** host should be on the window's taskbar.

15) Maximize the host. It should read:

```
TCP/IP Host Service: ServerName at IPAddress
NetBIOS Host Service: ServerName
```



16) Test the connection with the pcAnywhere client.

17) If you do not have the pcAnywhere client, contact the Response Center for assistance. They can test the connection for you.

18) To close the pcAnywhere status dialog, minimize it or click Cancel. Do not click the close window icon in the dialog's upper right corner or the pcAnywhere host will exit.

11. INSTALLING AIT/DLT, AND UPS SOFTWARE

11.1 Installing AIT-2/3 Tape Device Driver (if a tape device is installed)

Windows 2000 will auto-detect the connected device and prompt the user to install a device driver for it. Ensure the driver (version 1.5) included in the Resource CD is used for the appropriate installed devices (e.g. Single DLT8000, FastStor 7/22, ATL P1000, etc.). AIT based Qualstar Tape libraries and AIT-2/3 single tape drive device driver is available from the W2K Resource CD. **Do not use the W2K default tape drive device driver**.

11.2 Installing UPS software (for APC uninterrupted power supply)

1) Edit the **Boot.ini** file for UPS use:

   a) Start Explorer by selecting **Start** and then **Run**. Enter `Explorer`.

   b) Right-click **C:\Boot.ini** and select **Properties**.

c) Uncheck **Read Only** and click **OK**.

d) Double-click on **Boot.ini** to open the file in Notepad.

e) Edit the following two lines to add the text shown in **bold** below:

multi(0)disk(0)rdisk(0)partition(X)\WINNT="Creo Windows 2000 Server " **/NoSerialMice:COM2**

multi(0)disk(0)rdisk(0)partition(X)\WINNT="Creo Recovery Console"

Where (X) could be 1, 2, or 3, depending of the position of the SCSI controller.

f) Save and Close the file.

g) Right-click the **C:\Boot.ini** file and select **Properties**.

h) Select **Read Only,** and then click **OK**.

2) Install Powerchute

a) Insert the Prinergy W2K Resources CD, and double-click **H:\W2K_Util\APCBE622\pcbesetup.exe** to start the PowerChute Business Edition setup program.

b) Click **Setup / Install Product**.

c) From the Product Installation window, click **Install** for the Agent, and then click **Next**.

d) Accept the license agreement.

e) Choose **%SystemDrive%\PWRCHUTE** as the destination location for the PowerChute Agent files, and then click **Next**.

f) Click **No** when asked, "Would you like to automatically search all communications ports for an APC UPS". A dialog box will now appear which will prompt you to select the UPS type and Communication Port that the PowerChute Agent's host uses.

g) Select the following:

UPS Type:	Smart UPS
Communications Port	COM2 or USB

h) Click **Next**.

Username	administrator
Password	creo

i) Click Finish.

3) Install the Server:

a) From the Product Installation window, click Install for the Server, and then click **Next**.

b) Accept the license agreement.

c) Enter **`administrator`** for the username and **`creo`** for the password. The username and password must be the same as the Agent.

d) **Clear** the **Automatically check for product updates** check box, and then click **Next**.

e) Create your configuration profile (These are the global settings for all of your PowerChute Agents):

i) Click **Next** to the Create Configuration Profile window.

ii) Select **Broadcast Messages** check box, and then click **Next**.

iii) Select the **Entire Domain** check box, and then click **Next**.

iv) From the Power-Protection Strategy window, select the **Maximize Safety** check box, and then click **Next**.

v) Click **Next** to the prompts and **Finish** to the Changes Complete window.

f) From the Device List Configuration window, select the Agent (Should be the Server Name) under **Discovered Devices:** and click **Add**, and then click **Apply**. Click **Close**.

g) Click **Register Later**.

4) Install the Console:

a) From the Product Installation window, click **Install** for the Console, and then click **Next**.

b) Accept the license agreement.

c) Select **Launch PowerChute Business Edition**, and then click **Finish**.

d) Click **No** to the Most Used Features feedback window.

e) Enter the following at the Login window:

User Name	administrator
Password	creo
Server	127.0.0.1 (this is the local server in the routing table)

5) Reboot the Server.

12. INSTALLING WINDOWS 2000 SERVICE PACK 4, AND MS HOTFIXES

By default, the system loaded off the revision J and later of the ghost image already has W2K SP4, IE6 plus all post SP4 patches and security hot fixes applied. Skip this section.

1) Select **Start** > **Run** and type **WinVer.exe** to verify what service pack you are running.

12.1 Installing Post SP4 Security Hotfixes/Patches

You must install all the post SP4 MS HotFixes.

1) Select Start > Run and type: WUPDMGR.EXE

2) Select **Scan for Updates**.

3) Select **Review and Install Updates**.

4) Look through the updates. If there are any **Service Pack** updates hit **Remove**.

5) Select **Review and Install Updates**.

6) Select **Install Now**.

7) Reboot the Server when complete.

13. PERFORMING A WINDOWS 2000 SPOT CHECK

Once you have installed Windows 2000, perform a spot check on each machine to ensure that the operating system has been installed correctly.

To perform a spot check on the Windows installation:

1. Using Windows 2000 Event Viewer, check for any errors.
2. Check connectivity:
   a) Ensure that the network drop is live and connected to the appropriate hub/switch.
   b) Try browsing the network.
   c) Ping another server to ensure TCP/IP works.
   d) Map a drive to another system and copy a file.

   CAUTION: Do not use a Prinergy server as a primary domain controller (PDC) or backup domain controller (BDC). Prinergy servers should be dedicated to Prinergy. Like DNS, PDCs and other network services should have a dedicated server. These services don't require large resources and placing them on a Prinergy server (typically a powerful machine) is an unnecessary use of resources and negatively affects Prinergy's performance.
3. Defragment the system Disk before installing Creo Prinergy software.

14. SYSTEM DISASTER RECOVERY

Prinergy's backup solutions include a system disaster recovery strategy, which employs GHOST (General Hardware Operation System Transfer) as the server baseline W2K Operating System recovery tool. This utility allows users to recover their entire system (to the last known good system settings) within two hours (or less depending on the amount of data to be restored from the tape device) in case of a system disaster crash.

There is a two-step process taken when a disaster occurs:

1. The system is first booted from a XP/DOS floppy with appropriate CD-ROM device driver. Then execute the GHOST utility program included on a CD (or the RECOVERY partition) to download the appropriate baseline W2K OS image (i.e. Windows 2000 pre-configured to be Prinergy ready) to the first drive in the system. Reboot and the system should have the baseline Windows 2000 running.

2. Once Windows 2000 is booted up, configure the W2K backup utility to restore the entire Prinergy system off the backup tape(s) to its original configurations.

   See Prinergy 2.x Backup Guide (03-4171B) for Prinergy system recovery procedures.

14.1 Setting up for System Disaster Recovery

This section summarizes steps to prepare the system to be fully protected by the Prinergy backup strategy.

1. Configure the server hardware and Setup Windows 2000 according to the appropriate documents (Document numbers 72-3572A Dell server setup for W2K, 72-3573A EMC/DG Server setup for W2K and this document).

2. Boot the system into XP/DOS prompt from the bootable floppy with the appropriate device driver, and then create the System Baseline W2K OS image using the GHOST utility.

3. Install Prinergy software and verify that the system is functioning properly. (Refer to the Prinergy Installation document)

4. On the Prinergy Primary server, configure Prinergy OracleBackupManager to save database dump files to the local disk. (For details, refer to the Prinergy 2.x Backup Guide, P/N: 03-4171B).

5. Configure Windows 2000 Backup Utility to back up the database dump files, system drive with System State Data and Data drives if desired to tape(s).

6. Perform System Backup tests as outlined in the Prinergy 2.x Backup Guide (03-4171B).

15. RECOVERY FROM A SYSTEM FAULT-TOLERANT DRIVE

Please refer to *Dell Hardware Setup For Prinergy 2.x (72-3572A)* for information about how to break and recover the system mirror set. You will use the **Dell OpenManage Array Manager** Console that manages the Dell hardware based **CERC, PERC 2/Si, 3/Di, 2/DC, 3/DC and 4/Di Raid controller**. This section is for Non Dell (ie. EMC/DG Servers that are software RAID only)

15.1 Creating W2K Fault-Tolerant Volumes (DG/EMC Servers only)

15.1.1 Fault-Tolerant Volumes Overview

Windows 2000 fault-tolerant volumes are those disk sets created by W2K software feature to protect system from disk failure(s) and to allow user to recover failed disk(s) without lengthy system down time.

The types of fault-tolerant volumes are those created as Mirrored set (Raid 1, data are duplicated on the 2nd disk of a 2-disk set), and Raid-5 set (Data and parity striped intermittently across three or more physical disks).

Note: There are also other types of disk sets but these are considered to be non fault-tolerant. They are Volume set (data being written across multiple physical disks one after another is full), and Striped set (Raid 0, data written on this volume are spanned across multiple disks at the same time). To create these two non fault-tolerant disk sets, the disks must be first converted to Dynamic disk type.

The EMC/DG AV3700 servers were usually configured with an extra disk to allow setting up a System mirrored disk set utilizing Windows 2000's Dynamic disk feature. The problem with converting the disk(s) into Dynamic disk type is that one MUST be using version 7.0 (or higher) of the Ghost Utility to create proper multi-partitions based system images of the Dynamic disk type system disk where the user can use to restore the system disk when a disaster occurs.

Procedure on how to create and recover fault-tolerant disk sets are provided below:

15.1.2 How to Create a System Mirrored Disk Set

1. Right-click **My Computer** and select **Manage** to bring up the Computer Management Console.
2. Expand the Storage component under the Computer Management (Local) tree and select **Disk Management**. The Disk Management view appears on the right-hand window of the Microsoft Management Console (MMC).
3. If the Write Signature and Upgrade Disk Wizard dialog box, select **Cancel**.

   WARNING: If you accept this prompt by selecting Next, W2K will convert all un-partitioned disk(s) to the new Dynamic disk type, which should be set for external Raid Disk sets ONLY. Note that DOS will NOT recognize the Dynamic disk type.

4. If a small red **STOP** sign appears on the new/blank disk(s), then Right-click the sign and select the **Write Signature** option to put W2K disk signature onto these disks before volume(s) can be created on them.

5. Right-click the drive icon (i.e. Disk number) of Disk0 (system disk) and select **Upgrade to Dynamic Disk…** and the wizard dialogue window appears. Check Disk0 & 1 and click **Next** to convert the Disk0 and 1 to **Dynamic Disk** type. (If the disk is already of a Dynamic type, skip this step.)

6. Right-click C: partition and select **Add Mirror…** option and the window showing disk available for adding to mirror appears, make sure Disk1 is selected (checked or high-lighted) and click **Add Mirror**.

7. Repeat the step above to Add mirror to D: partition, or E: partition if present. The system will prompt to modify the BOOT.INI file so that the system can be booted off the mirror disk when needed. We'll now safely perform this step while waiting for the mirror set to complete synchronizing its data before rebooting the system.

8. Startup Explorer, Select C: drive, select **Tools > Folder options…**.

9. Select the **View** tab, uncheck the **Hide protected operating system files (Recommended)** option and click **OK** to turn on displaying of system/hidden files.

10. Right-click the BOOT.INI file and select **Properties** to open the File Properties window, and then uncheck the "Read ONLY" and/or Hidden attribute(s) to allow edit/changes made to this file.

11. Open the BOOT.INI in the NOTEPAD.EXE window, add a 2nd line entry (for a total of two lines) as seen in sample below:

```
multi(0)disk(0)rdisk(0)partition(2)\WINNT="Creo Windows 2000"
/fastdetect /NoSerialMice:COM2

multi(0)disk(0)rdisk(1)partition(2)\WINNT="Creo Windows 2000
Mirrored" /fastdetect /NoSerialMice:COM2
```

12. Exit and saved changes to the file, then reverse the two attribute settings above.

13. Exit Disk Management and MMC when the disk data synchronization is completed.

15.1.3 How to Recover a W2K System Mirrored Set

When the system mirrored set is created with W2K fault-tolerant volume feature, the breaking of the mirror set before perform a software upgrade is different than that of the Dell hardware based PERC Raid controller. This section outlines steps one must do to achieve a successful breaking a system mirrored disk set.

15.1.3.1 How to Break a Mirrored Set before a Software Upgrade

1. Shut down Prinergy and Windows 2000 (the power will be turned off automatically after W2K is successfully shutdown).

2. Open the server front bezel to expose the hot-swappable drive cage. Gently pull the second drive (SCSI ID =1, second from the top slot) out so that it is not connected to the drive cage's backplane.

3. Turn the server power on and allow the system to boot into W2K as normal. You should be ready to perform the software upgrade planned.

15.1.3.2 How to Restore a Mirrored Set after a Software Upgrade

1. Shut down Prinergy and Windows 2000 (the power will be turned off automatically after W2K is successfully shutdown).

2. Open the server front bezel to expose the hot-swappable drive cage. Gently push the second drive (SCSI ID =1, second from the top slot) in so that it is making good connection to the drive cage's backplane.

3. Turn the server power on and allow the system to boot into W2K as normal.

4. Right-click My Computer and select Manage to bring up the Computer Management Console.

5. Expand the Storage component under the Computer Management (Local) tree and select **Disk Management**. The Disk Management view appears on the right-hand window of the Microsoft Management Console (MMC). You should note that drive C:, D:, and E: (if present) are shown as having status of "Failed Redundancy".

6. Right-click Disk1 icon (left most) and select **Reactivate Disk** to start mirror set data synchronization. The user can perform other tasks while mirrored disk data synchronization is in progress. Note that system performance during this time may be affected.

15.1.3.3 How to Restore a Mirrored Set after a Defective Disk is replaced

1. The missing member (defective disk) should first be removed under Windows 2000 while it is still running by right-clicking **My Computer** and select **Manage** to bring up the Computer Management Console.

2. Expand the Storage component under the Computer Management (Local) tree and select **Disk Management**. The Disk Management view appears on the right-hand window of the Microsoft Management Console (MMC). You should note that drive C: and D: are shown as having status of "Failed Redundancy".

3. Right-click partitions C: of the good active member of the broken mirrored set and select **Remove Mirror…** option, select the "**Missing**" member (determined by identifying the Disk0 or 1 being missing in a small pop-up window) and click **OK** to confirm disk remove.

4. Repeat the above step for D: partition, and E: partition (if present).

5. Right-click the Missing Disk icon and select **Remove Disk** to remove the defective disk icon off the Disk Management console window.

6. Shut down Prinergy and Windows 2000 (the power will be turned off automatically after W2K is successfully shutdown).

7. Open the server front bezel to expose the hot-swappable drive cage. Gently pull the defective disk (if mirrored disk is the defective unit, it's second from the top slot. If the master disk is the defective unit, it's the top slot) out of the drive cage.

8. If the master disk (top slot is removed), then move the slave (mirrored) disk to the top slot to become the new master disk. Slide the new disk into the second slot to become the new slave disk.

9. Turn the server power on and allow the system to boot into W2K as normal.

10. Re-establish the system mirrored set using the procedure described in *Section 15.1.2 How to Create a System Mirrored Disk Set* above.

15.1.4 How to Create a W2K Striped Set (Servers Without Raid Controller)

Note: A Logical Stripe Set of plain physical disks is a volume without redundancy. If one disk fails, then the entire volume will be unrecoverable. We highly recommend that you perform periodic data backups.

1. Right-click **My Computer** and select **Manage** to bring up the Computer Management Console.

2. Expand the Storage component under the Computer Management (Local) tree and select **Disk Management**. The Disk Management view appears on the right-hand window of the Microsoft Management Console (MMC).

3. If the Write Signature and Upgrade Disk Wizard dialog box, select **Cancel**. Your initial drive layout should now look like this:

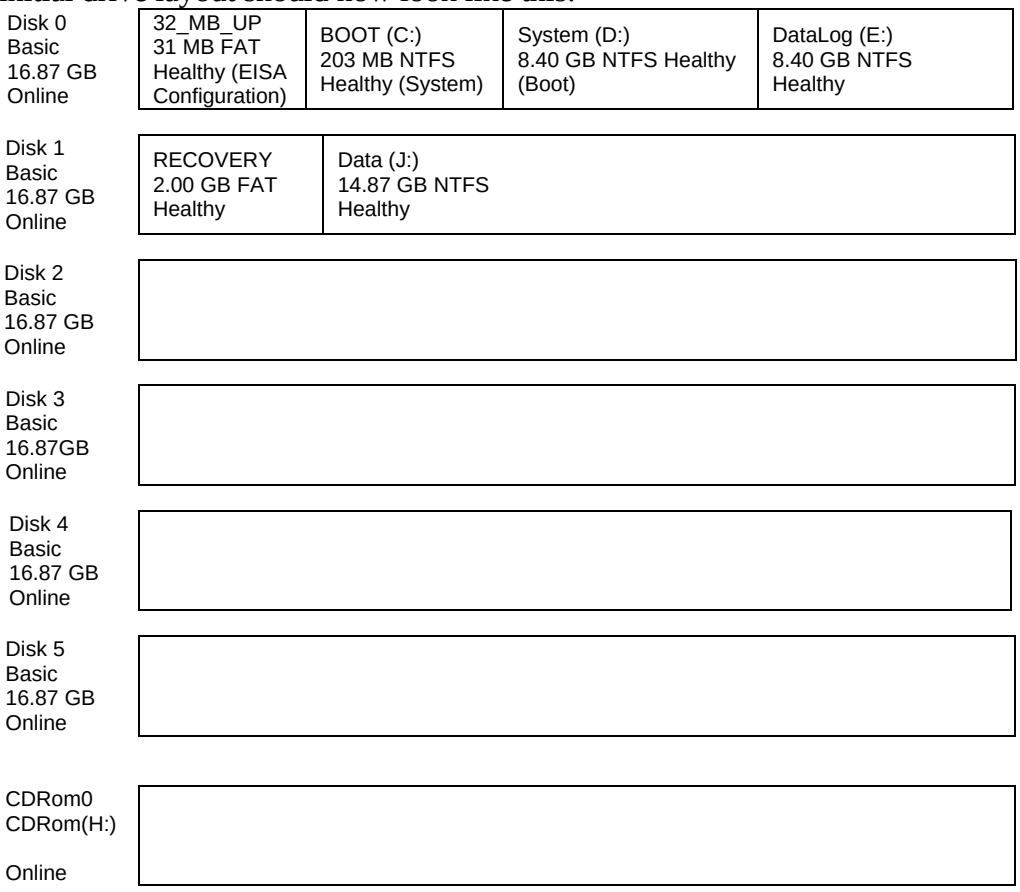


Figure 16-1: Pre-stripe disk layout (with 18GB disks)

4. If a small red **STOP** sign appears on the new/blank disk(s), then Right-click the sign and select **Write Signature** option to put W2K disk signature onto these disks before volume(s) can be created.

5. Verify that Disk2, 3, 4 and 5 are blank/un-partitioned. If there is any partition shown on these three disks, delete the partition(s) by Right-clicking on the disk(s) and selecting **Delete Volume**.

6. Right-click the drive icon (that is, Disk number) of the un-partitioned Disk2 and select **Upgrade to Dynamic Disk…** and the wizard dialogue window appears. Check Disk 2, 3, 4 and 5 and click **Next** to convert the disks to **Dynamic Disk** type.

7. Right-click Disk2 and select **Create Volume…** option and the wizard appears, click **Next**.

8. Select **Striped volume** in the Volume type window and click **Next**, select Disk 3, 4 and 5 (from the All available dynamic disks window on the left) and click **Add>>** and click **Next**, then assign **Drive letter = G:**

9. Set File System to use = NTFS, Allocation unit = Default, Volume label = RAID0, check Perform a Quick Format, click **Next**, **Finish** to complete creating a striped-set.

Your final drive layout should now look like this:

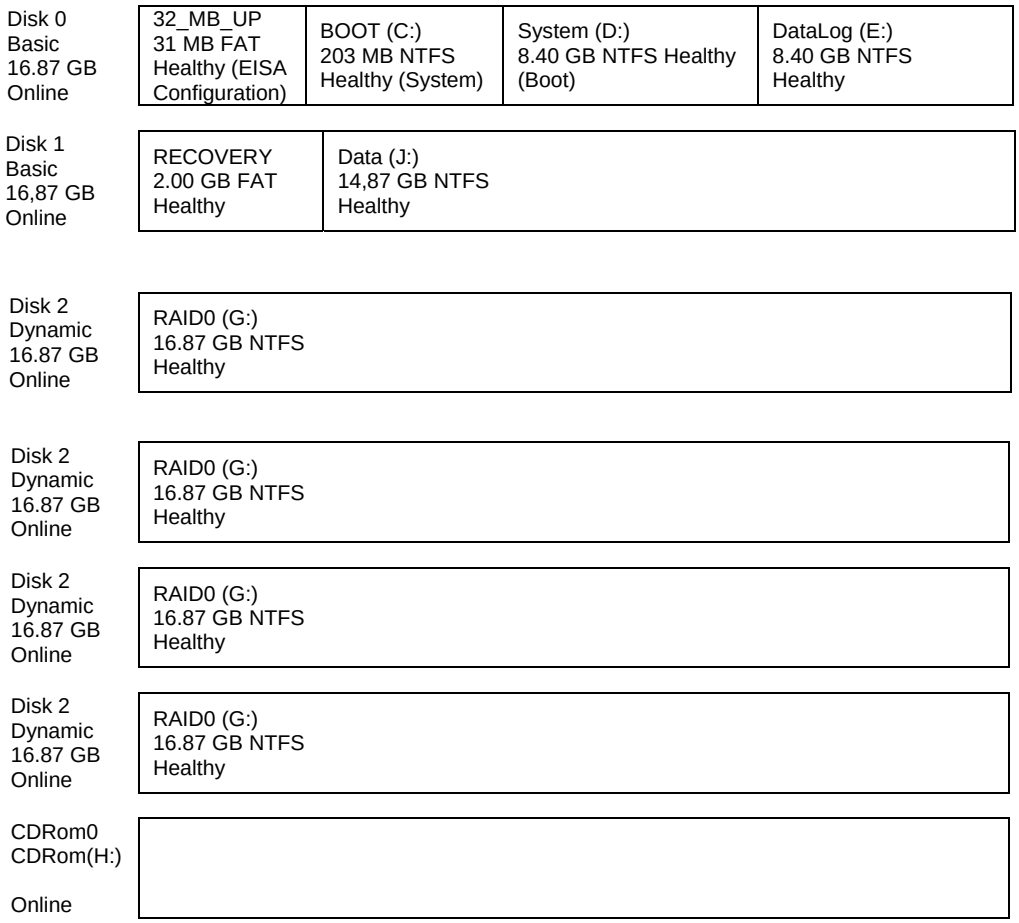


Figure 16-2: Post-stripe disk layout (with 18GB disks)

10. Exit Disk Management and MMC if no additional disks have to be configured.

15.1.5 How to Recover a W2K Striped Set

As mentioned above, a striped set is a non fault-tolerant volume set for obtaining maximum disk performance reason. If any of the disk member(s) failed, the entire volume is lost, so the ONLY method of protecting data on such a volume is backing up to tape device regularly.

To recovery a striped set, follow the steps outlined below:

1. Identify the defective disk(s), proceed to delete the striped volume using Disk Management console, then shutdown the system.
2. Replace the defective disk, then power up the system and boot into W2K.
3. Re-create the striped set using the procedure described above in section *15.1.4 How to Create a W2K Striped Set (Servers Without Raid Controller).*