Technical Note



Refreshing or Replacing the NV9000's Principal HDD

Introduction

An NV9000 has two disk drives, both HDDs. The *principal* drive is in the upper bay (at the front of the unit) and the *logging* or backup drive is in the lower bay.

Refresh

The refresh procedure reconditions the principal HDD in an NV9000 FR0040-10 frame.

Follow this procedure if you *can* access the data on the HDD: the HDD is recognized in the disk manager, there is a drive letter associated with it, and you can read any data from the drive. However, this controller will not boot completely or it boots with errors.

Replace

The replacement procedure replaces the principal HDD in an NV9000 FR0040-10 frame.

Follow this procedire if you *cannot* access the data on the HDD for any reason, or it is not recognized in disk manager, or there is no drive letter associated with it, and you cannot read any data from the drive.

Refresh Procedure

Follow these steps to refresh the HDD:

1 Start (or restart) the controller, holding the 'Del' key during the initial boot to access the 'CMOS Setup' page:

Phoenix – Award BIOS	CMOS Setup Utility
► Standard CMOS Features	Frequency/Voltage Control
Advanced BIOS Features	Load Fail-Safe Defaults
Advanced Chipset Features	Load Optimized Defaults
Integrated Peripherals	Set Supervisor Password
► Power Management Setup	Set User Password
PnP/PCI Configurations	Save and Exit Setup
► PC Health Status	Exit without Saving
Esc : Quit F1Ø : Save and Exit Setup	$\uparrow \downarrow \rightarrow \leftarrow$: Select Item
Virus Protecti	ion, Boot Sequence

Use the arrow keys to choose 'Advanced BIOS Freatures', then press 'Enter'. Then choose 'Hard Disk Boot Prioriity' and press 'Enter':



Follow the instructions to change the boot priority so that the logging HDD is first in the priority list. That would be "Ch3" if you are in doubt:

Phoenix - Award BIOS CMOS Setup Utility Hard Disk Boot Priority				
1. Ch3 M. : SST325Ø31ØNS 2. Ch2 M. : SST325Ø31ØNS	Item Help			
3. Bootable Add-in Cards	Menu Level Use <1> or <1> to select a device , then press <+> to move it up or <-> to move it down the list. Press <esc> to exit this menu.</esc>			
↑↓:Move PU/PD/+/-/:Change Priority F5: Preview Values - F6: Fail-Safe Defaults	F10:Save Esc:Exit			

Save the change and exit. The controller will now boot from the logging HDD. When Windows' startup completes, login is automatic. No password is required. You will see the *DriveImager* icon on the desk-top.

The logging HDD is drive #1. The principal HDD is drive #0.

- 2 Run diskpart from the command prompt window.
- 3 Enter List disk at the prompt.
- 4 Enter Select disk Ø at the next prompt.
- 5 Enter Clean at the next prompt. (This cleans the principal HDD.)
- 6 When the cleaning has finished, another prompt will appear. Close the command prompt window.

7 Double-click the 'Disk Management' icon on the desktop. The Disk Manager opens and the Initialization wizard appears:



Click 'Next' repeatly to execute the tasks of the wizard, until the wizard finishes and its window disappears.

8 In the Disk Manager, right-click the disk 0 region and choose 'New Partition...':

🐺 Disk Manaç	jement					_1	
File Action	View Help						
$\leftarrow \rightarrow \mid \blacksquare$	😫 🖸 📽 😼						
Volume	Layout	Туре	File System	Status	Capacity	Free Space	% Fr
🗐 (C:)	Partition	Basic	NTFS	Healthy (S	10.00 GB	9.23 GB	92 %
🗐 (D:)	Partition	Basic	FAT	Healthy	980 MB	457 MB	46 %
🗐 (E:)	Partition	Basic	NTFS	Healthy	40.00 GB	38.90 GB	97 %
Disk 0 Basic 232.88 GB Online	232.88 GB Unallocated		New Partition				
Disk 1 Basic 232,88 GB Online	(C:) 10.00 GB NTFS Healthy (System)		Help TO.OO GD TWTT D Healthy		32.88 GB nallocated		
Unallocated	Primary partition						
				100			

9 A 'New Partition' wizard appears. Click 'Next' to proceed:



10 A 'Partition Type' window appears:

New Partition Wizard	×
Select Partition Type There are three types of partitions: primary,	extended, and logical.
Select the partition you want to create:	
Primary partition	
C Extended partition	
C Logical drive	
C Description	
A primary partition is a volume you creat Windows and other operating systems c create up to four primary partitions or thre partition.	e using free space on a basic disk. an start from a primary partition. You can se primary partitions and an extended
	< Back Next > Cancel

Be sure that 'Primary partition' is selected and click 'Next'.

11 A 'Partition Size' window appears:

8473
240

Enter '10240' in the entry box. (That is 10 GB.) Click 'Next'.

12 A 'Drive Letter' window appears:

Partition Wizard		
Assign Drive Letter or Path For easier access, you can assign a drive lette	er or drive path to your partition.	
 Assign the following drive letter: Mount in the following empty NTFS folder: Do not assign a drive letter or drive path 	F 💽	

You need do nothing here, but remember the drive letter. Click 'Next'.

13 A 'Format Partition' window appears:

New Partition Wizard	×
Format Partition To store data on this partition, yo	ru must format it first.
Choose whether you want to form	nat this partition, and if so, what settings you want to use.
C Do not format this partition	1
 Format this partition with the second second	ne following settings:
File system:	NTFS
Allocation unit size:	Default
Volume label:	
🔽 Perform a quick form	nat
🔲 Enable file and folde	er compression
	< Back Next > Cancel

Choose .'Format the partition ...' and ensure that the partition parameters are as shown (NTFS, default). Make sure the 'Volume label' field is blank.

Check 'Perform a quick format'.

(Uncheck 'Enable file and folder compression if you have accidentally checked it.)

Then click 'Next'.

14 A completion window appears:

New Partition Wizard	X
	Completing the New Partition Wizard You have successfully completed the New Partition Wizard.
	You selected the following settings:
	Partition type: Primary partition Disk selected: Disk 0 Partition size: 10240 MB Drive letter or path: F: File system: NTFS Allocation unit size: Default Volume label: Duick format: Yes To close this wizard, click Finish.
	< Back Finish Cancel

Click 'Finish'.

File Action	View Help						
← → Ⅲ	12 12 12						
Volume	Layout	Туре	File System	Status	Capacity	Free Space	% F
) (C:)	Partition	Basic	NTES	Healthy (S	10.00 GB	9.23 GB	92 9
🗩 (D:)	Partition	Basic	FAT	Healthy	980 MB	457 MB	46 9
🗩 (E:)	Partition	Basic	NTES	Healthy	40.00 GB	38.90 GB	97 9
🗩 (F:)	Partition	Basic	NTES	Healthy	10.00 GB	9.94 GB	99 %
Disk 0 Basic 232.88 GB	(F:) 10.00 GB NTFS		22	2.89 GB			,
Disk 0 Basic 232.88 GB Online	(F:) 10.00 GB NTFS Healthy		22 Ur	2.89 GB allocated			•
Disk 0 Basic 232.88 GB Online Disk 1 Basic 232.88 GB Online	(F:) 10.00 GB NTFS Healthy (C:) 10.00 GB NTFS Healthy (System)		(E:) 40.00 GB NTFS Healthy	2.89 GB allocated	2.88 GB nallocated		
	(F:) 10.00 GB NTFS Healthy (C:) 10.00 GB NTFS Healthy (System) Primary partition		(E:) 40.00 GB NTFS Healthy	2.89 GB allocated	82.88 GB nallocated		

15 After it finishes, the wizard disappears from the screen, returning you to the disk manager:

Click 'Finish'.

16 The last step in the disk manager is to mark the new partition active:

🐺 Disk Manag	jement						
File Action	View Help						
$\leftarrow \rightarrow $.	😫 🕼 🗙 📽 🖨	: 🔍 😹					
Volume	Layout	Туре	File System	Status	Capacity	Free Space	% Fr
🗐 (C:)	Partition	Basic	NTFS	Healthy (S	10.00 GB	9.23 GB	92 %
🗐 (D:)	Partition	Basic	FAT	Healthy	980 MB	457 MB	46 %
🗐 (E:)	Partition	Basic	NTFS	Healthy	40.00 GB	38.90 GB	97 %
🖃 (F:)	Partition	Basic	NTFS	Healthy (A	10.00 GB	9.94 GB	99 %
CPDisk 0 Basic 232.88 GB Online	(F:) 10.00 GB NTF5 Healthy (Active)	Op Ext	en blore				
Disk 1	(5)	Mai	rk Partition as Activ	/e			
232.88 GB	(C:) 10.00 GB NTES	Cha	ange Drive Letter a	ind Paths	82.88 GB		
Online	Healthy (System)	For	mat		Inallocated		-
Unallocated	Primary partition	Del	ete Partition				
		Pro	perties				
		Hel	p				

Right click the new partition region, recalling the drive letter from step 12. Choose 'Mark Partition Active' from the context menu. In a moment, the partition region will read "active."

17 Close the disk mamager.

18 Copy the backup .zip file from the system backup folder on the E:\ drive to the new partition:



The .zip file is either the "birthday" image, the most recent backup image you have created, or the image issued by your support contact. If there is more than one .zip, choose the one with the latest date.

- 19 In the new partition, unzip the backup image. When the unzip finishes, delete the .zip file.
- 20 Restart the controller, change the boot priority so that the principal HDD is first in the list (as described in step 1). Allow Windows to restart (from the principal HDD) and login.

Replacement Procedure

Follow these steps to replace the HDD:

- 1 If the NV9000 is running, power down and disconnect the controller from power. Wait 30 seconds.
- 2 Remove and replace the HDD in the top drive tray.

Use the same tray because it has the existing Windows XP Embedded license sticker. The HDD attaches with 3 screws through the bottom of the tray:



- 3 Plug in the power cords. Restart the controller. Because the HDD is still uninitialized, the controller will automatically boot from the backup HDD in the lower drive bay.
- 4 Initialize HDD with the disk manager. Because the HDD is still uninitialized, the disk manager will start the initialization automatically:



Click 'Next' and proceed through the pages, using default settings.

	jement					_	
File Action	View Help						
← → Ⅲ	😫 🖸 🗳 😼						
Volume	Layout	Туре	File System	Status	Capacity	Free Space	% F
🗩 (C:)	Partition	Basic	NTFS	Healthy (S	10.00 GB	9.23 GB	92 °
🗩 (D:)	Partition	Basic	FAT	Healthy	980 MB	457 MB	46 %
🗩 (E:)	Partition	Basic	NTFS	Healthy	40.00 GB	38.90 GB	97 9
•					1		•
Disk 0 Basic							•
Disk 0 Basic 232.88 GB Online	232.88 GB Unallocated		New Partition				
Disk 0 Basic 232.88 GB Online Disk 1 Basic 232.88 GB Oslina	232.88 GB Unallocated		Vew Partition Properties Help		32,88 GB		
Disk 0 Basic 232.88 GB Online Disk 1 Basic 232.88 GB Online	232.88 GB Unallocated (C:) 10.00 GB NTFS Healthy (System)		Vew Partition Properties Help Healthy		B2.88 GB nallocated		
	232.88 GB Unallocated (C:) 10.00 GB NTF5 Healthy (System) Primary partition		Vew Partition Properties Help Healthy		B2.88 GB nallocated		

5 In the Disk Manager, right-click the disk 0 region and choose 'New Partition...':

6 A 'New Partition' wizard appears. Click 'Next' to proceed:



7 A 'Partition Type' window appears:

Partition Wizard	
Select Partition Type There are three types of partitions: prim	ary, extended, and logical.
Select the partition you want to create:	
Primary partition	
C Extended partition	
C Logical drive	
Description	
A primary partition is a volume you c Windows and other operating syster create up to four primary partitions o partition.	reate using free space on a basic disk. ns can start from a primary partition. You can r three primary partitions and an extended
	<pre>< Back Next > Cancel</pre>

Be sure that 'Primary partition' is selected and click 'Next'.

8 A 'Partition Size' window appears:

Specify Partition Size Choose a partition size that is between th	e maximum and minimum sizes.
Maxium disk space in megabytes (MB): Minimum disk space in MB:	238473 8
Partition size in MB:	10240
	< Back Next > Cancel

Enter '10240' in the entry box. (That is 10 GB.) Click 'Next'.

9 A 'Drive Letter' window appears:

Assig	n the following drive letter:		F	
C Mour	it in the following empty N	TFS folder:	- 1	
L			Browse	
O Do no	ot assign a drive letter or d	rive path		

You need do nothing here, but remember the drive letter. Click 'Next'.

10 A 'Format Partition' window appears:

w Partition Wizard		
Format Partition To store data on this partition, yo	nu must format it first.	
Choose whether you want to form	nat this partition, and if so, what settings you want to	use.
C Do not format this partition	1	
 Format this partition with the second second	he following settings:	
File system:	NTFS	
Allocation unit size:	Default	
Volume label:		
Perform a quick form	nat	
🔲 Enable file and folde	er compression	
	< Back Next> La	incel

Choose .'Format the partition ...' and ensure that the partition parameters are as shown (NTFS, default). Make sure the 'Volume label' field is blank.

Check 'Perform a quick format'.

(Uncheck 'Enable file and folder compression if you have accidentally checked it.) Then click 'Next'.

11 A completion window appears:

New Partition Wizard		×
	Completing the New Partition Wizard You have successfully completed the New Partition Wizard.	
	You selected the following settings: Partition type: Primary partition Disk selected: Disk 0 Partition size: 10240 MB Drive letter or path: F: File system: NTFS Allocation unit size: Default Volume label: Duick format: Yes To close this wizard, click Finish.	
	< Back Finish Cancel	

Click 'Finish'.

12 After it finishes, the wizard disappears from the screen, returning you to the disk manager:

🚟 Disk Manage	ement					_	
File Action	View Help						
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Volume	Layout	Туре	File System	Status	Capacity	Free Space	% Fr
🗐 (C:)	Partition	Basic	NTFS	Healthy (S.,	. 10.00 GB	9.23 GB	92 %
💷 (D:)	Partition	Basic	FAT	Healthy	980 MB	457 MB	46 %
🗐 (E:)	Partition	Basic	NTFS	Healthy	40.00 GB	38.90 GB	97 %
🗐 (F:)	Partition	Basic	NTFS	Healthy	10.00 GB	9.94 GB	99 %
Disk 0 Basic 232.88 GB Online	(F:) 10.00 GB NTFS Healthy		22 Ur	2.89 GB hallocated			
Disk 1 Basic 232.88 GB Online	(C:) 10.00 GB NTFS Healthy (System)		(E:) 40.00 GB NTF5 Healthy		182.88 GB Unallocated		
Unallocated	Primary partition						

Click 'Finish'.

🖥 Disk Mana	gement					_	니스
File Action	View Help						
← → •	😫 🗹 🗙 📽 🖻	i 🔍 😼					
Volume	Layout	Туре	File System	Status	Capacity	Free Space	% F
∋ (C:)	Partition	Basic	NTFS	Healthy (S	10.00 GB	9.23 GB	92 ^o
🗩 (D:)	Partition	Basic	FAT	Healthy	980 MB	457 MB	46 9
🗩 (E:)	Partition	Basic	NTFS	Healthy	40.00 GB	38.90 GB	97 ⁽
🗩 (F:)	Partition	Basic	NTES	Healthy (A	10.00 GB	9.94 GB	99 °
Basic 232.88 GB Online	(F:) 10.00 GB NTFS Healthy (Active)	Ope Ext	en olore				
Disk 1							
Basic 232,88 GB Online	(C:) 10.00 GB NTFS Healthy (System)	Mai Cha For	'k Partition as Activ ange Drive Letter a mat	nd Paths	32.88 GB nallocated		
Basic 232.88 GB Online Unallocated	(C:) 10.00 GB NTFS Healthy (System)	Cha For Del	rk Partition as Activ ange Drive Letter a mat ete Partition	nd Paths	32.88 GB nallocated		
Basic 232.88 GB Online Unallocated	(C:) 10.00 GB NTFS Healthy (System) Primary partition	E Mai Chi For Deli Pro	& Partition as Activ ange Drive Letter a mat ete Partition perties	nd Paths	32.88 GB nallocated		

13 The last step in the disk manager is to mark the new partition active:

Right click the new partition region, recalling the drive letter from step 12. Choose 'Mark Partition Active' from the context menu. In a moment, the partition region will read "active."

- 14 Close the disk mamager.
- 15 Copy the backup .zip file from the system backup folder on the E:\ drive to the new partition:

😂 SYSTEM BACKUP						
File Edit View Favorites Tools Help						
🕞 Back 🝷 🕥 🚽 🏂 🔎	Search 🎼 Folders 🛛 🎹 🕶					
Address 🛅 E:\SYSTEM BACKUP			💌 🄁 Go			
	▲ Name ▲	Size Type	Date Modified			
File and Folder Tasks *	Secondary_birthday_V6.0.17.zip	481,533 KB ZIP File	6/9/2011 1:26 PM			
💋 Make a new folder						
Publish this folder to the Web						
😂 Share this folder						
Other Blaces						
other Places A						
🥪 Local Disk (E:)						
📋 My Documents						
🛅 Shared Documents						
🚽 My Computer	•					

The .zip file is either the "birthday" image, the most recent backup image you have created, or the image issued by your support contact. If there is more than one .zip, choose the one with the latest date.

- 16 In the new partition, unzip the backup image. When the unzip finishes, delete the .zip file.
- 17 Restart the controller, change the boot priority so that the principal HDD is first in the list (as described in step 1). Allow Windows to restart (from the principal HDD) and login.