

2 U Universal Tape Autoloader



Installation Guide

2 U Universal Tape Autoloader



Installation Guide

Note: Before using this information and the product it supports, read the information in the IBM Statement of Limited Warranty Z125-4753-08 04/2004 in the *2 U Universal Tape Autoloader User's Guide* on the *Documentation CD* and "Notices," on page 13.

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Contents

Safety	v
Chapter 1. Introduction	1
The IBM Documentation CD	1
Hardware and software requirements	1
Using the Documentation Browser	1
Notices and statements in this document	2
Chapter 2. Installing the autoloader	3
Installation guidelines	3
Handling static-sensitive devices	3
Returning a device or component	4
Required tools	4
Inventory parts	4
Unpacking the autoloader	4
Installing the autoloader	5
Installing Fibre Channel tape drive cables	9
Solving initial startup problems	9
Appendix. Notices	13
Trademarks	13
Product recycling and disposal	14
Electronic emission notices	15
Federal Communications Commission (FCC) statement	15
Industry Canada Class A emission compliance statement	15
Australia and New Zealand Class A statement	15
United Kingdom telecommunications safety requirement	15
European Union EMC Directive conformance statement	16
Taiwanese Class A warning statement	16
Chinese Class A warning statement	16
Japanese Voluntary Control Council for Interference (VCCI) statement	16
Index	17

Safety

Before installing this product, read the Safety Information.

مج، يجب قراءة دات السلامة

Antes de instalar este produto, leia as Informações de Segurança.

在安装本产品之前，请仔细阅读 **Safety Information**
(安全信息)。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Ennen kuin asennat tämän tuotteen, lue turvaohjeet kohdasta Safety Information.

Avant d'installer ce produit, lisez les consignes de sécurité.

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

Πριν εγκαταστήσετε το προϊόν αυτό, διαβάστε τις πληροφορίες ασφάλειας
(safety information).

לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

A termék telepítése előtt olvassa el a Biztonsági előírásokat!

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza.

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Пред да се инсталира овој продукт, прочитајте информацијата за безбедност.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

Les sikkerhetsinformasjonene (Safety Information) før du installerer dette produktet.

Przed zainstalowaniem tego produktu, należy zapoznać się
z książką "Informacje dotyczące bezpieczeństwa" (Safety Information).

Antes de instalar este produto, leia as Informações sobre Segurança.

Перед установкой продукта прочтите инструкции по
технике безопасности.

Pred inštaláciou tohto zariadenia si prečítajte Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

Antes de instalar este producto lea la información de seguridad.

Läs säkerhetsinformationen innan du installerar den här produkten.

安裝本產品之前，請先閱讀「安全資訊」。

Statement 1:



DANGER

Electrical current from power, telephone, and communication cables is hazardous.

To avoid a shock hazard:

- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet.**
- **Connect to properly wired outlets any equipment that will be attached to this product.**
- **When possible, use one hand only to connect or disconnect signal cables.**
- **Never turn on any equipment when there is evidence of fire, water, or structural damage.**
- **Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.**
- **Connect and disconnect cables as described in the following table when installing, moving, or opening covers on this product or attached devices.**

To Connect:

1. Turn everything OFF.
2. First, attach all cables to devices.
3. Attach signal cables to connectors.
4. Attach power cords to outlet.
5. Turn device ON.

To Disconnect:

1. Turn everything OFF.
2. First, remove power cords from outlet.
3. Remove signal cables from connectors.
4. Remove all cables from devices.

Statement 15:



CAUTION:

Make sure that the rack is secured properly to avoid tipping when the unit is extended.

Statement 23:



CAUTION:

Do not place any object weighing more than 50 kg (110 lb) on top of rack-mounted devices.



>50 kg (110 lb)

Chapter 1. Introduction

The IBM® 2 U Universal Tape Autoloader is an automated tape storage and retrieval device for xSeries® and System x™ servers. The autoloader supports one tape drive and can store up to 23 tape cartridges in two magazines.

Notes:

1. The SCSI host bus adapter for the autoloader should be SCSI-3 low voltage differential (LVD). A single-ended (SE) SCSI host bus adapter will severely degrade performance. Also, if any SE devices are on the same SCSI bus, the entire SCSI bus will negotiate down to SE speed and severely degrade performance.
2. This document describes basic SCSI and Fibre Channel installations. More complicated installations such as SANs, switches, and hubs are beyond the scope of this document.

The Universal Tape Autoloader comes with a limited warranty. For more information, see the *IBM 2 U Universal Tape Autoloader User's Guide* on the IBM Documentation CD.

Contact your place of purchase if an item is missing or damaged. Be sure to retain your proof of purchase. It might be required for you to receive warranty service.

The IBM Documentation CD

The IBM *Documentation* CD contains documentation for the autoloader in Portable Document Format (PDF) and includes the IBM Documentation Browser to help you find information quickly.

Hardware and software requirements

The IBM *Documentation* CD requires the following minimum hardware and software:

- Microsoft® Windows® XP, Windows 2000, or Red Hat Linux
- 100 MHz microprocessor
- 32 MB of RAM
- Adobe Acrobat Reader 3.0 (or later) or xpdf, which comes with Linux operating systems

Using the Documentation Browser

Use the Documentation Browser to browse the contents of the CD, read brief descriptions of the documents, and view documents, using Adobe Acrobat Reader or xpdf. The Documentation Browser automatically detects the regional settings in use in your system and displays the documents in the language for that region (if available). If a document is not available in the language for that region, the English-language version is displayed.

Use one of the following procedures to start the Documentation Browser:

- If Autostart is enabled, insert the CD into the CD drive. The Documentation Browser starts automatically.
- If Autostart is disabled or is not enabled for all users, use one of the following procedures:

- If you are using a Windows operating system, insert the CD into the CD drive and click **Start --> Run**. In the **Open** field, type
`e:\win32.bat`

where *e* is the drive letter of the CD drive, and click **OK**.

- If you are using Red Hat Linux, insert the CD into the CD drive; then, run the following command from the `/mnt/cdrom` directory:

```
sh runlinux.sh
```

Select the autoloader from the **Product** menu. The **Available Topics** list displays all the documents for your device. Some documents might be in folders. A plus sign (+) indicates each folder or document that has additional documents under it. Click the plus sign to display the additional documents.

When you select a document, a description of the document is displayed under **Topic Description**. To select more than one document, press and hold the Ctrl key while you select the documents. Click **View Book** to view the selected document or documents in Acrobat Reader or xpdf. If you selected more than one document, all the selected documents are opened in Acrobat Reader or xpdf.

To search all the documents, type a word or word string in the **Search** field and click **Search**. The documents in which the word or word string appears are listed in order of the most occurrences. Click a document to view it, and press Ctrl+F to use the Acrobat search function or Alt+F to use the xpdf search function within the document.

Click **Help** for detailed information about using the Documentation Browser.

Notices and statements in this document

The caution and danger statements in this document are also in the multilingual *Safety Information* document, which is on the IBM *Documentation* CD. Each statement is numbered for reference to the corresponding statement in your language in the *Safety Information* document.

The following notices and statements are used in this document:

- **Note:** These notices provide important tips, guidance, or advice.
- **Attention:** These notices indicate potential damage to programs, devices, or data. An attention notice is placed just before the instruction or situation in which damage could occur.
- **Caution:** These statements indicate situations that can be potentially hazardous to you. A caution statement is placed just before the description of a potentially hazardous procedure step or situation.
- **Danger:** These statements indicate a situation that can be potentially lethal or extremely hazardous to you. A danger statement is placed just before the description of a potentially lethal or extremely hazardous procedure step or situation.

Chapter 2. Installing the autoloader

This chapter provides instructions for installing the autoloader.

Installation guidelines

Before you remove or replace a device, read the following information:

- Read the safety information that begins on page v and “Handling static-sensitive devices.” This information will help you work safely.
- Observe good housekeeping in the area where you are working. Place removed covers and other parts in a safe place.
- Do not attempt to lift an object that you think is too heavy for you. If you have to lift a heavy object, observe the following precautions:
 - Make sure that you can stand safely without slipping.
 - Distribute the weight of the object equally between your feet.
 - Use a slow lifting force. Never move suddenly or twist when you lift a heavy object.
 - To avoid straining the muscles in your back, lift by standing or by pushing up with your leg muscles.
- Make sure that you have an adequate number of properly grounded electrical outlets for the server and all attached devices.
- Back up all important data before you make changes to disk drives.

Review the documentation that comes with your rack cabinet for safety and cabling information. Before you install the autoloader in a rack cabinet, consider the following guidelines:

- Two or more people are required to install the device in a rack cabinet.
- Make sure that the room air temperature is below 35°C (95°F).
- Do not block any air vents; usually 15 cm (6 in.) of space provides proper airflow.
- Do not leave open spaces above or below an installed device in your rack cabinet. To help prevent damage to the device and ensure proper air circulation, always install a blank filler panel to cover the open space.
- Plan the device installation starting from the bottom of the rack cabinet.
- Install the heaviest device in the bottom of the rack cabinet.
- Do not extend more than one device out of the rack cabinet at the same time.
- Do not overload the power outlet when you install multiple devices in the rack cabinet.

Handling static-sensitive devices

Attention: Static electricity can damage electronic devices. To avoid damage, keep static-sensitive devices in their static-protective packages until you are ready to install them.

To reduce the possibility of damage from electrostatic discharge, observe the following precautions:

- Limit your movement. Movement can cause static electricity to build up around you.

- The use of a grounding system is recommended. For example, wear an electrostatic-discharge wrist strap, if one is available.
- Handle the device carefully, holding it by its edges or its frame.
- Do not touch solder joints, pins, or exposed circuitry.
- Do not leave the device where others can handle and damage it.
- While the device is still in its static-protective package, touch it to an unpainted metal surface for at least 2 seconds. This drains static electricity from the package and from your body.
- Remove the device from its package and install it immediately without setting down the device. If it is necessary to set down the device, put it back into its static-protective package. Do not place the device on a metal surface.
- Take additional care when handling devices during cold weather. Heating reduces indoor humidity and increases static electricity.

Returning a device or component

If you are instructed to return a device or component, follow all packaging instructions, and use any packaging materials for shipping that are supplied to you.

Required tools

Make sure that the following tools are available:

- Flat-blade screwdriver
- Phillips screwdriver
- Electrostatic-discharge wrist strap

Inventory parts

Make sure that you have the following parts:

- Chassis:
 - Chassis
 - Chassis power cord
 - PDU power cord
 - Long SCSI cable
 - SCSI terminator
 - Rack mounting hardware
- Tape drive:
 - Drive assembly
 - Cleaning cartridge
 - Barcode labels
- Magazines:
 - Right magazine
 - Left magazine

Contact your place of purchase if an item is missing or damaged.

Unpacking the autoloader

Note: If the temperature of the room where the autoloader will be installed varies by 15°C (27°F) or more from the temperature of the room where the autoloader was stored, allow the autoloader to acclimate to the surrounding environment for at least 12 hours before you unpack it.

To unpack the autoloader, complete the following steps:

1. Inspect the shipping container for damage. If it is damaged, report it to the shipping company immediately.
2. Open the shipping container and carefully remove the packing material from the top of the autoloader.
3. Remove the accessory package and set it aside.

Attention: To prevent damage, do not place the autoloader on its front panel or rear panel.

4. Lift the autoloader out of the shipping container and remove the bag from the autoloader.
5. Save all shipping materials for future use.

Installing the autoloader

To install the autoloader, complete the following steps:

1. Read the safety information that begins on page v and “Installation guidelines” on page 3.
2. Make sure that the host server is turned off and that the power cord is disconnected.
3. Remove the label that secures the shipping lock, and then remove the shipping lock.

Note: The illustrations in this document might differ slightly from your hardware.



Figure 1. Removing the shipping lock

4. Secure the shipping key to the back of the autoloader with the shipping lock label.
5. Using the screws for your rack type, secure the back and front of the rails to the rack as shown in Figure 2 on page 6.

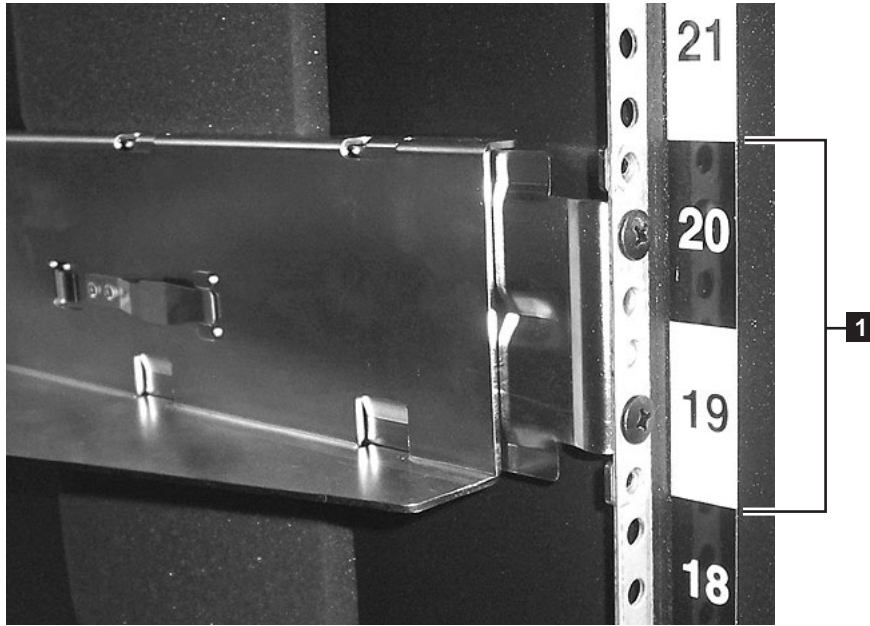


Figure 2. Installing the rails

6. Remove the mounting screws shown in Figure 3.

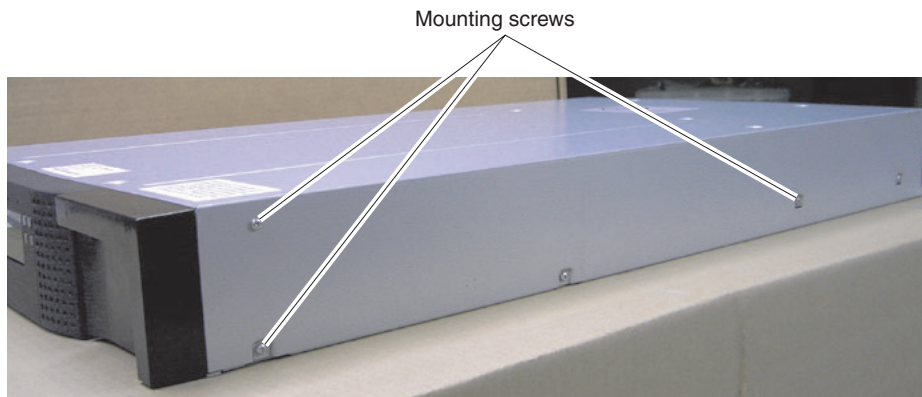


Figure 3. Removing the mounting screws

7. Install the autoloader rack anchors and mounting brackets as shown in Figure 4 on page 7.

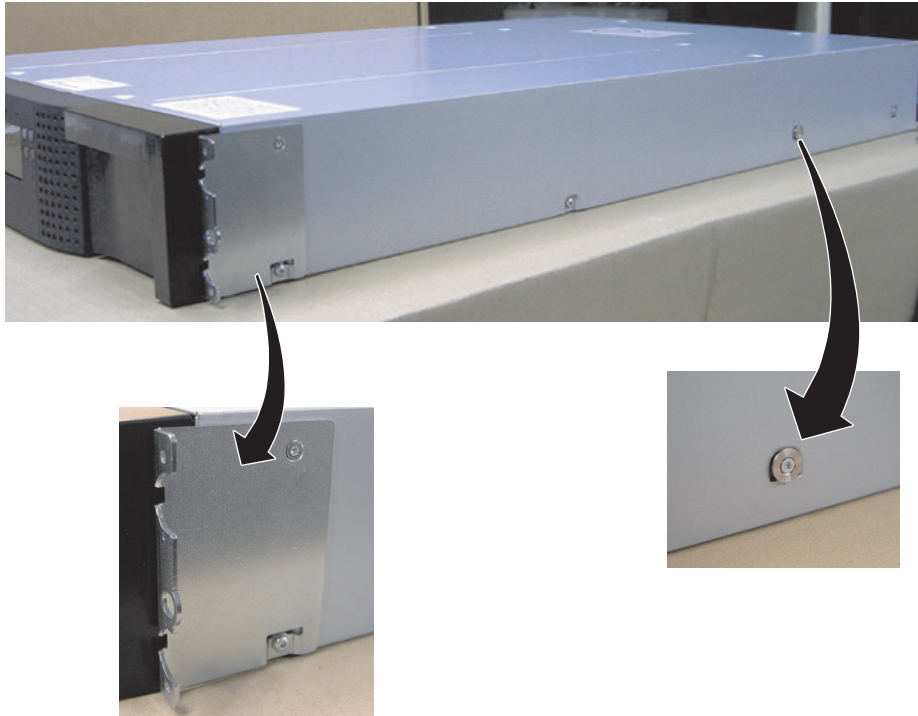


Figure 4. Installing the anchors and mounting brackets

8. Slide the autoloader into the rack.
9. Secure the autoloader to the rack as shown in Figure 5.

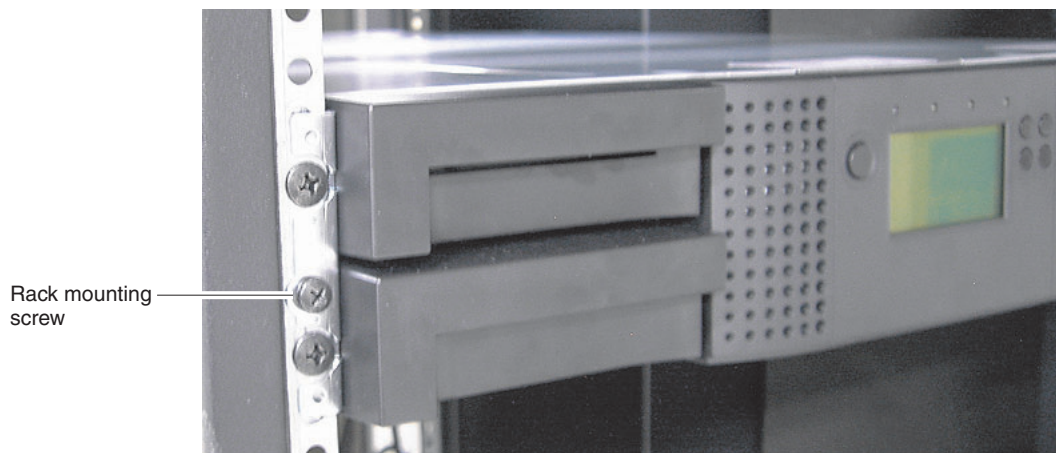


Figure 5. Securing the autoloader to the rack

10. Install the tape drive:
 - a. Slowly slide the tape drive into the autoloader as shown in Figure 6 on page 8.

Note: The following illustration shows a SCSI tape drive. Fibre Channel tape drives are similar.



Figure 6. Installing the tape drive

- b. Tighten the captive screws.
11. If you have installed a Fibre Channel tape drive, follow the instructions in “Installing Fibre Channel tape drive cables” on page 9, and then continue with step 12. Otherwise, complete the following steps:
 - a. Connect the SCSI host interface cable to the autoloader and host server.

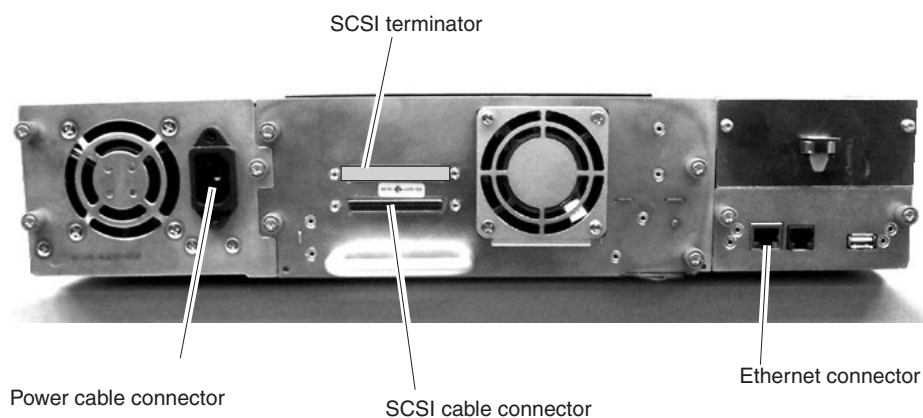


Figure 7. Installing the SCSI cables

- b. Install the SCSI terminator on the autoloader.
 - c. Connect the Ethernet cable to the Ethernet connector on the autoloader.
 - d. Connect the power cable to the autoloader.
 - e. Connect the power cable to a properly grounded electrical outlet.
12. Turn on the autoloader by pressing the power switch.

(To turn off the autoloader, press the power switch for 1 second. The shutdown sequence can take up to 1 minute.)

13. Install the tape cartridges:
 - a. Label the cartridges.
 - b. Set the write-protect switch to write-protect or write-enable.
 - c. Place the cartridges in the magazines:
 - 1) From the main screen, press the Enter button. The main menu is displayed.
 - 2) Press the Next button to select **Magazine**, and press the Enter button.
 - 3) Press the Next button to select the magazine that you want to open and press the Enter button. The Magazine Unlocking screen is displayed, the magazine is unlocked, and the autoloader door is opened.
 - 4) Open the magazine and load the tape cartridges.
 - 5) Close the magazine and autoloader doors. The tape cartridges are automatically inventoried.

Installing Fibre Channel tape drive cables

If you have installed a Fibre Channel tape drive, complete the following steps:

1. Connect the Fibre Channel host interface cable to the host server.

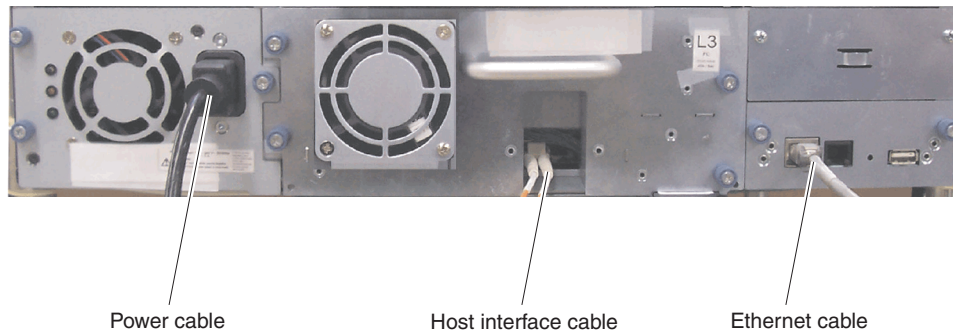


Figure 8. Install cables

2. Connect the Fibre Channel host interface cable to the tape drive.

Note: If you convert the installation from SC connectors to LC connectors, you must install an interposer cable between the tape drive and the host interface cable. The interposer cable must be purchased separately.

3. Connect the Ethernet cable to the Ethernet connector on the autoloader.
4. Connect the power cable to the autoloader.
5. Connect the power cable to a properly grounded electrical outlet.
6. Continue with step 12 on page 8.

Solving initial startup problems

Problems during the installation of the autoloader are usually caused by incorrect SCSI bus configuration, application software configuration errors, or an incorrectly configured operating system. If the application software that you are using is not communicating with the autoloader after installation, check the following possible causes:

- **SCSI ID:** The autoloader with a SCSI tape drive uses a single SCSI ID. Depending on other devices that are attached to the same SCSI bus and their SCSI IDs, you might have to change the SCSI ID of the autoloader or tape drive before you can use the autoloader. Review the documentation for the other devices on the SCSI bus or your operating system to determine which SCSI IDs are currently in use.
- **Fibre Channel loop ID:** Make sure that the Fibre Channel loop ID is correct and not the same as that of other devices that are on the same bus.
- **LUN scanning:** Use dual logical unit numbers (LUNs) to control the tape drive (LUN 0) and autoloader accessor (LUN 1). The autoloader requires a host bus adapter that supports LUN scanning, and LUN scanning must be enabled.
- **SCSI host interface cabling:** Make sure that all cables are securely connected at both ends. Check the length and integrity of your cabling. Check the connector for bent pins or other damage.
 - The length of the internal SCSI cabling inside the autoloader is 60 cm (2 feet). This length must be included in any calculations of cable length.
 - The maximum length of a single device is 25 meters (82 feet). For multiple devices, the maximum combined internal and external length is 12 meters (40 feet).
 - If you have a combination of low voltage differential (LVD) and single-ended (SE) devices on the bus, the maximum cable length reverts to the SE specification, which for Ultra devices is 3 meters (10 feet) for four or fewer devices, and 1.5 meters (5 feet) for more than four devices.
- **SCSI termination:** If the autoloader is the only SCSI device other than the SCSI host adapter on the selected SCSI bus, it must be terminated. Likewise, if the autoloader is physically the last SCSI device on the SCSI bus, it must be terminated. See the documentation that came with other devices on the SCSI bus for information about enabling or disabling termination on those devices. To terminate the autoloader, locate the SCSI terminator that comes with the chassis and press it firmly into either of the two SCSI connectors on the back panel of the autoloader. Secure the terminator by tightening the thumbscrews until they are snug. The supplied terminator is dual mode and works on both LVD and SE SCSI buses. Check all SCSI cable connections and confirm that the unit is attached to a valid SCSI SE or LVD bus.
- **Compatibility:** Make sure that the autoloader is compatible with the SCSI host adapter and backup application that you plan to use. For a list of compatible SCSI adapters and application software, check with your SCSI host adapter manufacturer or backup application vendor.

Note: The host bus adapter for the autoloader should be SCSI-3 LVD. A single-ended (SE) SCSI host bus adapter will severely degrade performance. Also, if any SE devices are on the same SCSI bus, the entire SCSI bus will negotiate down to SE speed and severely degrade performance.

- **SCSI host adapter installation:** Make sure that the SCSI host adapter is installed correctly. See the documentation that came with the SCSI host adapter for installation and troubleshooting instructions. Pay particular attention to any steps that describe the settings of various jumpers or switches on the host adapter, if applicable. Make sure that the host adapter is correctly seated in the slot on the system board and the operating system correctly detects the host adapter. Make sure that the correct device driver is installed for the SCSI host adapter.

- **Backup application installation:** See the documentation that comes with the backup application for installation instructions. Some backup software packages require an additional module to communicate with the autoloader accessor.
- **Device driver installation:** Make sure that the correct device driver, if applicable, is installed for the autoloader.

Note: Many backup applications use their own device drivers for the autoloader and tape drive. Before you install a device driver, make sure that it will not conflict with the software.

Appendix. Notices

This information was developed for products and services offered in the U.S.A.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

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xSeries

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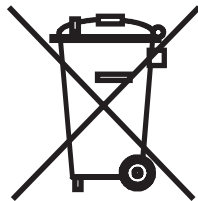
Linux is a trademark of Linus Torvalds in the United States, other countries, or both.

Other company, product, or service names may be trademarks or service marks of others.

Product recycling and disposal

This unit must be recycled or discarded according to applicable local and national regulations. IBM encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. IBM offers a variety of product return programs and services in several countries to assist equipment owners in recycling their IT products. Information on IBM product recycling offerings can be found on IBM's Internet site at <http://www.ibm.com/ibm/environment/products/prp.shtml>.

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Notice: This mark applies only to countries within the European Union (EU) and Norway.

This appliance is labeled in accordance with European Directive 2002/96/EC concerning waste electrical and electronic equipment (WEEE). The Directive determines the framework for the return and recycling of used appliances as applicable throughout the European Union. This label is applied to various products to indicate that the product is not to be thrown away, but rather reclaimed upon end of life per this Directive.

注意: このマークは EU 諸国およびノルウェーにおいてのみ適用されます。

この機器には、EU 諸国に対する廃電気電子機器指令 2002/96/EC(WEEE) のラベルが貼られています。この指令は、EU 諸国に適用する使用済み機器の回収とリサイクルの骨子を定めています。このラベルは、使用済みになった時に指令に従って適正な処理をする必要があることを知らせるために種々の製品に貼られています。

Remarque : Cette marque s'applique uniquement aux pays de l'Union Européenne et à la Norvège.

L'étiquette du système respecte la Directive européenne 2002/96/EC en matière de Déchets des Equipements Electriques et Electroniques (DEEE), qui détermine les dispositions de retour et de recyclage applicables aux systèmes utilisés à travers

l'Union européenne. Conformément à la directive, ladite étiquette précise que le produit sur lequel elle est apposée ne doit pas être jeté mais être récupéré en fin de vie.

In accordance with the European WEEE Directive, electrical and electronic equipment (EEE) is to be collected separately and to be reused, recycled, or recovered at end of life. Users of EEE with the WEEE marking per Annex IV of the WEEE Directive, as shown above, must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to customers for the return, recycling, and recovery of WEEE. Customer participation is important to minimize any potential effects of EEE on the environment and human health due to the potential presence of hazardous substances in EEE. For proper collection and treatment, contact your local IBM representative.

Electronic emission notices

Federal Communications Commission (FCC) statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Class A emission compliance statement

This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Australia and New Zealand Class A statement

Attention: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

United Kingdom telecommunications safety requirement

Notice to Customers

This apparatus is approved under approval number NS/G/1234/J/100003 for indirect connection to public telecommunication systems in the United Kingdom.

European Union EMC Directive conformance statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a nonrecommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

Attention: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Taiwanese Class A warning statement

警告使用者：
這是甲類的資訊產品，在
居住的環境中使用時，可
能會造成射頻干擾，在這
種情況下，使用者會被要
求採取某些適當的對策。

Chinese Class A warning statement

聲 明
此為 A 級產品。在生活環境中，
該產品可能會造成無線電干擾。
在這種情況下，可能需要用戶對其
干擾採取切实可行的措施。

Japanese Voluntary Control Council for Interference (VCCI) statement

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に
基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を
引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求
されることがあります。

Index

A

attention notices 2
autoloader rack installation 5
autoloader, turning on and off 9

C

cartridges, installing 9
Class A electronic emission notice 15

D

danger statements 2
documentation CD 1

E

electronic emission Class A notice 15

F

FCC Class A notice 15

I

installation, autoloader 5

N

notes 2
notices
 electronic emission 15
 FCC, Class A 15
notices and statements 2

P

problems, startup 9

S

startup problems 9
statements and notices 2
static sensitive devices, handling 3

T

tape cartridges, installing 9
tools, required 4
trademarks 13

U

United States electronic emission Class A notice 15
United States FCC Class A notice 15



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