



**Hitachi Freedom Storage™  
Thunder 9200™  
Windows® NT® Host Installation Guide  
(SCSI)**



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## Document Revision Level

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MK-91DF548-0	July 2001	Initial Release.

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The following source document was used to produce this Thunder 9200 host installation guide:  
*Hitachi Disk Array Subsystem Installation Manual (SCSI)*, revision 2.

# Preface

The *Hitachi Freedom Storage™ Thunder 9200™ Windows® NT® Host Installation Guide* describes and provides instructions for configuring the devices on the Hitachi Freedom Storage 9200 array subsystem for operation with the Microsoft® Windows NT® 4.0 operating system (OS). This configuration guide assumes that:

- the user has a background in data processing and understands direct-access storage device (DASD) subsystems and their basic functions,
- the user is familiar with the Hitachi Freedom Storage 9200 array subsystems, and
- the user is familiar with the Microsoft® Windows NT® Server 4.0 and/or Windows NT® Workstation 4.0 operating systems, the NT server/workstation computer, and the SCSI adapters.

**Note:** The term “9200” refers to the entire Hitachi Freedom Storage™ Thunder 9200™ subsystem family, unless otherwise noted.

For further information on the Thunder 9200 array subsystem, please refer to the *Hitachi Freedom Storage™ 9200™ User and Reference Guide* (MK-90DF504), or contact your Hitachi Data Systems account team. The Hitachi Data Systems worldwide web site (<http://www.hds.com>) also provides information on the Hitachi Freedom Storage™ Thunder 9200™ subsystem and its features and options.

For further information on Windows NT® 4.0, please consult the Windows NT® 4.0 online help and/or user documentation, or contact Microsoft® technical support.

## COMMENTS

Please send us your comments on this document: [doc.comments@hds.com](mailto:doc.comments@hds.com).

**Make sure to include the document title, number, and revision.**

**Please refer to specific page(s) and paragraph(s) whenever possible.**

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**Thank you!**



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# Chapter 1 Overview of Thunder 9200™ Windows NT® Configuration

## 1.1 Windows NT® Configuration

This document describes the requirements and procedures for connecting the 9200 subsystem to an NT® server and configuring the new 9200 devices for operation with the Windows NT® server operating system. The Hitachi Data Systems representative performs the physical installation of the 9200 subsystem. The user prepares for 9200 subsystem installation, and then configures the new 9200 devices with assistance as needed from the Hitachi Data Systems representative.

Configuration of the 9200 disk devices for Windows NT® operations includes:

- Setting LUs and file sizes (see Chapter 2),
- Installing the 9200 subsystem (see Chapter 3),
- Creating and formatting partitions (see Chapter 3), and
- Verifying file system operations (see Chapter 3).

## 1.2 Hitachi Thunder 9200™ Array Subsystem

The Hitachi Freedom Storage™ Thunder 9200™ RAID subsystem supports concurrent attachment to multiple UNIX®-based and PC-server platforms. Please contact your Hitachi Data Systems account team for the latest information on platform support. The 9200 subsystem provides continuous data availability, high-speed response, scaleable connectivity, and expandable capacity for PC server and open-system storage. The 9200 subsystem can operate with multihost applications and host clusters, and is designed to handle very large databases as well as data warehousing and data mining applications that store and retrieve terabytes of data.



# Chapter 2 Preparing for New Device Configuration

## 2.1 Configuration Requirements

The requirements for 9200 Windows NT<sup>®</sup> configuration are:

- Hitachi Freedom Storage<sup>™</sup> Thunder 9200<sup>™</sup> subsystem.
  - The 9200 Resource Manager is used to configure the SCSI ports.
- Windows NT<sup>®</sup> server. For information on server hardware requirements, please refer to the Windows NT<sup>®</sup> user documentation, or contact Microsoft<sup>®</sup> technical support.
- Windows NT<sup>®</sup> operating system, version 4.0. **Important:** Please contact Microsoft<sup>®</sup> technical support to make sure that the most current OS patches are installed on the Windows NT<sup>®</sup> system(s).

**Note:** Hitachi Data Systems plans to support future releases of the Windows NT<sup>®</sup> operating system. For the latest information on Windows NT<sup>®</sup> version support, please contact your Hitachi Data Systems account team.

## 2.2 Installing the 9200 Subsystem

The 9200 subsystem comes with all hardware and cabling required for installation.

**Note:** The Hitachi Data Systems representative must use the 9200 Maintenance Manual during all installation activities. Follow all precautions and procedures in the maintenance manual, and always check all specifications to ensure proper installation and configuration.

## 2.3 Preparing for New Device Configuration

Before setting up or installing the disk array subsystem, you should be familiar with the following activities:

- Setting logical units,
- Setting file system sizes, and
- Configuring the adapter(s).

### 2.3.1 Setting Logical Units

The maximum number of logical units (LUs) that can be set on a single disk array subsystem is 64 for the Hitachi Freedom Storage™ Thunder 9200™. Contact your Hitachi Data Systems representative for information.

### 2.3.2 Setting File System Sizes

See Table 2.1 for maximum file sizes.

**Table 2.1 File Limitations**

File System Type	Maximum Size
FAT	4095 MB
NTFS	2 TB

## Chapter 3 Configuring the New Devices

Configuration of the new 9200 devices for Windows NT operations involves the following activities:

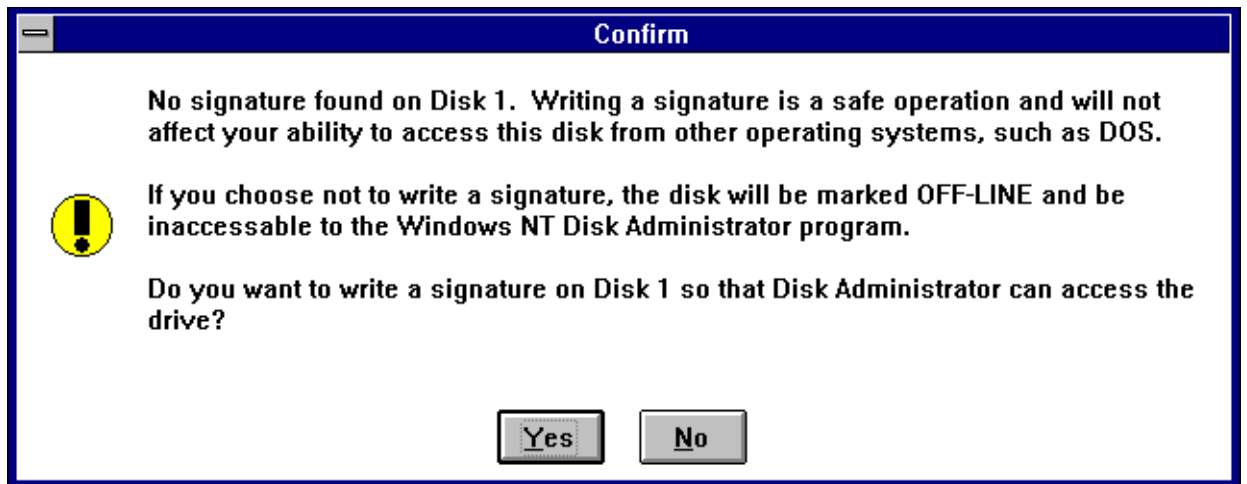
- Starting Disk Administrator,
- Creating and formatting partitions, and
- Terminating Disk Administrator.

### 3.1 Starting Disk Administrator

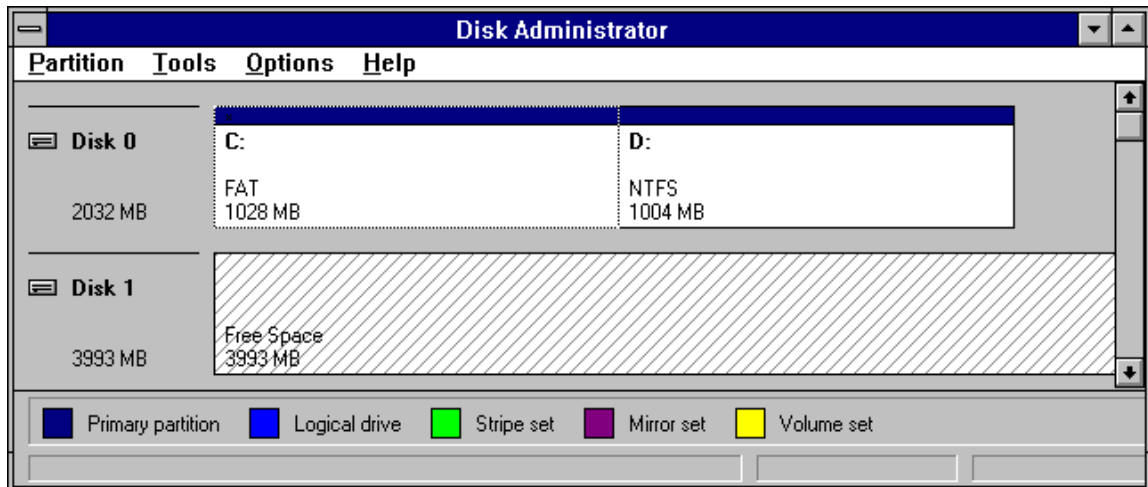
1. From the **Start-Programs** menu, select **Administrative Tools (Common)**, and then select **Disk Administrator** to start the Disk Administrator. Initialization takes a few seconds.
2. Confirm the disk addition(s) by clicking the [OK] button. See Figure 3.1.
3. Click **Yes** to write a signature for each LU as shown in Figure 3.2
4. To determine the amount of free space available, check the system configuration and size and confirm that the disk array subsystem is being used as shown in Figure 3.3.



**Figure 3.1 Confirmation of New Device(s)**



**Figure 3.2** Writing a Signature



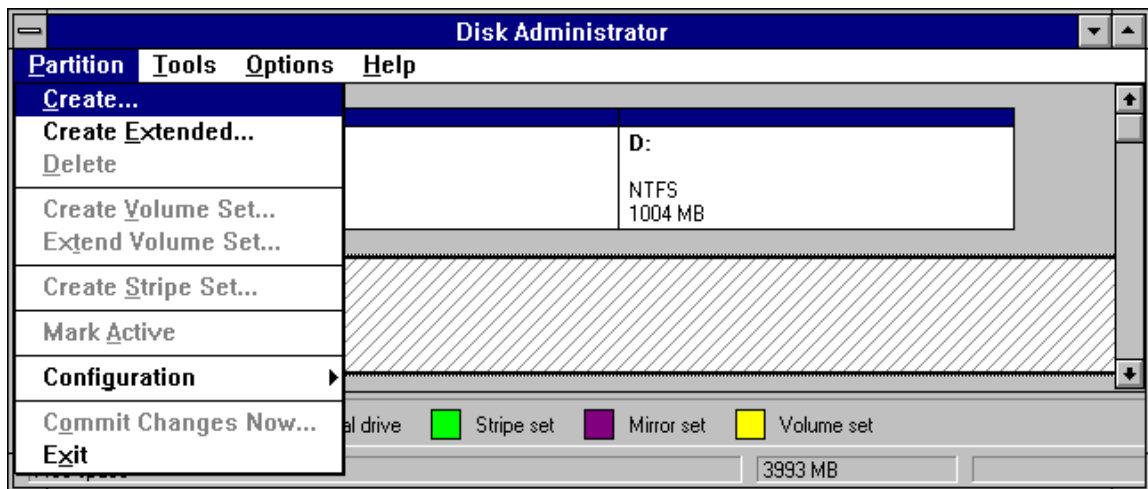
**Figure 3.3** Checking Available Free Space

## 3.2 Creating Partitions

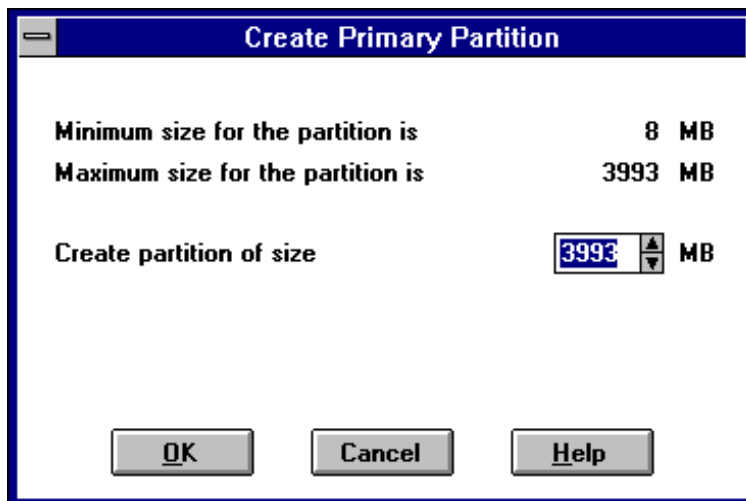
To create and format partitions on the new devices (see Figure 3.4 through Figure 3.13):

1. On the Disk Administrator main panel, select the free space area for the SCSI disk you want to partition, select the **Partition** menu, and then select **Create...** to open the Create Primary Partition panel (see Figure 3.4).
2. On the Create Primary Partition panel, enter the desired partition size (see Figure 3.5), and select **OK**. If the specified partition size is greater than 1024 MB, the Disk Administrator will request confirmation to create the partition.
3. The Disk Administrator panel now shows the new unformatted partition for the selected device. See Figure 3.6. Make sure that the correct partition size is displayed. If the partition size is not correct, repeat steps (1) through (4) to re-enter the correct partition size.
4. Select the **Partition** menu, and select **Commit Changes Now...** (see Figure 3.7). When the confirmation panel appears, select **Yes** to save the changes to your disk configuration.
5. When the disk update confirmation message appears (see Figure 3.8), select **OK**. On the Disk Administrator main panel, verify that the newly created partition changes from **New unformatted** to **Unformatted**. See Figure 3.9.
6. On the Disk Administrator main panel, select the newly created partition, select the **Tools** menu, and then select **Format...** (see Figure 3.10) to open the Format panel. The Format panel displays the partition name in its title bar (F:). See Figure 3.11.
7. Enter the following information on the Format panel (see Figure 3.11):
  - **Capacity:** **Unknown capacity**. Do not change this entry.
  - **File System:** Select **NTFS** (enables the NT system to write to the disk).
  - **Allocation Unit Size:** **Default allocation size**. Do not change this entry.
  - **Volume Label:** Enter a volume label, or leave this field blank for no label.
  - **Format Options:** Select **Quick Format** to decrease the time required to format the partition; select **Enable Compression** only if you want to enable compression.
8. Select **Start** to format the partition as specified. When the format warning is displayed (this new format will erase all existing data on disk), select **OK** to continue. See Figure 3.12. The Format panel displays the progress of the format partition operation.
9. When the format complete message is displayed, select **OK**, and then select **Close** to close the Format panel. Verify that the Disk Administrator main panel displays the correct file system (NTFS) for the formatted partition (see Figure 3.13).

10. Repeat steps (1) through (9) for each new SCSI disk device. When you are finished creating and formatting partitions, exit the Disk Administrator (select **Partition-Exit**). See Figure 3.14. When the disk configuration change message comes up, select **Yes** to save your changes. **Note:** Make sure to make your new Emergency Repair Disk using RDISK.EXE.
11. Check the file system by clicking **Start**, then **Programs**, then **Windows NT Explorer**. From the **Exploring** panel, verify the empty disk space (see Figure 3.16). Make sure that the indication changes from **New unformatted** to **Unformatted** as shown in Figure 3.9.

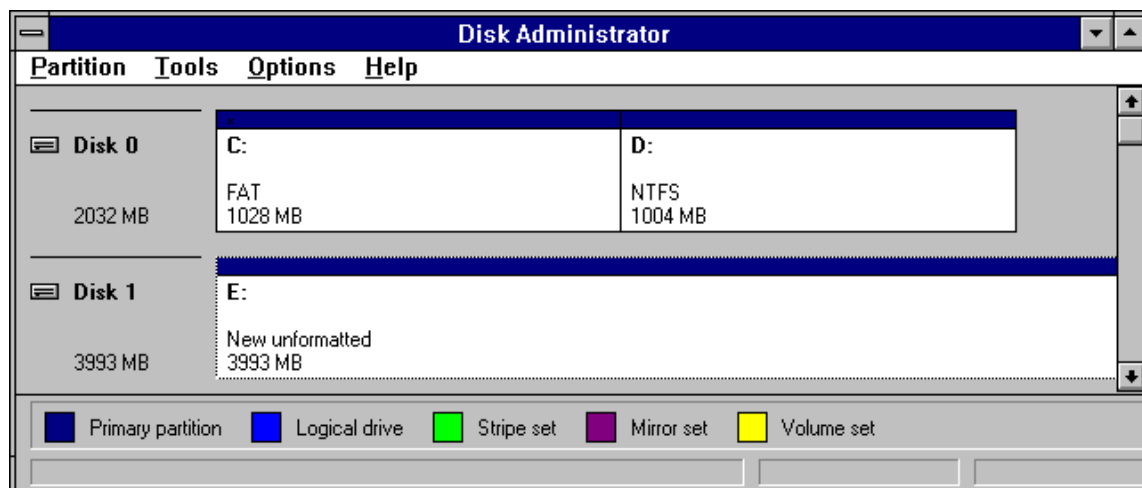


**Figure 3.4** Opening the Create Primary Partition Panel

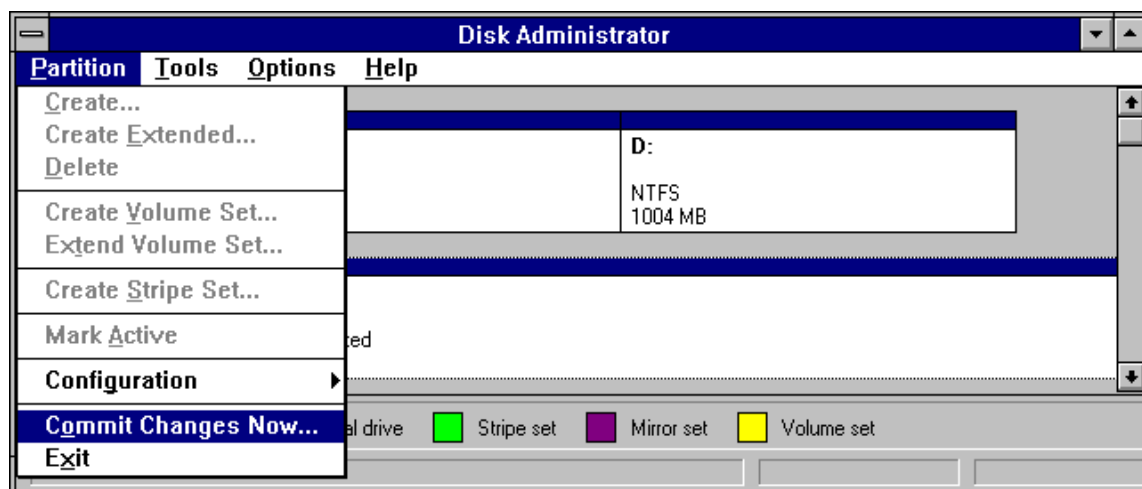


**Figure 3.5** Setting Partition Size





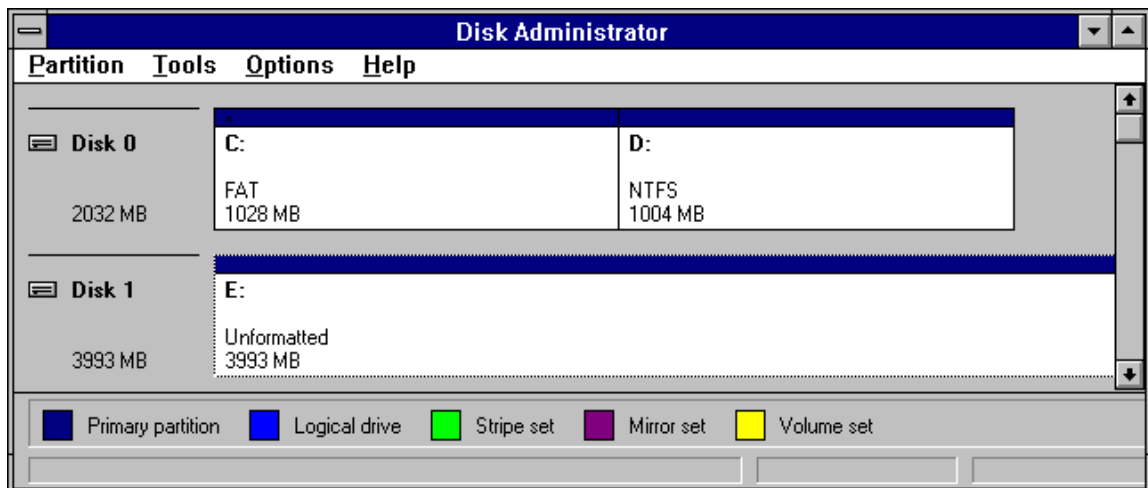
**Figure 3.6** Checking Partition Size



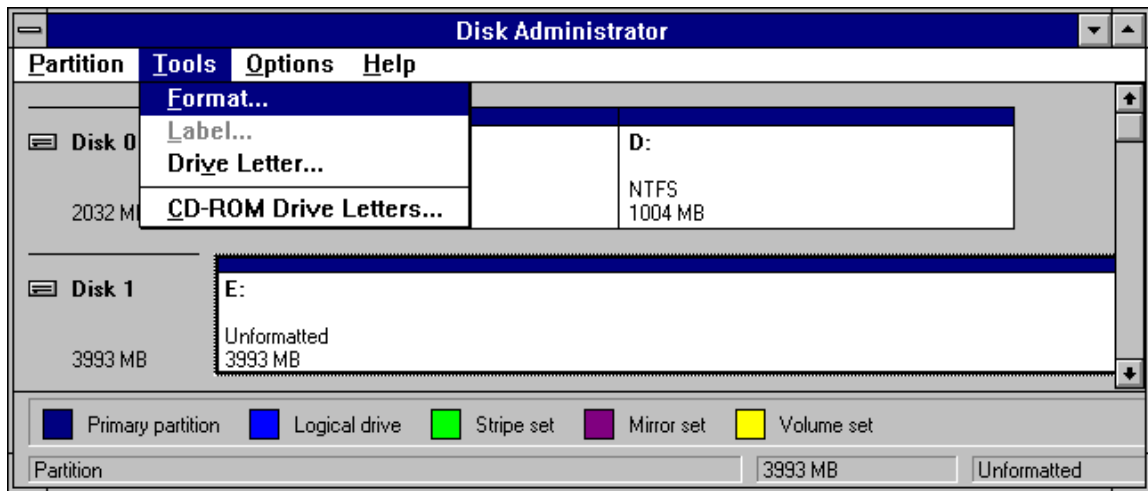
**Figure 3.7** Saving Changes



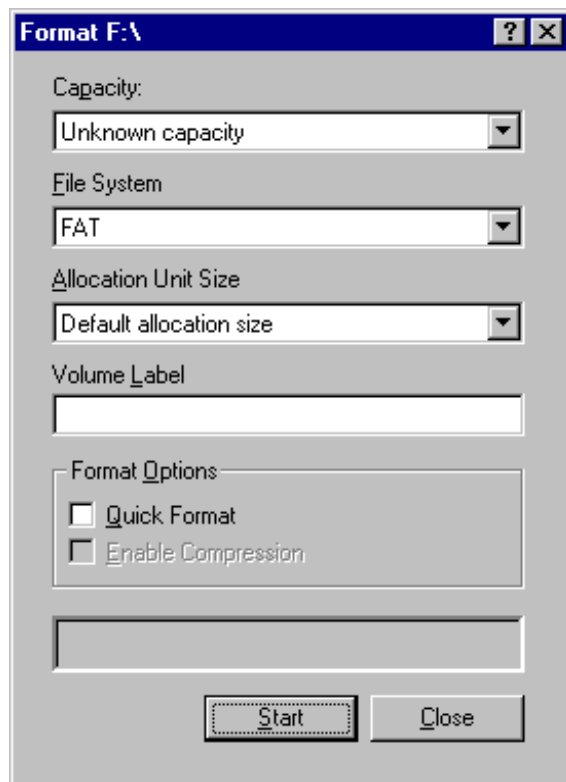
**Figure 3.8** Confirming Disk Configuration Update



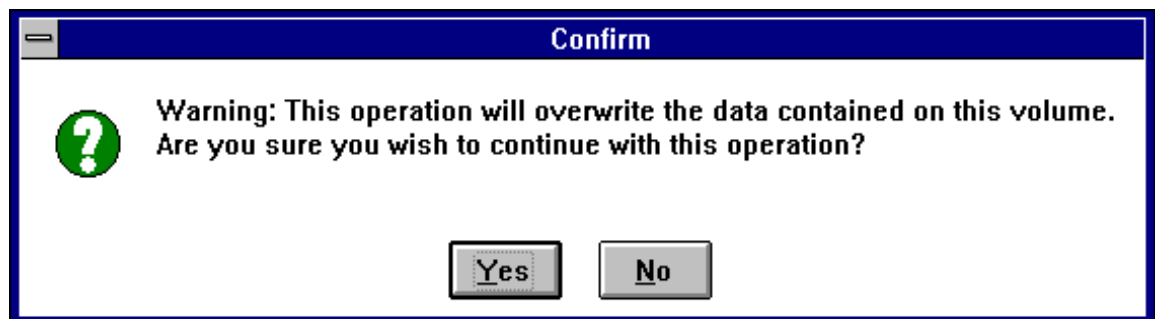
**Figure 3.9 Confirming Status Change**



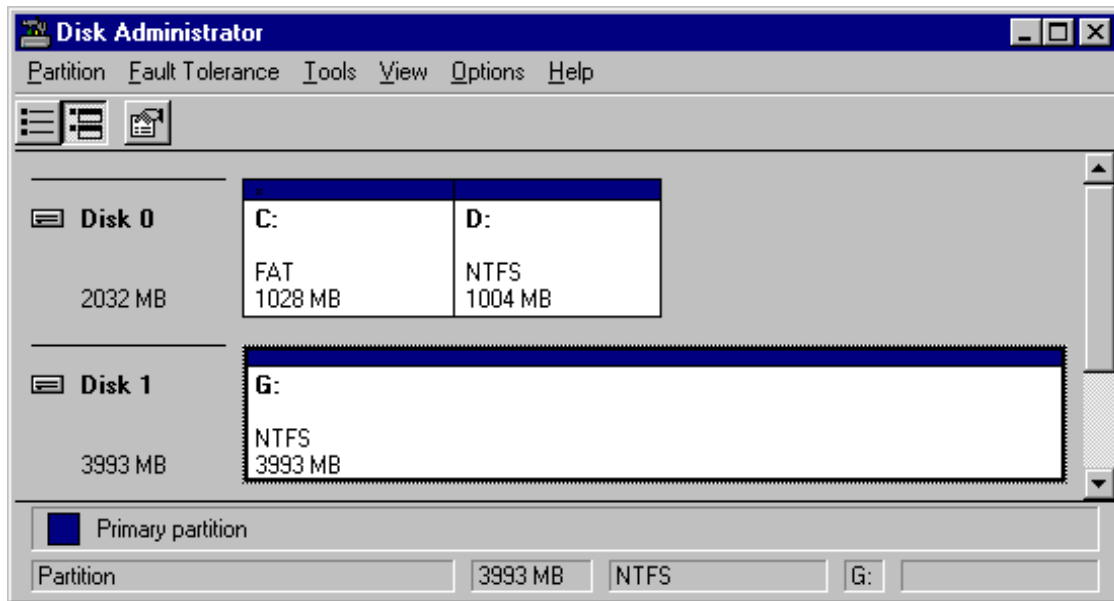
**Figure 3.10 Opening the Format Panel**



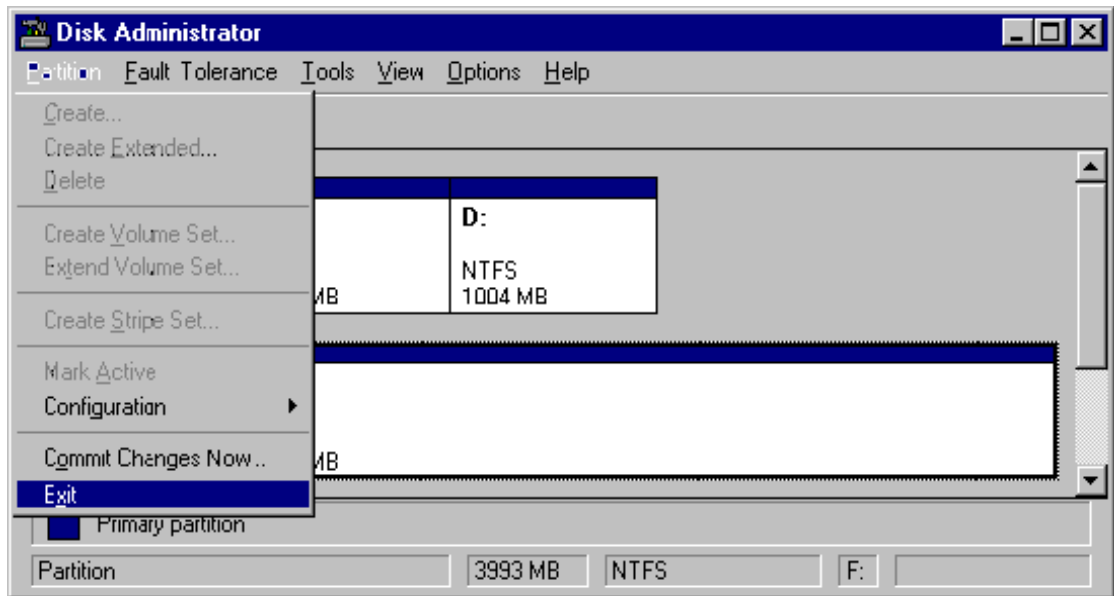
**Figure 3.11 Formatting the Partition**



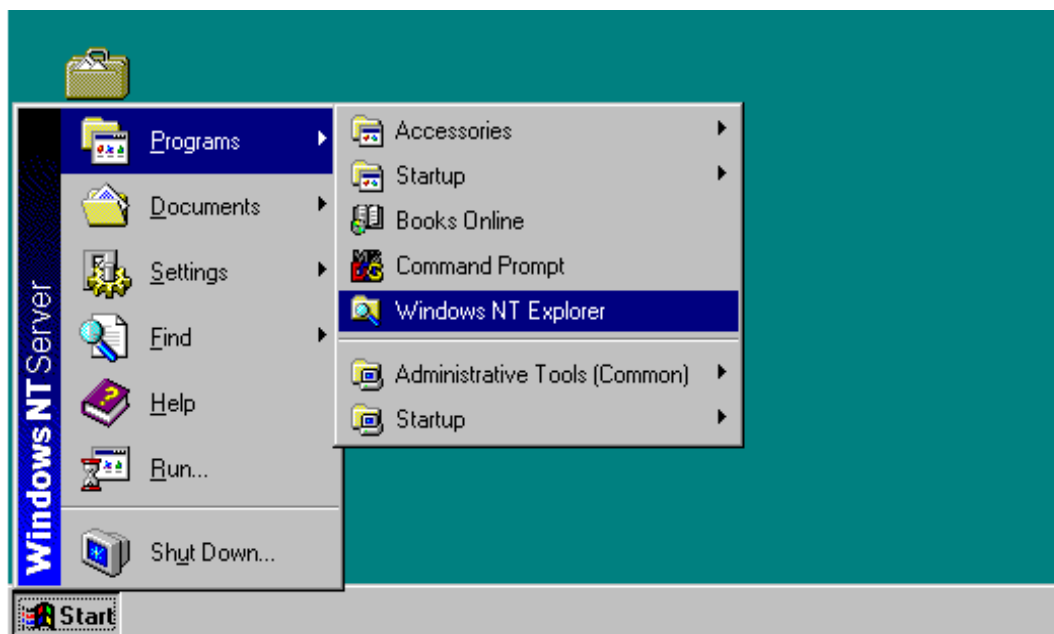
**Figure 3.12 Confirming Partartion Formatting**



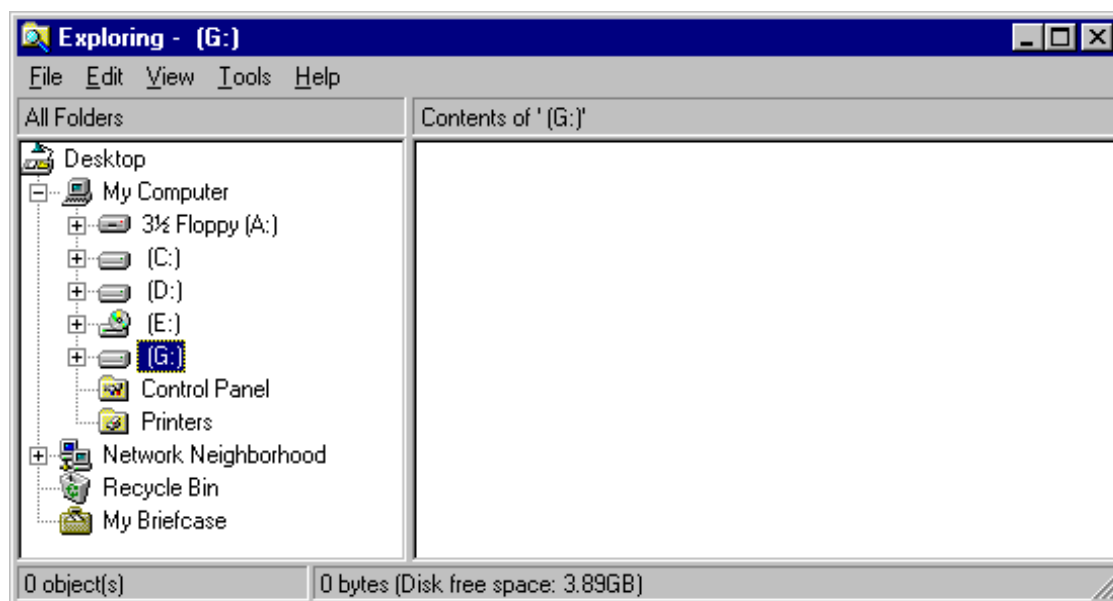
**Figure 3.13 Verifying the Correct File System for Each Formatted Partition**



**Figure 3.14 Terminating Disk Administrator**



**Figure 3.15 Selecting Windows NT Explorer**



**Figure 3.16 Confirming Configuration Changes**



# Chapter 4 Troubleshooting

## 4.1 Troubleshooting

The Hitachi Freedom Storage™ Thunder 9200™ array subsystem provides continuous data availability. For troubleshooting information for the 9200 subsystem, please refer to the *Hitachi Freedom Storage™ Thunder 9200™ User and Reference Manual* (MK-90DF504).

## 4.2 Calling the Support Center

If you need to call the Hitachi Data Systems Support Center, make sure to provide as much information about the problem as possible, including the circumstances surrounding the error or failure and the exact content of any error messages displayed on the host system(s). Please check the SVP service information messages (SIMs) using Web access, and note the reference codes and severity levels of the recent messages.

The worldwide Hitachi Data Systems Support Centers are:

- Hitachi Data Systems North America/Latin America  
San Diego, California, USA  
1-800-348-4357
- Hitachi Data Systems Europe  
Contact Hitachi Data Systems Local Support
- Hitachi Data Systems Asia Pacific  
North Ryde, Australia  
011-61-2-9325-3300





## Appendix A    Acronyms and Abbreviations

FAT	file allocation table
FCA	FC adapter
LU	logical unit
LUN	logical unit number
MB	megabytes
NTFS	NT file system
PC	personal computer system
RAID	redundant array of independent disks
SCSI	small computer system interface
SIM	service information message
TB	terabytes

