



Compaq Universal Hot Plug Tape Drive

Reference Guide

First Edition (January 2001)
Part Number 222462-001
Compaq Computer Corporation



222462-001

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About This Guide

This guide is designed to be used as step-by-step instructions for installation and as a reference for operation, troubleshooting, and future upgrades.

Text Conventions

This document uses the following conventions to distinguish elements of text:

Keys	Keys appear in boldface. A plus sign (+) between two keys indicates that they should be pressed simultaneously.
USER INPUT	User input appears in a different typeface and in uppercase.
<i>FILENAMES</i>	File names appear in uppercase italics.
Menu Options, Command Names, Dialog Box Names	These elements appear in initial capital letters.
COMMANDS, DIRECTORY NAMES, and DRIVE NAMES	These elements appear in uppercase.
Type	When you are instructed to <i>type</i> information, type the information without pressing the Enter key.
Enter	When you are instructed to <i>enter</i> information, type the information and then press the Enter key.

Symbols in Text

These symbols may be found in the text of this guide. They have the following meanings.



WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or loss of life.



CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

IMPORTANT: Text set off in this manner presents clarifying information or specific instructions.

NOTE: Text set off in this manner presents commentary, sidelights, or interesting points of information.

Getting Help

If you have a problem and have exhausted the information in this guide, you can get further information and other help in the following locations.

Compaq Technical Support

You are entitled to free hardware technical telephone support for your product for as long you own the product. A technical support specialist will help you diagnose the problem or guide you to the next step in the warranty process.

In North America, call the Compaq Technical Phone Support Center at 1-800-OK-COMPAQ¹. This service is available 24 hours a day, 7 days a week.

Outside North America, call the nearest Compaq Technical Support Phone Center. Telephone numbers for world wide Technical Support Centers are listed on the Compaq website. Access the Compaq website by logging on to the Internet at www.compaq.com.

¹ For continuous quality improvement, calls may be recorded or monitored.

Be sure to have the following information available before you call Compaq:

- Technical support registration number (if applicable)
- Product serial number (s)
- Product model name(s) and numbers(s)
- Applicable error messages
- Add-on boards or hardware
- Third-party hardware or software
- Operating system type and revision level
- Detailed, specific questions

Compaq Website

The Compaq website has information on this product as well as the latest drivers and Flash ROM images. You can access the Compaq website by logging on to the Internet at www.compaq.com.

Compaq Authorized Reseller

For the name of your nearest Compaq Authorized Reseller:

- In the United States, call 1-800-345-1518.
- In Canada, call 1-800-263-5868.
- Elsewhere, see the Compaq website for locations and telephone numbers.

Compaq Universal Hot Plug Tape Drive

Introduction

The Compaq Universal Hot Plug Tape Drive provides high availability data protection in a range of capacities. Hot-plug tape benefits include:

- High availability data protection, which increases server up-time
- Easy upgrade to higher capacity tape drives
- Backward compatibility within technologies for full investment protection
- Easy service and installation

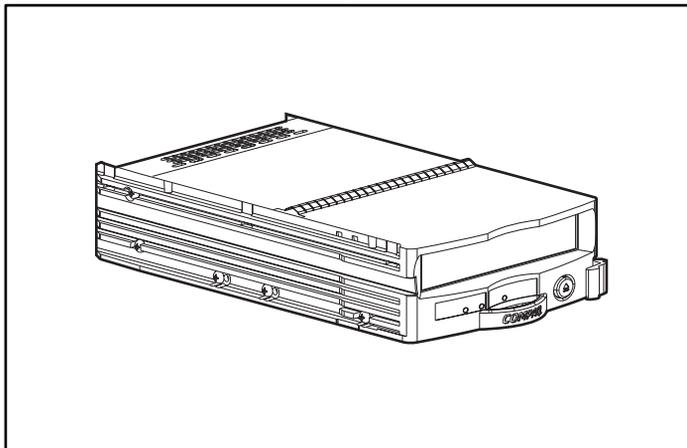


Figure 1. Compaq Universal Hot Plug Tape Drive

The Compaq universal tape drive is offered in a choice of capacities. Currently those capacities are:

- AIT Technology, 50/100-GB capacity, 6/12 MB/s transfer rate
- AIT Technology, 35/70-GB capacity, 4/8 MB/s transfer rate
- DDS-4 Technology, 20/40-GB capacity, 2.3/4.6 MB/s transfer rate

Features

- True hot-plug capabilities
- Compatible with the latest version of VERITAS Backup Exec and Computer Associates ARCserve 2000
- Supported under Windows NT, Windows 2000, NetWare, Tru64 Unix, OpenVMS
- Backward read/write capabilities with previously written media – within the same tape technology family
- 3.5-inch drive enclosure
- Ability to mix and match hard drives and tape drives on the same controller (refer to the Compaq website at www.compaq.com for a list of supported controllers)
- Able to mix and match hard drives and tape drives in the same *StorageWorks™* External Enclosure, *ProLiant™* Server, *AlphaServer™*, or Rack Mount Enclosure
- Small form factor
- Industry standard interface, LVD with a SCA II connector for easy installation
- Compatible with the Compaq TA1000 AIT Tape Array

Finding Information

Table 1 lists the references available for information on the Compaq Universal Hot Plug Tape Drive.

Table 1	
Resource Reference	
For information on...	See the...
Quick installation	<i>Compaq Universal Hot Plug Tape Drive</i> card included with your drive
Supported servers, enclosures, and controllers	Compaq website at www.compaq.com/products/storageworks/
Warranty	Compaq Worldwide Limited Warranty Statement
Tape/drive specifications	Compaq tape drive reference guide included with your drive
Setting the SCSI ID	Compaq tape drive reference guide included with your drive
Installing software drivers	Compaq tape drive reference guide included with your drive
Operating the drive	Compaq tape drive reference guide included with your drive
Cleaning the drive	Compaq tape drive reference guide included with your drive
Troubleshooting	Compaq tape drive reference guide included with your drive

Third-party Software Applications for Intel-based Servers

All Compaq Universal Hot Plug Tape Drives are compatible with VERITAS Backup Exec and Computer Associates ARCserve 2000 software programs. Trial versions are included with every tape drive so you can choose which option is right for your company before purchasing the license. See the booklet included with these CDs for information on purchasing the software.

Software Management Tools

Compaq Insight Manager and Tape Storage Management Console (TSMC) are included with your drive. These two tools assist you in identifying a problem before it actually happens.

Compaq Insight Manager

Compaq Insight Manager is a comprehensive management tool that monitors and controls the operation of Compaq ProLiant servers. Compaq Insight Manager consists of two components: a Windows-based console application and server- or client-based management data collection agents. Starting with Compaq Insight Manager 4.0, the agents for Windows NT and NetWare are also web-enabled.

Management agents monitor over 1,000 management parameters. Key subsystems are instrumented to make health, configuration, and performance data available to the agent software. The agents act upon that data by initiating alarms in the event of faults and by providing updated management information, such as network interface or storage subsystem performance statistics.

Tape Storage Management Console

This product is offered to both Compaq customers and trained service personnel. The diagnostics, tests, and tools that make up TSMC are designed to aid in the installation and continued use of Compaq Tape Products.

The tool searches for and reports problems and failures with tape products connected via SCSI, serial interfaces, and SAN. This is primarily accomplished through the use of Standard and Custom tests that are built into TSMC. These tests emulate engineering or stress functionality tests developed by Compaq. If you are installing a device for the first time, you can run TSMC to verify that the tape drive you purchased is properly installed and is available to your system before you attempt to load any other application software.

In addition, you can load firmware into tape drives either concurrently or individually with the TSMC tool. If you are connected to the World Wide Web, TSMC will search the appropriate Compaq website for the latest available firmware needed by your device. Newer versions of TSMC are also accessible to you over the Web.

Configuration Recommendations

Review the following recommendations before installing your universal tape drive:

- Your universal tape drive is compatible and configurable with hard disk drives and hard drive RAID controllers, but will be seen as a separate volume outside of the HDD RAID set.
- Installing more than three tape drives on one bus can slow down hard drive performance during heavy data transfers to the tape drives. When the tape drive is idle, there is no adverse performance effect to the hard drives.
- There is no need to use a separate controller just for your tape drive. The hot-plug capabilities allow you to mix tape drives and hard drives on the same SCSI bus.

Recommended Installation Locations

For optimum performance, use the following installation recommendations.

Table 2
Tape Drive Installation Recommendations

Compaq StorageWorks Enclosures		
Model	Orientation	Recommended Location
4354*, 4314*, 4214*	Rackmount	Install the first tape drive in the right-most slot.
4354*, 4314*, 4214*	Tower	Install the first tape drive in the top-most slot.
4310	Rackmount	Install the first tape drive in the second slot from the right.
4310	Tower	Install the first tape drive in the top-most slot.
Compaq ProLiant Servers		
Model	Orientation	Recommended Location
ML370*	Horizontal	Install the first tape drive in the third slot from the left.
ML370*	Tower	Install the first tape drive in the third drive slot from the bottom.

*Note: This product requires the installation of the tape drive height converter. The tape drive will occupy two one-inch slots.

Intel-Based Server Installation

Hot-plug tape is designed for easy installations. Just open the box, identify the hot-plug bay that is available for this device, and plug it in. Then decide on the appropriate software that you want to install. The kit included with your tape drive offers two trial versions, VERITAS Backup Exec and Computer Associates ARCserve 2000.

The universal drive carrier allows you to install this drive into any Compaq server or enclosure that has universal hot-plug drive bays. Newer controllers are required to support the hot-plug features of the drive. Refer to the Compaq website at www.compaq.com for updated information on which controllers support these features.



CAUTION: Electrostatic discharge can damage electronic components. Be sure you are properly grounded before beginning any of these procedures. Refer to the documentation that came with your computer or contact your Authorized Compaq Reseller for procedures to discharge static electricity.

Software Requirements

The following software is required to install your universal tape drive:

- Compaq Universal Tape Drive Supplemental CD or Compaq SmartStart version 5.0 or later
- Compaq Support Software CD for Intel servers

New Installation for ProLiant Intel-Based Servers

Follow these procedures to install a new drive into a new server using Microsoft Windows NT or Microsoft Windows 2000:

NOTE: The following procedures require that you have Administrator privileges.

1. Install the operating system and all Compaq value-added software using the SmartStart CDs that came with your server.

NOTE: DO NOT install any third-party backup application software at this point.

2. Unless you are certain that the firmware and drivers for the controller associated with your storage enclosure support hot-plug tape drives, upgrade the firmware and drivers using the CDs included with your universal hot-plug tape drive.
3. Install the new tape drive. See Table 2 for recommended drive installation locations.
4. Wait a minimum of 30 seconds.
5. Using Control Panel (Windows NT) or Device Manager (Windows 2000), rescan the SCSI bus to detect the newly added tap drive.

For Windows NT, using Control Panel, select the Tape Devices icon followed by the **Detect** button.

For Windows 2000, using Device Manager, right-click the name of your computer and select Scan for Hardware Changes.

6. Cancel any requests to load any drivers at this point. The third-party backup software will install any necessary drivers.
7. After the drive has been detected, install the appropriate third-party backup application software.

If using Computer Associates ARCserve 2000

1. Start ARCserve. The initial run of ARCserve will automatically detect the new tape drive.
2. Verify the tape drive appears in the ARCserve device configuration.

The new drive is now ready for use.

If using VERITAS Backup Exec

1. The installation of Backup Exec will automatically detect the new tape drive and ask for a driver. Let Backup Exec install the VERITAS version of the driver for your device.
2. Restart your server.
3. Start Backup Exec and verify the tape drive appears in its device configuration.

The new drive is now ready for use.

Hardware Installation

The following figures show various installation options.

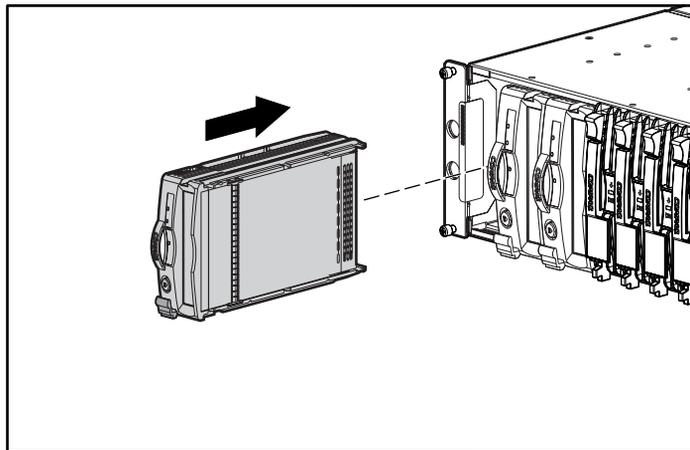


Figure 2. Rack-mount installation

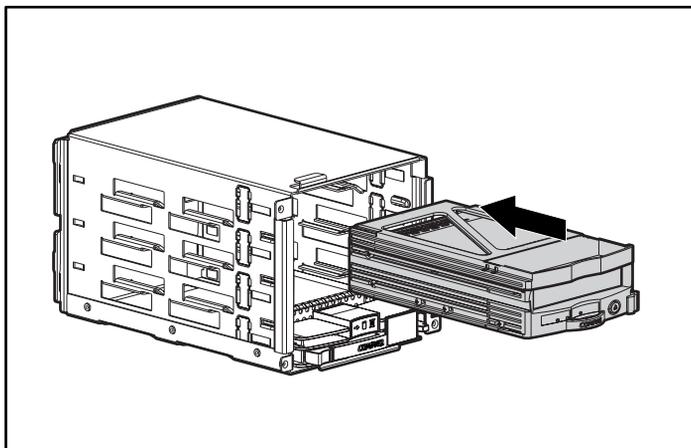


Figure 3. Universal drive bay installation

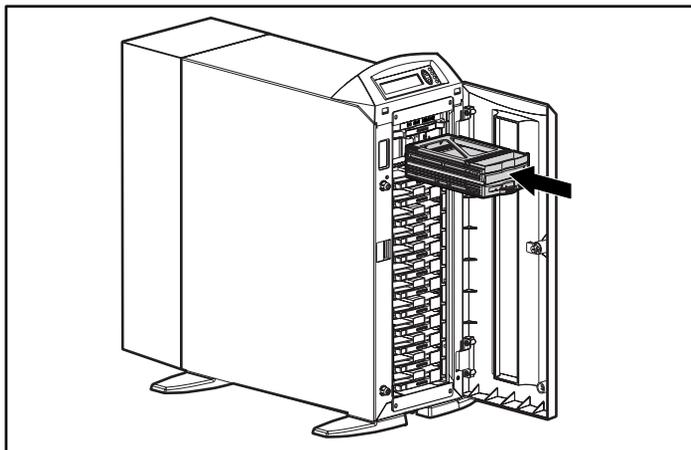


Figure 4. Tower storage enclosure installation

Installing a New Drive into an Existing ProLiant Intel-Based Server

Follow these procedures to install a new drive into an existing server using Microsoft Windows NT or Microsoft Windows 2000.

Third-party backup application software is already installed

NOTE: The following procedures require that you have Administrator privileges.

1. Ensure no backup activity is ongoing.
2. Exit any open applications.
3. Unless you are certain that the firmware and drivers for the controller associated with your storage enclosure support hot-plug tape drives, upgrade the firmware and drivers using the CDs included with your universal hot-plug tape drive.
4. Install the new tape drive. See Table 2 for recommended drive installation locations.
5. Wait a minimum of 30 seconds.
6. Using Control Panel (Windows NT) or Device Manager (Windows 2000), rescan the SCSI bus to detect the newly added tap drive.

For Windows NT, using Control Panel, select the Tape Devices icon followed by the **Detect** button.

For Windows 2000, using Device Manager, right-click the name of your computer and select Scan for Hardware Changes.

7. Cancel any requests to load any drivers at this point. The third-party backup software will make any necessary driver changes.

If using Computer Associates ARCserve 2000

1. Stop and then restart all of the ARCserve job engines. This action enables the application to add the new drive to its device configuration.
2. Reenter ARCserve and verify the new drive is seen in the device configuration.

The new drive is now ready for use.

If using VERITAS Backup Exec

1. Enter Backup Exec and invoke the Device Configuration Wizard.
2. Select Configure Devices.
3. Select the arrow next to “Install Veritas Device Drivers.” Backup Exec will now detect the new tape drive and install the appropriate VERITAS driver. Follow the prompts to complete the Device Configuration Wizard.
4. Exit Backup Exec.
5. Restart your server.
6. Reenter Backup Exec and verify the new drive is seen in the device configuration.

The new drive is now ready for use.

Third-party backup application software is not already installed

NOTE: The following procedures require that you have Administrator privileges.

1. Ensure no backup activity is ongoing.
2. Exit any open applications.
3. Unless you are certain that the firmware and drivers for the controller associated with your storage enclosure support hot-plug tape drives, upgrade the firmware and drivers using the CDs included with your universal hot-plug tape drive.
4. Install the new tape drive. See Table 2 for recommended drive installation locations.
5. Wait a minimum of 30 seconds.
6. Using Control Panel (Windows NT) or Device Manager (Windows 2000), rescan the SCSI bus to detect the newly added tap drive.

For Windows NT, using Control Panel, select the Tape Devices icon followed by the **Detect** button.

For Windows 2000, using Device Manager, right-click the name of your computer and select Scan for Hardware Changes.

7. Cancel any requests to load any drivers at this point. The third-party backup software will make any necessary driver changes.

8. After the tape drive has been detected by the operating system, install the appropriate third-party backup application software.

If using Computer Associates ARCserve 2000

1. Start ARCserve. The initial run of ARCserve will automatically detect the new tape drive.
2. Verify the tape drive appears in the ARCserve device configuration.

The new drive is now ready for use.

If using VERITAS Backup Exec

1. The installation of Backup Exec will automatically detect the new tape drive and ask for a driver. Let Backup Exec install the VERITAS version of the driver for your device.
2. Restart your server.
3. Start Backup Exec and verify the tape drive appears in its device configuration.

The new drive is now ready for use.

Intel-Based Server Hot-Plug Tape Drive Replacement

When replacing a failed drive or upgrading to a larger capacity drive, refer to the documentation included with the storage enclosure system or server to identify and remove the drive.

IMPORTANT: Do not remove a drive during tape activity or data transfer.

To replace a drive under Microsoft Windows NT or Microsoft Windows 2000:

1. Ensure there is not activity occurring on the drive to be replaced, and eject any media in the drive.



WARNING: There is a risk of electrical shock. If a cassette is jammed inside the drive, do not attempt to open this tape drive. Refer all service to a Compaq authorized service provider.

2. Exit any third-party backup application in use.
3. Push up on the ejector latch ❶.
4. Pull out on the handle ❷.

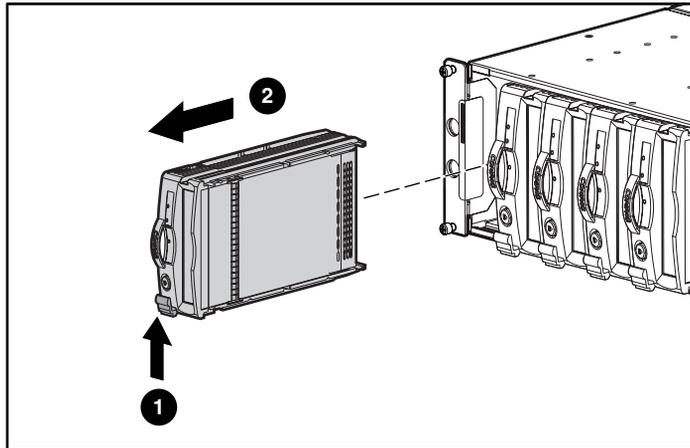


Figure 5. Removing a drive

5. Install the new tape drive into the same slot. Simply slide the drive into the slot until it is firmly seated into the connector and the release latch snaps into place. See Figures 2 through 4.
6. Insert the media from step 1 into the new drive.

7. Wait a minimum of 30 seconds.
8. Enter the third-party backup application software and verify that the drive you just replaced is still in the device configuration.

The drive is now ready for use.

Installing or Replacing a Drive in an Alpha-based Server

Use the following procedures to install or replace a drive in an Alpha-based server.

Open VMS

When installing or adding the Compaq Universal Tape Drive into Alpha Servers with Open VMS installed, type the following:

```
MCR SYSMAN IO CONNECT AUTO/LOG <Enter>
```

TRU64 Unix version 4.0F

When installing or adding the Compaq Universal Tape Drive into Alpha Servers with TRU64 Unix version 4.0F installed, type the following:

```
SCU <Enter>  
SCAN EDT <Enter>  
SHOW EDT <Enter> (This is to ensure the device is detected)  
EXIT <Enter>
```

TRU64 Unix version 5.0

When installing or adding the Compaq Universal Tape Drive into Alpha Servers with TRU64 Unix version 5.0 installed, type the following:

```
SCU <Enter>  
SCAN EDT <Enter>  
SHOW EDT <Enter> (This is to ensure the device is detected)  
EXIT <Enter>  
DoConfig - d <Enter> (This rebuilds the kernel so the drive becomes  
operational.)
```

Installing the Tape Drive Height Converter Option

To install the 1.6-inch drive into two 1-inch bays, attach the tape drive height converter onto the drive, as shown in Figure 6.



CAUTION: Installation of the tape drive height converter is permanent. Attempting to remove the converter after installation voids the tape drive warranty.

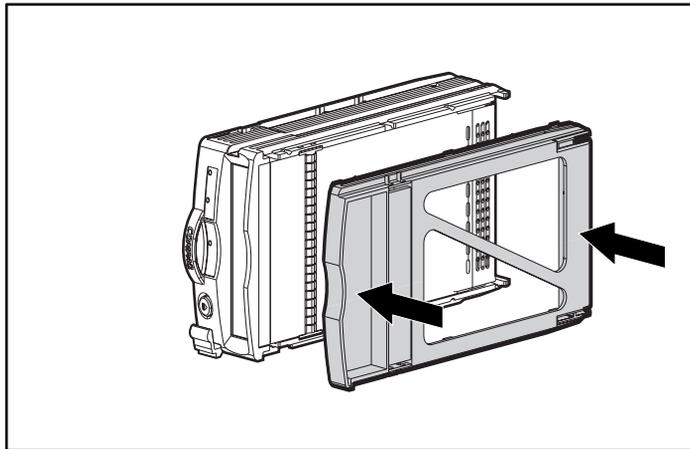


Figure 6. Installing the tape drive height converter

Troubleshooting

For ProLiant Intel-based servers using Microsoft Windows NT or Microsoft Windows 2000:

Control Panel (Windows NT) or Device Manager (Windows 2000) does not see a new device

1. Verify that the controller firmware and drivers for the current storage enclosure support hot-plug tape drives.
2. Make sure you actually select the **Detect** button under Windows NT or the Scan for Hardware Changes under Windows 2000. Sometimes clicking on Tape Devices immediately shows other activities, which might lead you to believe the operating system is scanning the SCSI bus. “Creating a driver list” is an example of such an activity. This activity does not scan the bus. You must manually invoke this action as described.
3. If neither of the above corrects the problem, proceed as follows:
 - a. Shutdown your server.
 - b. Remove the tape drive.
 - c. Reinsert the tape drive.
 - d. Restart your server.
 - e. Using Control Panel (Windows NT) or Device Manager (Windows 2000) verify that the drive is detected under Tape Devices.
 - f. Using your third-party backup application, verify that the tape device is detected under its device configuration.

The drive should now be ready for use.

Device not recognized by third-party backup application

Stop and then restart all third-party backup application services or job engines. If the issue still persists, restart your server.

Drive being replaced was disabled, failed or offline

If a drive being replaced was in a disabled, failed, or offline state at the time of replacement, it may be necessary to perform these additional steps to get the drive back into an operational state.

For VERITAS Backup Exec:

1. Under Device Management, right-click the drive in question and select Properties.
2. Under Properties, select the Configuration tab.
3. Turn off the “Enable device for Backup Exec” option (this will remove the check mark).
4. Click on the **Apply** button.
5. Turn on the “Enable device for Backup Exec” option (this will reactivate the checkmark).
6. Click on the **Apply** button.
7. Click **OK**.

This should return the tape drive back to an operational state. If the drive is still not in an operational state, step and then restart all services related to Backup Exec.

For Computer Associates ARCserve:

1. Stop all job engines.
2. Restart all job engines.