

## Contents

Palindrome Corporation  
Palindrome AutoLoader Software™ V.4.0  
AutoLoader Software Guide  
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Palindrome Corporation  
600 East Diehl Road  
Naperville, Illinois 60563  
(708) 505-3300

Seagate Software, Ltd.  
Hayley House  
London Road  
Bracknell, Berkshire RG12 2US  
England  
+44 1 344 360888

Seagate Software, GmbH  
Hanns-Martin-Schleyer-Str.34  
47877 Willich  
Germany  
+49 2154916350

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## About This Guide

This guide contains information on installing and using Palindrome AutoLoader Software and Palindrome Multi-Drive AutoLoader Software and information on how these products interact with the Palindrome backup software. Also included is information on Palindrome technical support and product registration.

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## Audience

This guide is for the person installing, configuring, and monitoring backup operations and who is responsible for managing backup media. This guide makes the following assumptions:

- Palindrome Storage Manager or Backup Director Software has already been installed.
- The network administrator has a thorough understanding of NetWare or Windows NT and Storage Manager or Backup Director operations.
- The appropriate autoloader hardware components have been installed according to the manufacturer's instructions.



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**NOTE:** Please refer to your hardware manufacturer's documentation for complete hardware installation instructions.

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## Registration and Technical Support Information

Before using Palindrome AutoLoader Software check the following:

- Ensure that what was ordered is what was received.
- Ensure that the system for which the software is intended matches the requirements specified.

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### Registration

Included with the AutoLoader Software is a postage-paid product registration card. Please take time now to complete the card and mail or fax it to Palindrome. Palindrome's main fax number is (708) 505-7917. Customers in Europe, the Middle East, and Africa may fax the card to Seagate Software, Ltd. at +44 1 344 360888. If the registration card has been misplaced, contact Palindrome for assistance.

Registration is required for technical support and for warranty activation, and allows Palindrome to send information on new Palindrome products and upgrades to existing products.

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### Technical Support

Your Palindrome Authorized Reseller should provide primary technical support for the Palindrome AutoLoader Software. Palindrome provides ongoing educational and support programs for its resellers in order to ensure their ability to assist you.

Prior to calling Palindrome, review system messages for helpful information and review the "Troubleshooting" chapter for possible solutions to hardware problems.

## Support Hours

Palindrome Technical Support may be contacted by phone at (708) 505-3300 or by fax at (708) 505-3337. Hours are Monday through Friday, 7 a.m. to 7 p.m. CST (except holidays).

Customers in Europe, the Middle East, and Africa should call Seagate Software, Ltd. at +44 1 3 44 360888 for support.

## Extended Support Hours

In addition to the free support provided under “Support Hours” above, technical support is available (for all other hours) on a fee-per-hour basis or by purchasing Palindrome’s Priority Answers. Contact Palindrome for more information on extended support.

Palindrome support services are subject to Palindrome’s terms and conditions, and are subject to change without notice.

## Palindrome’s Bulletin Board System

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Palindrome also provides the Palindrome Bulletin Board System (BBS) at (708) 505-3336 for the exchange of messages and files between Palindrome Technical Support, Palindrome product resellers, and users. In addition, the BBS provides access to the most recent lists of devices and firmware certified by Palindrome.

To access the BBS, a communications program is required that will allow the setting of baud rate, parity, data bits, stop bits, duplex mode, and terminal emulation.

See your Palindrome backup software *Installation Guide* for more information.



## **Chapter 1**

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# **Introduction**

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### **Overview**

This chapter provides an introduction to AutoLoader Software and information on how this product interacts with Palindrome backup software.

*Chapter 1 - Introduction*

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## What is Palindrome AutoLoader Software?

Palindrome AutoLoader Software supports automated storage and media management using autoloader devices (also referred to as stackers, autochangers, and jukeboxes).

AutoLoader Software controls the robotic arm of the media changer mechanism, retains information about the contents of media within the autoloader media holder and drive, and provides automatic access to media stored within the autoloader.

Through the Palindrome Backup Director or Storage Manager Windows-based user interface, media can be viewed in the autoloader, a cleaning slot can be configured, and operations can be performed on media.

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## Autoloader Drivers

Included with the AutoLoader Software—NetWare Edition is the autoloader driver PALALDRV.NLM (which replaces the driver “placeholder” that is copied to the SYS:\SYSTEM directory during Storage Manager or Backup Director Software installation).

Included with the AutoLoader Software—Windows NT Edition is the autoloader driver PALALDRV.DLL.

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## Features

AutoLoader Software enables Storage Manager and Backup Director to load and unload appropriate media and requires human interaction only in the event that the required media is not stored in the autoloader.

The following features illustrate the advantages of AutoLoader Software when performing operations:

### Backup Operations

- AutoLoader Software automatically uses the correct media during media rotations.
- If the preferred media is not in the drive when an operation is executed, AutoLoader Software will automatically search for the preferred media in the autoloader, and if that media is not located, will attempt to use the most eligible media available.
- When a media fills during a backup operation, AutoLoader Software automatically replaces it with another media from the same media set (if it is stored in the media holder) or uses a blank media and adds it to the current media set.

### Restore Operations

- AutoLoader Software uses the intelligence of the Storage Manager and Backup Director software to efficiently restore files, directories, or whole installations.
- When the correct media are stored in the media holder, unattended full system restores are possible.
- If the Storage Manager installation has been configured to **Put Archives on Separate Media from Backups**, often the need for human intervention to manually change media is eliminated.

### Utility Operations

- For backup devices that report that cleaning is required, AutoLoader Software automatically moves a cleaning cartridge (with a bar code or stored in a cleaning cartridge slot) to the drive and performs a cleaning operation.
- If the autoloader has an import/export door, AutoLoader Software allows media to be inserted and removed from the media holder without opening the front autoloader door.

See Chapter 10, “Managing Media” in the Storage Manager or Backup Director *Administrator’s Guide* for information on learning media added to an autoloader device.

- The Multi-Drive version of AutoLoader Software allows media usage to be configured differently for each backup device located in the autoloader—optimizing the unique capabilities of multi-drive autoloader devices during backup and restore operations.

## Supported Autoloaders

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Support for specific autoloaders is based upon Palindrome’s certification of the autoloader, the backup device(s) installed in the autoloader, and associated firmware for each.

Contact Palindrome for the latest list of certified devices. Note that this list is subject to changes and additions without notice.

*Chapter 1 - Introduction*

## Chapter 2

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# Installation and Configuration

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### Overview

This chapter explains how to install and configure AutoLoader Software. Also included is information pertaining to proper hardware installation, including SCSI bus termination and requirements for assigning SCSI addresses.

*Chapter 2 - Installation and Configuration*

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## Installing the Hardware

Please refer to the autoloader manufacturer's documentation for complete hardware installation instructions.

When installing the autoloader, be sure that the SCSI bus is properly terminated and that the autoloader, drive, and host adapter each have a unique SCSI address, as detailed below.

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## Terminating the SCSI Bus

The SCSI bus must be terminated at both ends for proper backup device operation. Since the SCSI host adapter is shipped with terminating resistors already installed, it is only necessary to terminate the SCSI bus at the backup device. Note that if there are multiple devices daisy-chained on the same SCSI bus, the termination must be on the last device on the bus.

Unless the device is internally terminated, terminate the SCSI bus by installing the external termination block on the back of the autoloader. Note that Palindrome autoloaders are not internally terminated and require installation of the termination block supplied with the autoloader.

See the manufacturer's documentation for information specific to your autoloader.

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## Assigning Unique SCSI Addresses

The drive and the autoloader must each have a unique SCSI address, which is typically set using a numbered switch or "thumb wheel" on the back of the device (review the autoloader manufacturer's documentation for specific information on setting the SCSI address on your unit).

If you are using an ADIC DAT 1200 or Palindrome autoloader (such as the Palindrome FAST 2000C Turbo AutoLoader), the drive's SCSI address must be set at 0, 1, 2, or 3. Also, be sure that the drive and autoloader are set to SCSI addresses other than the one used by the host adapter (which is typically 7).



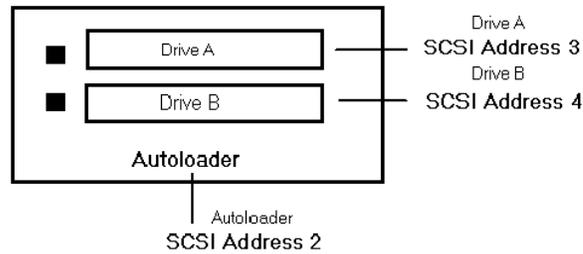
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**NOTE:** Please review Appendix A in this guide for information and any special requirements specific to your autoloader.

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### AutoLoaders with Multiple Devices

If the autoloader has more than one backup device, the drives' SCSI addresses must be set to the numbers immediately following the autoloader's SCSI address. For example, if the autoloader's SCSI address is set to 2, the first drive must be set to 3, the second drive must be set to 4, etc.



*Multiple Drive SCSI Addresses*

Note that multiple-drive autoloaders require the Multi-Drive version of AutoLoader Software.



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**NOTE:** If devices have been added, NT device drivers configured, or SCSI addresses changed, Windows NT installation machines need to be rebooted for the changes to take affect.

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## Installing AutoLoader Software—NetWare Edition

### Requirements

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Before installing AutoLoader Software, be sure one of the following versions of software has been installed:

- Storage Manager version 4.0—NetWare Edition
- Backup Director version 4.0—NetWare Edition



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**NOTE:** A separate copy of AutoLoader Software is required for each Backup Director or Storage Manager installation.

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INSTALLATION  
AND  
CONFIGURATION

### Prior to Installing the Software

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#### Unload NetWare NLMs

If Storage Manager or Backup Director is currently installed, some programs must be unloaded before AutoLoader Software is installed.

- Ensure that no backup or restore operations are running prior to installing AutoLoader Software.
- Unload PALALDRV.NLM and PALSDRV.NLM at the server console by typing:

```
UNLOAD PALMEDIA
UNLOAD PALALDRV
UNLOAD PALSDRV
```

#### Remove Cleaning Cartridge(s)

Prior to loading AutoLoader Software, be sure that no cleaning cartridges are in the autoloader. If PALMEDIA.NLM is loaded, and the autoloader door is closed, all media in the autoloader will automatically

be scanned for label and bar code information.

Cleaning cartridges found during the scanning process will be automatically inserted into a drive and a cleaning operation performed (possibly multiple times). This may damage the backup device heads.

Before inserting any cleaning cartridges into the autoloader, see the sections “*Configuring Slots*” and “*Configuring a Cleaning Cartridge Slot*” in this chapter.

## Installing the Software

---

If you purchased AutoLoader Software with Backup Director or Storage Manager Software, you can install AutoLoader Software during the installation of Backup Director or Storage Manager Software.

If AutoLoader Software was purchased after Backup Director or Storage Manager Software was installed, perform the following procedures:

1. Insert the AutoLoader Software diskette into a floppy drive in the workstation.
2. Access Storage Manager or Backup Director and open Configuration Manager.
3. Open the Install menu and select *AutoLoader Software*.
4. The following prompt appears:

**Please enter the AutoLoader Software serial number:**

This number is on a label that is on the outside of the AutoLoader Software box. Type the serial number and choose **OK**.

5. Choose the disk drive containing the diskette. Appropriate files will be copied to the SYS:\SYSTEM directory on the installation machine.

6. At the server console, type:

**LOAD PALMEDIA**

Note that PALMEDIA automatically loads the autoloader device driver PALALDRV.NLM.

AutoLoader Software installation is complete.

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## Installing AutoLoader Software—NT Edition

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### Requirements

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Before installing AutoLoader Software, be sure one of the following versions of software has been installed:

- Storage Manager version 4.0—Windows NT Edition
- Backup Director version 4.0—Windows NT Edition



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**NOTE:** A separate copy of AutoLoader Software is required for each Storage Manager or Backup Director installation.

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### Prior to Installing the Software

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#### Palindrome Media Service

Ensure that no backup or restore operations are running prior to installing AutoLoader Software. The Palindrome Media Service must not be in use by an application when you are installing AutoLoader Software.



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**NOTE:** The Palindrome Media Service is automatically stopped during the installation of AutoLoader Software.

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#### Remove Cleaning Cartridge(s)

Prior to loading AutoLoader Software, be sure that no cleaning cartridges are in the autoloader. If the Palindrome Media Service is loaded and the autoloader door is closed, all media in the autoloader will automatically be scanned for label and bar code information.

Cleaning cartridges found during the scanning process will be

automatically inserted into a drive and a cleaning operation performed (possibly multiple times). This may damage the backup device heads.

Before inserting any cleaning cartridges into the autoloader, see sections “*Configuring Slots*” and “*Configuring a Cleaning Cartridge Slot*” in this chapter.

## Installing the Software

---

If you purchased AutoLoader Software with Backup Director or Storage Manager Software, you can install AutoLoader Software during the installation of Backup Director or Storage Manager Software.

If AutoLoader Software was purchased after Backup Director or Storage Manager Software was installed, perform the following procedures:

1. Insert the AutoLoader Software diskette into a floppy drive in the workstation.
2. Access Storage Manager or Backup Director and open Configuration Manager.
3. Open the Install menu and select *AutoLoader Software*.
4. The following prompt appears:

**Please enter the AutoLoader Software serial number:**

This number is on a label that is on the outside of the AutoLoader Software box. Type the serial number and choose **OK**.

5. Choose the disk drive containing the diskette. Appropriate files will be copied to the installation machine.

AutoLoader Software installation is complete.

## **Palindrome Media Service**

The Palindrome Media Service, which was automatically stopped at the beginning of AutoLoader Software installation, is automatically restarted when installation is complete.

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## Configuring the Autoloader

This section provides instructions for configuring devices and slots within the autoloader. Perform the steps in this section if the autoloader contains multiple drives or if a slot is to be configured for a cleaning cartridge.



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**NOTE:** If a device in an autoloader was configured prior to installing AutoLoader Software, highlight the device in Device Manager and select *Remove Device* (to remove the device from the device tree) and *Add Device* (to add it back to the tree). The autoloader devices can then be re-configured.

---

### Assigning Logical Names to Devices

For AutoLoader Software to use multiple devices or random access devices, unique logical names must be assigned to each device. Unique default names are automatically entered into the **Name** fields as the devices are added to the device tree. However, you may assign your own logical names.

#### To assign your own logical name to each backup device:

1. In Device Manager, open the Operations menu and select *Scan for Devices*.
2. If a device is not shown or if grayed out, check that the device is powered on, its SCSI cable is properly connected, the SCSI bus is properly terminated, and the proper device driver is loaded. Then *Scan for Devices* again.



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**NOTE:** If a device attached to a Windows NT machine was turned off and you turned it on, the NT machine must be rebooted for the device to be recognized.

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3. When the device is displayed, highlight the device.

4. Open the Operations menu and select *Edit Device*.
5. Enter the logical name into the **Name** field and choose **OK**.

Once assigned, the logical name is stored in the System Control Database. The device can now be used for operations.

### Configuring for a Cleaning Cartridge

If you plan to store a cleaning cartridge in the autoloader (tape autoloaders only), either a slot must be configured for each cleaning cartridge or each cleaning cartridge must have a bar code label affixed to it.



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**TIP:** Palindrome recommends placing the cleaning cartridge(s) in a slot configured for a cleaning cartridge, even if a bar code labelled “CLEAN” is affixed to the cartridge. If the bar code reader fails, AutoLoader Software will still consider the cartridge for cleaning use only.

---

#### To configure a cleaning cartridge slot:

1. In Device Manager, highlight the autoloader device.
2. Open the Operations menu and select *Edit Device*. The Configure Autoloader dialog box appears.



*Configuring a Cleaning Cartridge Slot*

3. In the **Cleaning** field, enter a slot number to be reserved for a cleaning cartridge. Palindrome recommends using the same number as displayed in the **Last** slot field (as shown above).

Once a slot has been configured for a cleaning cartridge, AutoLoader Software will not use that slot for data tape storage.

*Chapter 2 - Installation and Configuration*

## **Chapter 3**

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# **Getting Started**

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### **Overview**

This chapter should be reviewed before using AutoLoader Software. Included is information on configuring autoloaders and drives, using bar codes to identify media, managing media, and viewing information on media.

*Chapter 3 - Getting Started*

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## Storing Media

Ideally, the media stored in the autoloader should include the media needed for the next automatic backup operation, at least one blank media, media containing the files most likely to be requested for restores, and a cleaning cartridge.

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## On-Site or Off-Site

To display a report indicating which media should be in, moved to, or retrieved from off-site storage, and which media should be on-site, open the Status menu in Control Console and select **Off-Site Media Advisor**.

Store all recommended “on-site” media in the autoloader. In addition, Palindrome recommends storing blank media in at least one slot to allow a backup operation to continue if a media fills (and no other eligible media are available).

Palindrome does not recommend storing “off-site” media in the autoloader because this may jeopardize recovery from a disaster. If all original media are to be stored on-site, make duplicate copies and store the duplicates off-site. For more information on copying media, see Chapter 10 in the Palindrome backup software *Administrator’s Guide*.

---

## Cleaning Cartridges

Cleaning cartridges stored in the autoloader must either be located in a slot configured for a cleaning cartridge or be affixed with a bar code label beginning with the word “CLEAN”. For more information, see “*Configuring for a Cleaning Cartridge*” in Chapter 2.



---

**WARNING:** Each time AutoLoader Software attempts to learn unknown media, cleaning cartridges without a “CLEAN” bar code label that are stored in a data cartridge slot (any slot not configured for a cleaning cartridge) will be inserted into the drive and the drive will be cleaned.

This results in excess cleaning that may cause damage to the tape drive heads and will quickly exhaust the cleaning passes available for the cartridge (rendering it useless).

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## Using Bar Codes

If the autoloader supports bar codes and bar codes will be applied to stored media, be sure the following requirements are met:

- The bar code labels meet, and are applied according to, autoloader manufacturer's requirements.
- Each media has a unique bar code.

### *Media with Bar Code Label*

After each media is inserted into a slot (and the autoloader door is in a closed position), Autoloader Software learns each media's bar code. When the media is loaded into the drive, AutoLoader Software learns its label. The bar code and label information is then stored in the System Control Database.

See "*Learning the Media*" in Chapter 4.



---

**NOTE:** Be sure to apply physical labels to all media, even those containing bar codes, in case the bar code information is not readable. If AutoLoader Software requests specific media for an operation and bar code information is not available, media can be located by viewing its label.

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## Viewing Media

### Viewing Media

To view information for media located in either the slots or the backup device, highlight the media in Media Manager, open the View menu, and select *Mounted Media*. The following information is displayed:

- **Location of the Media**—in a drive or in a slot in the media holder.
- **Media Label**—the label of each media.
- **Format**—SIDF (System Independent Data Format), PALDF (Palindrome Data Format ), or Unknown (not in a readable format). Note that current Palindrome backup software writes in SIDF to the ECMA-208 standard.
- **Media Type**—4mm tape or 8mm tape (and optical disk for NetWare editions of Storage Manager or Backup Director).
- **Bar Code Information**—bar code information (if a bar code has been applied and is readable).



---

**NOTE:** A question mark (?) preceding a media label indicates that the status of the media is questionable. A media is marked as questionable if the autoloader door was opened after AutoLoader Software had learned the media's label. When the door is closed again, AutoLoader Software will automatically re-learn the media labels, replacing the "?" status indicator with label information.

---

## Viewing Media Label Information

Tape and optical media are labeled similar to the following examples:

### Tape Media Labels

Tape media contain one label for each media in a media set. For example, tape media set "PAL:A" with three media (tapes) might be labeled as follows:

- Tape (1) with label "PAL:A:1"
- Tape (2) with label "PAL:A:2"
- Tape (3) with label "PAL:A:3"

### Optical Disk Labels (applies to NetWare only)

Each side of an optical disk is considered one media and is uniquely labeled. For example, optical media set "PAL:A" with three media (optical disks) might be labeled as follows:

- Optical disk (1) with labels "PAL:A:1" and "PAL:A:2"
- Optical disk (2) with labels "PAL:A:3" and "PAL:A:4"
- Optical disk (3) with labels "PAL:A:5" and "PAL:A:6"

Note that information for each side of an optical disk is listed separately on the Media Pick List and the Mounted Media List.

## Media Pick List

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If an operation in progress is unable to locate a preferred or eligible media (see **Status** column below), a Media Pick List is displayed to allow for the selection of alternate media to continue the operation.

### *Media Pick List*

For media that have not been used for managed backups, one of the following is displayed:

**{CLEAN}**—Cleaning cartridge (tape autoloaders only).

**{UNFORMATTED}**—New media (usable for backup operations).

**{BLANK}**—Formatted and available for operations.

**{UNKNOWN}**—Formatted, but with an unrecognizable file system, and must be re-formatted to be usable for operations.

**{EXPORT}**—Non-managed media.

## **Chapter 4**

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# ***Using AutoLoader Software***

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### ***Overview***

This chapter explains how AutoLoader Software learns media and how to manage media using menus.

*Chapter 4 - Using AutoLoader Software*

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## Learning the Media

When the system is booted for the first time after completing the install procedure, AutoLoader Software has no knowledge of the media stored in the autoloader. When media has been loaded into the media holder slots and the autoloader door has been closed, media are scanned (continually, at approximately 30-second intervals) to learn bar code, label, and media location information.

Bar code information gained during the scan process is then updated in the System Control Database; other media labeling information is kept in memory.

### Updating the List of Media in Autoloaders

Some autoloaders cannot update the list of media loaded in the device and their respective slot locations after the device door has been opened. To verify the status of media loaded in the device, you will have to perform a Learn Media operation. The Learn Media operation reads the media label (or bar code label if applicable) in each slot of the loader.

#### To update the autoloader's list of media

1. In Backup Director or Storage Manager, access Device Manager and highlight the autoloader in the device tree.
2. Open the Operations menu and select *Learn Media*.
3. At the start prompt, choose **OK**. (Note that there is no prompt indicating when the operation has completed.)
4. Choose the **Rescan** button in Media Manager to refresh the display of media contained in the autoloader.



---

**NOTE:**

If the autoloader door is opened or if the device is powered off, media labels in screen displays will be preceded by a question mark “?” (designating that the label information previously learned is now questionable). When the door is again closed and power is back on, the labels are re-learned and the question mark designators are removed.

---

## Managing Media

To manage media within the autoloader, open the Operations menu in Media Manager and select *Robotic*. The following table describes the actions performed for each menu item displayed.

Menu Selection	Action Performed
<i>Load</i>	Moves highlighted media from a slot into a backup device.
<i>Unload</i>	Unloads highlighted media from the backup device and is places it into a media holder slot.
<i>Export</i>	Moves media from a slot to the import/export door (a feature included on some autoloaders). The media can then be removed from the autoloader.
<i>Import</i>	For some autoloaders, this item moves media from the import/export door to an available slot. For other autoloaders, alternate steps are required.*
<i>Clean</i>	If a cleaning cartridge is in a configured slot or if a bar-coded cleaning cartridge is in the autoloader, the cartridge will be inserted into the drive and the drive will be cleaned.

\* Prior to inserting a new media into the autoloader's import/export door, some autoloaders require the user to open the Operations menu in Device Manager and select *Import Media*. When media is inserted into the import/export door and the door is closed, the media is automatically moved into the first available slot.

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## Tape Drive Head Cleaning

During backup and utility operations, AutoLoader Software queries the backup device(s) within tape autoloaders to determine if head cleaning is required. If the tape backup device reports the need for cleaning to AutoLoader Software, cleaning will occur automatically; otherwise, cleaning must be performed manually. Please refer to the manufacturer's documentation for your autoloader to determine if your autoloader has this capability.

### Automatic Cleaning

During backup and media utility operations, the tape drive(s) in the autoloader will be queried to determine if cleaning is required. If the tape drive has the capability to report when cleaning is required and a cleaning cartridge is stored in a configured slot or is bar-coded as a cleaning tape, tape drive head cleaning will occur automatically.



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**NOTE:** Note that this operation is not configurable; if the drive supports this feature and a cleaning cartridge is in the autoloader, cleaning will be performed automatically when required.

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A message will be written to the System Messages database indicating success or failure of the cleaning operation and whether the number of passes allowed for the cleaning cartridge has been exceeded.

### Manual Cleaning

If the drive in a tape autoloader needs cleaning but is not capable of reporting this to AutoLoader Software, it will be necessary to periodically perform a manual cleaning operation.

#### To manually clean the device:

1. Verify that a cleaning cartridge is in a configured slot or that a cleaning cartridge with a bar code label is in the autoloader.

2. Access Media Manager.
3. Open the Operations menu and select *Robotic*.
4. Choose **Clean**.

Manual cleaning operations are not automatically recorded in the database; therefore, you should manually record the cleaning operation. For more information on how to **Record a Cleaning** in Device Manager, see Chapter 10—“Managing Devices”, in the Palindrome backup software *Administrator’s Guide*.

### Viewing Cleaning Operation Statistics

After a cleaning operation, a message will be written to the System Messages database indicating success or failure of the cleaning operation and whether the number of passes allowed for the cleaning cartridge (specified by the manufacturer) has been exceeded.

In addition, the statistics on cleaning cartridge usage can be viewed by highlighting the cleaning media in Media Manager and selecting the Statistics tab. In the **Usage** field, view the number of passes and in the **Last Cleaning** field, view the date of the last cleaning operation.

Palindrome recommends that system messages be reviewed periodically so that a new cleaning cartridge can be inserted into the autoloader before the currently mounted cleaning cartridge’s maximum number of passes is exceeded.



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**WARNING:** Even if a cleaning cartridge has exceeded its maximum number of passes, AutoLoader Software will attempt to use it to clean the drive. Minimal cleaning occurs and **the drive heads may be damaged.**

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*Chapter 4 - Using AutoLoader Software*

## **Chapter 5**

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# **Troubleshooting**

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### **Overview**

This chapter is designed to help identify and solve problems encountered using AutoLoader Software. Please review this section before contacting your reseller or Palindrome Technical Support.

*Chapter 5 - Troubleshooting*

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## Checklist for Proper Autoloader Operation

Palindrome AutoLoader Software is designed to work seamlessly with Storage Manager and Backup Director operations if:

- The autoloader is powered on.
- Both the autoloader and the backup device(s) are properly cabled and the SCSI bus is terminated at both ends. Also, be sure the SCSI bus is not both internally terminated (with termination resistors) and externally terminated (with a termination block).
- The robotics and the backup device(s) each have a unique SCSI address. If you are using the Palindrome FAST 2000, FAST 2000C or FAST 2000C Turbo Autoloader, or the ADIC DAT 1200 (or if you are unsure if the autoloader can determine the SCSI addresses of its backup devices), set the backup device's SCSI addresses to **0, 1, 2, or 3** to avoid conflicts with the autoloader.

If your autoloader allows independent setting of the robotics SCSI address, it must be set to 3 greater than the highest numbered drive address. For example, if the highest drive address is 2, then the robotics address must be set to 5.

Also be sure that autoloader and drives' addresses do not conflict with the address of the host adapter (typically set to address 7).

- The autoloader and the firmware versions of both the robotics and backup device(s) are supported by AutoLoader Software. For a list of the latest Palindrome certified autoloader devices and certified firmware versions, contact Palindrome.
- The autoloader driver and host adapter driver are properly loaded.

## Scanning for available SCSI devices

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### To scan the SCSI bus for a list of all devices:

1. Open the Operations menu in Device Manager.
2. Select *Scan for Devices*.
3. Information is displayed on host adapters, SCSI hard drives, and SCSI backup devices.



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**NOTE:** For Windows NT installations, if the device was turned off at boot time, you must turn it on, then shutdown and restart the installation machine before re-scanning the SCSI bus.

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## Testing SCSI devices

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If system messages indicate possible backup device hardware problems, diagnostic programs are provided to test configured devices.

### Testing of Tape Media

The diagnostic program performs write, read, compare, and positioning tests (on blank or unformatted tapes) and reports media related failures. Because the diagnostic program performs a “destructive” write to media (overwriting any data on the media), **do not run the program on media containing valuable data.**

### To test a backup device

1. Open the Operations menu in Device Manager.
2. Highlight the device.
3. Select *Test Device*.
4. Choose either **Short Test** or **Long Test** and enable **Trace**.

Both **Short Test** and **Long Test** perform the same write, read, verify, and positioning tests. The Short Test writes to only the first part of media and takes about 25 minutes to complete. The Long Test performs writes from the beginning to the end of media and takes about 50 minutes to complete (actual time to complete is affected by the speed of the hardware components, drive compression, and media capacity). You can access System Messages to view the test results.

## Testing the autoloader robotics

### To test the autoloader robotics

1. Highlight the autoloader icon in Device Manager.
2. Open the Operations menu and select *Test Device*.
3. In the Submit Job to Test Device dialog box, choose either **Short Test** or **Long Test** and enable **Trace** (optional, but recommended). The Short Test moves each media in the autoloader from its storage slot to the drive (and back to its original storage location) one time. The Long Test moves each media from storage to the drive (and back) five times.

As testing progresses, the **phase** field will change to indicate that the changer is “testing medium changer”, “loading media”, or “storing media”.

4. When the **phase** field displays “operation completed”, choose **Close** to exit the window.

If errors are detected during the test, information detailing the possible cause(s) is written to System Messages for viewing later. It is recommended that system messages pertaining to the tape drive test and to the media test be printed out, in case it is necessary to contact your authorized reseller or Palindrome Technical Support for assistance.

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## System Messages

System messages that are generated when using AutoLoader Software may be the result of an internal software error. If repeating the operation does not solve the problem, System Messages should be reviewed for error detail to report to your reseller, and if additional assistance is required, to Palindrome Technical Support.

**To view System Messages:**

1. Open the Status menu in Control Console.
2. Select *System Messages*.

For additional information, see the “System Messages” section in the *Administrator’s Reference Guide*.

## Appendix A

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# General Information

This appendix provides information on configuring and operating certain autoloader devices.

## ADIC DAT AutoChanger

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### SCSI address requirements

The SCSI address of the drive within the ADIC DAT AutoChanger (robotics) must be set to a number three less than the autoloader's SCSI address. For example, if the autoloader's SCSI address is set to 5, the drive's SCSI address must be set to 2.

## Exabyte EXB-10e

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### Problem with Media in Drive or Empty Slot 1

An error may occur when there is either a media in the drive or no media in slot 1. This is caused by a problem in firmware versions 2.6 and 3.0.

To correct this problem, obtain corrected firmware version 3.3.1 (or a later version). As a temporary workaround, be sure there is a media in slot 1 and no media in the drive, then reinitialize (power cycle) the autoloader.

### Transfer Mode Negotiation

The following situation applies to the Exabyte EXB-10e, EXB-10h, EXB-10i, EXB-60, EXB-120, EXB-210, and Palindrome FAST 5000 and 5000C autoloaders.

If the autoloader is powered off while the installation machine is still running, it may be necessary to down the machine, power cycle (turn the power off and then back on) both the machine and the autoloader, and then reboot the machine. These steps are required, with some firmware version configurations, so that the host adapter can negotiate transfer mode with the drive.



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**NOTE:** If backup devices on a Windows NT installation machine are powered on after the NT machine has been booted, the machine must be rebooted in order to recognize the device.

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Failure to negotiate transfer mode with the drive may cause media operations to fail and may lock the server console screen. Contact your reseller for possible firmware configuration upgrades to resolve this problem.

### **SCSI address requirements**

If there are other 8mm drives on the SCSI bus in addition to the 8mm drive in the Exabyte EXB-10e (and EXB-10i) Autoloader, the SCSI address of the drive within the autoloader must be set to the number immediately following the autoloader's SCSI address. For example, if the autoloader's SCSI address is set to **3**, the drive's SCSI address must be set to **4**. The drive(s) outside of the autoloader may be assigned any valid, non-conflicting SCSI address.

## **Exabyte EXB-10i**

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### **Transfer Mode Negotiation**

Please refer to "Transfer Mode Negotiation" in the Exabyte EXB-10e section for important information on power cycling this autoloader.

## **SCSI address requirements**

Please refer to “SCSI address requirements” in the Exabyte EXB-10e section for important information on SCSI address requirements.

## **Exabyte EXB-60**

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### **Transfer Mode Negotiation**

Please refer to “Transfer Mode Negotiation” in the Exabyte EXB-10e section for important information on power cycling this autoloader.

## **Exabyte EXB-120**

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### **Transfer Mode Negotiation**

Please refer to “Transfer Mode Negotiation” in the Exabyte EXB-10e section for important information on power cycling this autoloader.

## **Palindrome FAST 5000/5000C**

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### **Transfer Mode Negotiation**

Please refer to “Transfer Mode Negotiation” in the Exabyte EXB-10e section for important information on power cycling this autoloader.

*Appendix A*