**IBM**

# 1x16 SDLT Tape Autoloader

## *User's Guide*

**OPTIONS**
*by IBM*

**Note:** Before using this information and the product it supports, read the information under the appendixes.

# Safety: Read first

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 sikkerhetsinformasjonen (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 pečítaje 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 3:**



**CAUTION:**
**When laser products (such as CD-ROMs, DVD drives, fiber optic devices, or transmitters) are installed, note the following:**

- **Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.**
- **Use of controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.**



**DANGER**

**Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following.**

**Laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam.**

# About this book

This manual contains instructions for installing the IBM® 1x16 SDLT Tape Autoloader. The manual is divided into the following sections:

**Installation and user's guide**

This guide contains the product description and installation instructions in the following languages:
- English
- French
- Korean
- Spanish
- Italian
- Brazilian Portuguese
- Simplified Chinese
- Traditional Chinese
- Japanese

## Purpose

This User's guide is designed and written for end-users to provide information on the following topics:
- Autoloader description and general overview
- Autoloader installation and configuration
- Autoloader operation
- Tape cartridge description and general overview
- Troubleshooting
- Customer-replaceable components

**Appendixes**

The appendixes contain troubleshooting information and help and service information. They also contain the product warranties and notices.

**Note:** The illustrations in this manual might be slightly different from your hardware.

# Chapter 1. Product overview

This section provides the product description and installation instructions for the IBM 1x16 Tape Autoloader.

## Product description

Data backup is essential to protect irreplaceable information. Backing up data to magnetic tape is an easy, cost-efficient method used by many small and medium sized businesses. However, most enterprises have so much data that a single backup tape is not enough; the information has to be spread across numerous tapes. To avoid constantly changing tapes manually, many tape backup systems include an autoloader.

An autoloader is a robot that includes a tape drive and one or more magazines of tape cartridges. The user's application can automatically load and unload tape cartridges as required for data backup or data retrieval. Autoloaders provide a compact, high capacity, but low cost method for simple, unattended data backup.

The IBM 1x16 autoloader contains one SDLT tape drive and two eight-cartridge magazines. It also includes a password protected mailslot to manually insert a single cartridge. You can insert the cartridge directly to the tape drive, provided there is no tape already in the drive; or you can load the cartridge to a magazine slot provided that slot is not already occupied. Finally, the autoloader includes a barcode reader to help organize and identify your individual cartridges.

The front panel on the autoloader includes a Liquid crystal display (LCD) and four function keys. A scrolling menu on the LCD display allows you to obtain information from the autoloader and enter commands. The front panel also includes two LEDs that indicate the autoloader's ready status and error status.

The autoloader connects to your host server using a SCSI connection, allowing the host to send data and commands automatically. You can also connect to the autoloader using an Ethernet connection to perform administrative functions and download system updates.

## Front view

The mailslot, liquid crystal display (LCD), function keys, status light-emitting diodes (LEDs), power switch, and left and right magazines are visible on the front panel of the autoloader.
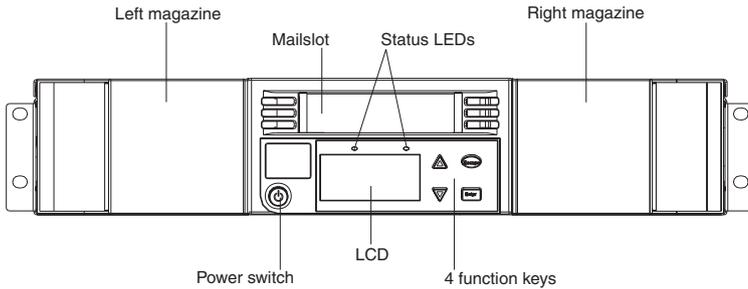


## Mailslot

The autoloader has a manual entry port or mailslot that you can use to load or unload a single cartridge. To maintain security, you can password protect the mailslot. You can insert a cartridge in the mailslot even if both magazines are completely filled, as long as the tape drive itself is empty. You can also pass a tape cartridge from the mailslot to the magazine if the tape drive is full but the magazine is not. Be sure to run an inventory from the host application after using the mailslot. The mailslot is not available from the host application.

## LCD

The LCD enables you to use the scrolling menu to perform diagnostics and to enter commands.

## Function keys

The function keys enable you to move through the scrolling menu to make selections. The following function keys are available:

- **Enter.** Press the Enter key to select an option.
- **Escape.** Press the Escape to return to the previous menu, to move backwards on a screen, or to abort an operation.
- **scroll up.** Press the up arrow to move through a menu or through the menu settings.

- **scroll down.** Press the down arrow to move through a menu or through the menu settings.

Ready LED   Fault LED   Scroll up

Escape

Scroll down   Enter
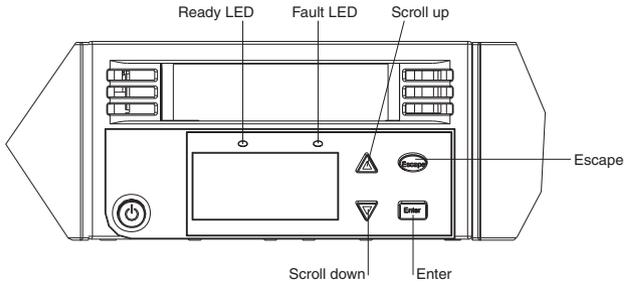
## Status LEDs

The status LEDs display autoloader and drive status information. The green, Ready LED shows ready status information, and the amber, Fault LED shows fault status information. A solid Fault LED indicates an error, and a blinking Fault LED indicates a need for maintenance.

## Magazines

The autoloader comes with two cartridge magazines. The magazines are removable, and each magazine accommodates up to eight cartridges. The handles on magazines are removable and enable you to configure any magazine to fit in the left or the right magazine bay.
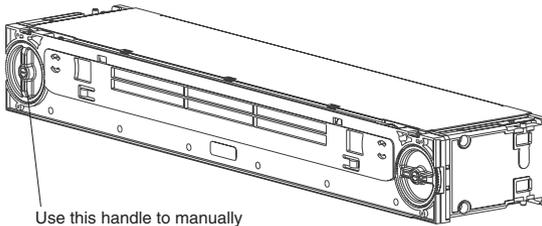
Use this handle to manually rotate the magazine when you load and unload cartridges.
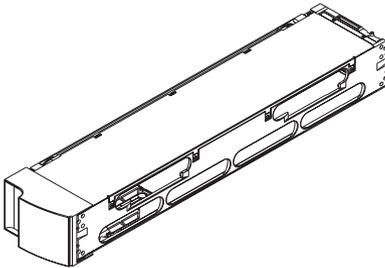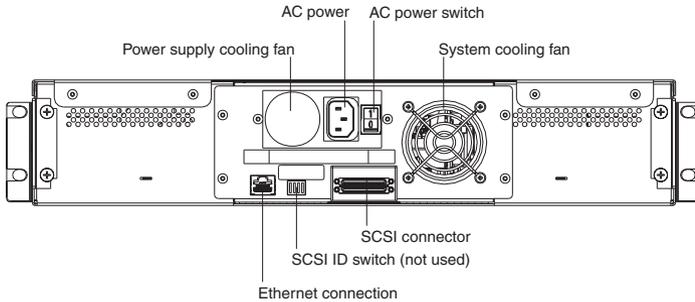
The magazines store your data tape cartridges and can also store your cleaning cartridge. The magazines also contain the part of the robotics that moves the cartridges inside the autoloader.

## Rear view

The fans and connectors are visible on the rear of the autoloader.



## Cooling fans

The autoloader has a system cooling fan, and a fan to cool the power supply. These fans maintain the acceptable temperature range for the tape drive path and all internal electronics.

## AC power

The autoloader requires a nominal voltage in the range of 110 V to 220 V to operate.

## Ethernet connection

The autoloader's Ethernet connection enables you to connect the autoloader to a network, enabling remote administration. You can also connect the autoloader to an SNMP server and a time server. The Ethernet connection supports Hyper Text Transfer Protocol (http). You can download system updates and perform administrative tasks, including diagnostics, using http (for example a Web browser).

## SCSI connection

The SCSI ID switch on the back of the drive carrier assembly (DCA) is not used and is reserved for future use.

## Internal view

The figure below shows how the components of the autoloader fit together. The picker sits behind the front panel and mailslot, and can "put" and "get" cartridges from the mailslot, magazines, and tape drive. The drive carrier assembly (DCA) contains the tape drive, internal power supply, and cooling fan, and can be removed and replaced as a single component.
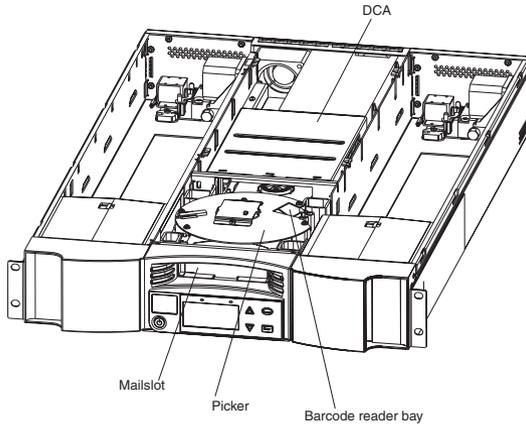


## Picker

The picker is the component of the autoloader that moves the cartridges from one location to another. One motor rotates the picker platform to position the picker arm in front of the drive, mailslot, or desired magazine. Another motor positions the picker arm to retrieve or replace the cartridge. The rotation motor engages the arm on a notch of the cartridge, and the translation motor moves the cartridge from the picker to the drive (or magazine or mailslot) or from the drive (or magazine or mailslot) to the picker.

## DCA

The DCA is configured with a SDLT tape drive. The DCA facilitates the easy removal of the drive. To change tape drives, you can replace the DCA without having to remove the top cover of the autoloader.

# Chapter 2. Installation and configuration

This chapter describes how to rack-mount and configure the autoloader.

## Preparation

**Statement 4:**



**CAUTION:**
**Use safe lifting practices.**

Before you install your new autoloader, unpack it carefully and inspect it for any damage that might have occurred during shipping. The Quick Start card included in the packaging will help those familiar with tape products to quickly install and use the autoloader.

## Accessories

In addition to this User's Guide CD, the following accessories come with each autoloader:

- Quick Start Guide
- SCSI cable
- SCSI terminator
- Rack-mount hardware
- Power cord
- Barcode labels
- Trial software CDs
- Data cartridge
- Cleaning cartridge

## Tools required

You need a #2 Phillips screwdriver to install your autoloader.

## Rackmount

It takes two people to rackmount your autoloader.

Important: Review the documentation that comes with your rack enclosure for safety and cabling considerations. When installing your autoloader in a rack, the following considerations should be made:

- The autoloader should be installed in a maximum 35° C environment.
- To ensure proper air flow, it is recommended that air vents not be blocked, usually 15 cm (6 in.) of air space is sufficient.
- To ensure stability, precautions should be taken to prevent uneven loading of the rack. Loading of the rack should begin at the bottom.
- When multiple components are installed in a rack, precautions should be taken to prevent overloading of power outlets.
- The autoloader should always be connected to a properly grounded outlet.

### How to rackmount the autoloader

1. Install two cage nuts (for Netbay standard rack) or two clip nutes (for Netbay Enterprise rack) , 44.45 mm (1.75 in.) apart, onto each of the four rails of the rack, making sure you install each pair of clip nuts at exactly the same level.



Clip nuts

Outer cover of rack

Rail in rack

Outer cover of rack
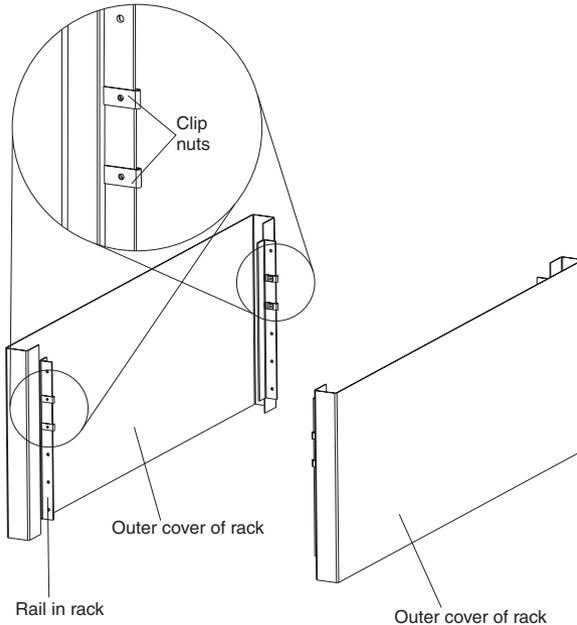
2. Attach the autoloader brackets to the rear of autoloader, tightening the fours screws until snug.



Autoloader bracket
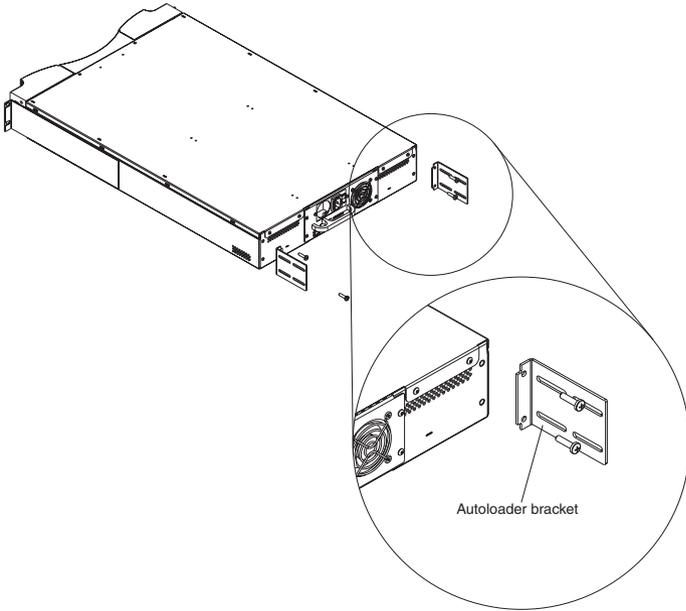
3. Attach one support bracket to each rear rail of the rack, loosely installing the screws through the clip nuts. Make sure that you attach the side of the support bracket that has only two holes, and do not tighten the screws

yet. You will tighten the screws in Step 9.



Rear rail
in rack

Outer cover
of rack
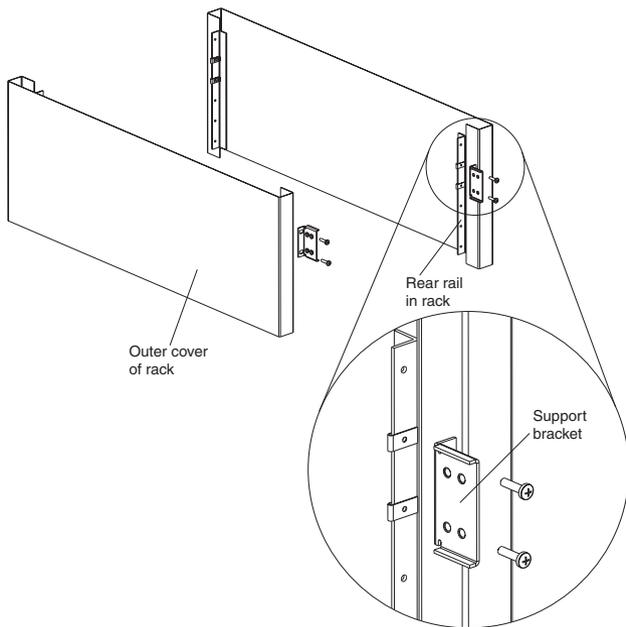
Support
bracket

4.

**Statement 4:**



**CAUTION:**
**Use safe lifting practices.**
Place the autoloader into the rack and do the following:

a. With at least two persons, position the autoloader in the rack so that
   each autoloader bracket slides into a support bracket. Each autoloader

bracket should slide along the lip of the support bracket.
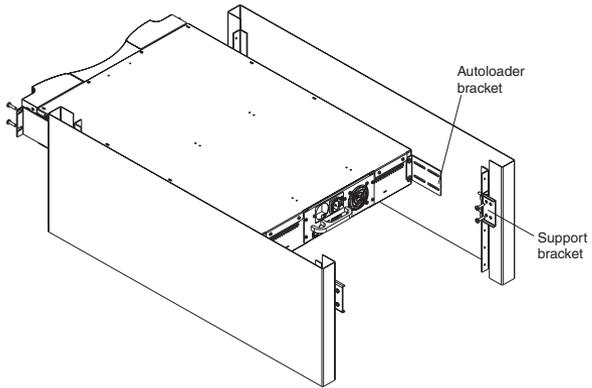


b. Slide the autoloader in place so that the front ears of the autoloader align with the front clip nuts.
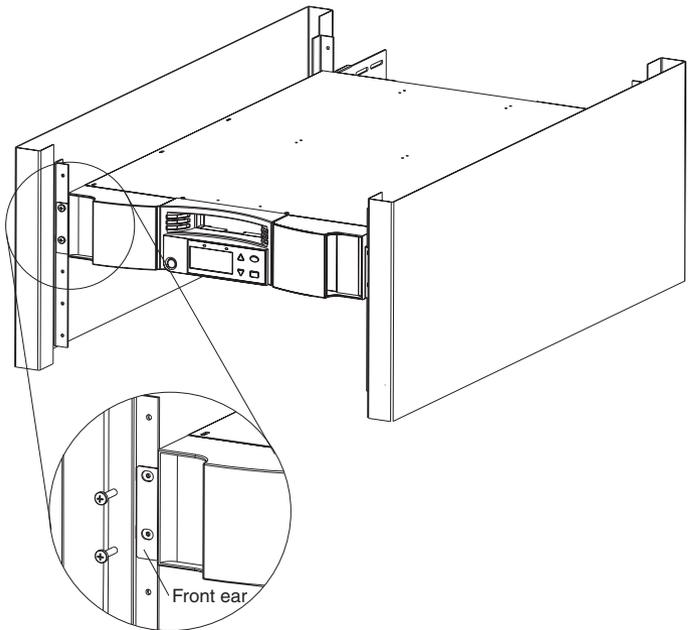
5. Loosely install the four screws that connect the two support brackets to the two front rails.

Front rail
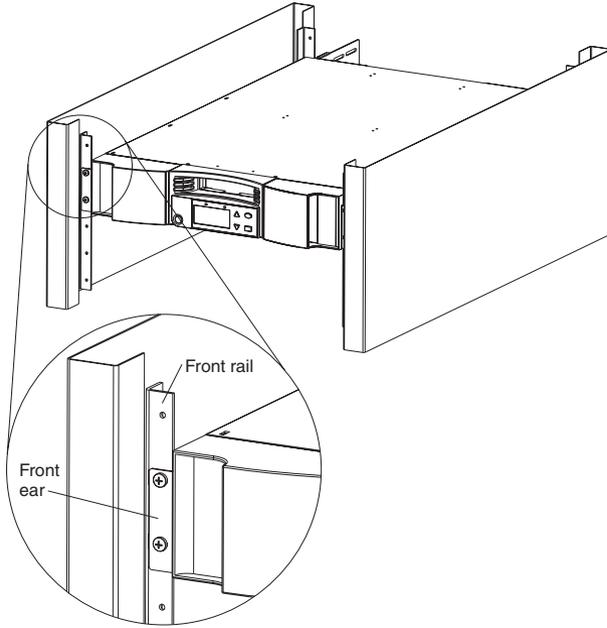
Front ear

6. Loosely install the four screws that connect the support brackets (two screws per support bracket) to the autoloader bracket.



Rear rail

Connect support bracket to autoloader bracket.

Autoloader bracket
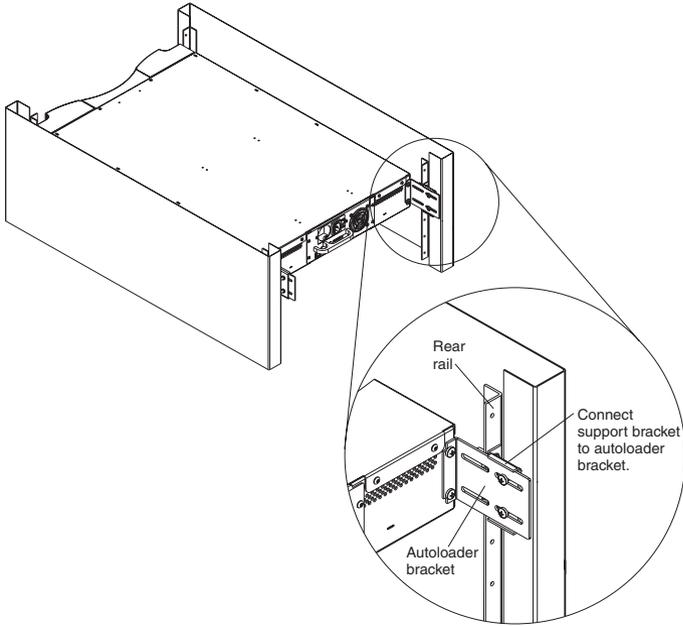
7. Verify that the autoloader is level. Adjust as needed.
8. Tighten the four screws that attach the two front ears to the front rails.
9. Tighten the four screws that connect the two support brackets to the two autoloader brackets.
10. Tighten the four screws that connect the two support brackets to the two rear rails.

Rear
rail

Connect
support bracket
to rear rail.

Autoloader
bracket
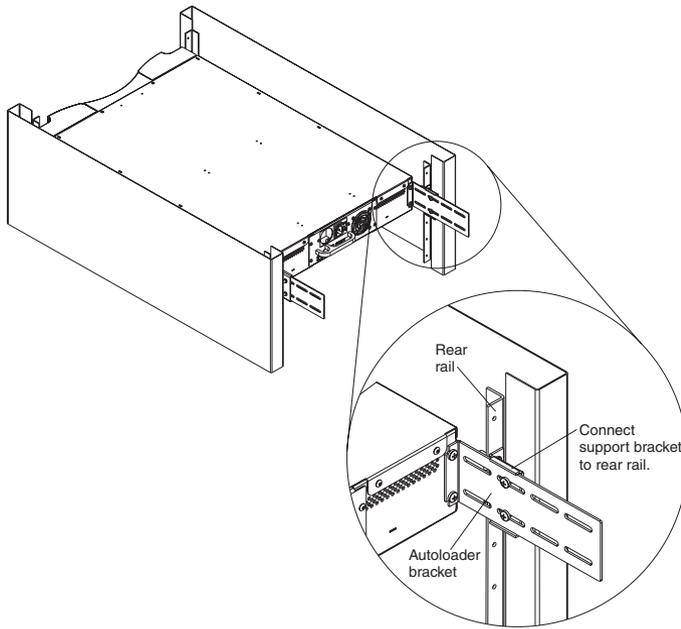
## Attaching the SCSI cable

The SCSI connection enables the host computer to communicate with the
autoloader.

**Note:** You must have already installed a SCSI host adapter card in the host
computer. The adapter card must be LVD-compatible.

Before you start, make sure that your cable is long enough to reach from the
autoloader to the host computer. Remember, your SCSI bus cannot be longer
than 7.92 m (26 ft). The autoloader's internal SCSI length is 406.4 mm (16 in.).
If you have multiple autoloaders on the SCSI bus, use shorter cables to daisy
chain them.

**To make the SCSI connection do the following:**

1. If the host computer is connected to a network, check with the system
   administrator before turning off power.
2. Properly turn off all peripheral devices connected to the host computer.
3. Turn off the host computer.
4. Install the supplied 68-pin SCSI cable to the double-stacked SCSI connector
   that is on the back of the autoloader/DCA and tighten the screws. You can

install the SCSI cable in either port.
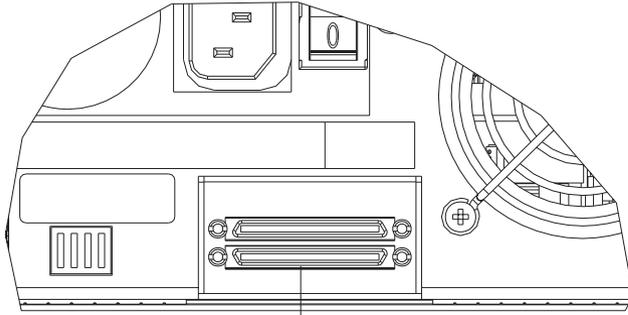


Double-stacked SCSI connector

5. Install the supplied SCSI terminator to the remaining connector that is on the autoloader/DCA and then tighten the screws.
6. Attach the other end of the SCSI cable to the SCSI host adapter card.
7. Turn on any peripheral devices that you powered off in Step 2.

   **Note:** Do not turn the host computer back on at this time. First you must configure the autoloader.

After you have made the SCSI connection, you need to connect the autoloader's power cord and then start the autoloader (see the next section "How to power on the Autoloader").

## How to power on the Autoloader

**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: | To Disconnect: |
|---|---|
| 1. Turn everything OFF. | 1. Turn everything OFF. |
| 2. First, attach all cables to devices. | 2. First, remove power cords from outlet. |
| 3. Attach signal cables to connectors. | 3. Remove signal cables from connectors. |
| 4. Attach power cords to outlet. | 4. Remove all cables from devices. |
| 5. Turn device ON. | |

A power cord was supplied with your autoloader. Carefully inspect it and make sure that it is the correct one for your country or region. If the supplied power cord is not correct, contact your customer service representative or your point of sale person.

**To connect the power cord:**

**Note:** Make sure that the host power is turned off before powering on the autoloader.

1. Be sure that the power switch on the back of the autoloader is off (the 0 is pressed).
2. Connect the female end of the power cord to the power connector on the back of the autoloader.
3. Plug the male end of the power cord into the power source.

**To power on the autoloader:**

1. Push the power switch that is on the back of the autoloader to the on position (the 1 is pressed).

   Wait while the autoloader performs its power-on sequence. During this time, the following activities occur:

   - The IBM logo displays.
   - The left (green) and right (amber) LEDs flash back and forth during power-on self-test (POST).
   - The autoloader performs a calibration and magazine element status. The Ready LED flashes green.

   Once the power-on sequence completes and the autoloader is ready, the LCD displays a listing of the autoloader options that are present and the Ready LED is steady green.

   **Note:** When the autoloader is idle for awhile, the IBM logo displays, the LCD backlight turns off (into power-save mode), and Power On Cycles (POC) and Power On Hours (POH) appear.

   **Note:** After you power on the autoloader, you can use the switch on the front to power on or off the autoloader and to place it in standby.

2. When you first power on the autoloader, it automatically runs a POST. During the POST, the left (green) and right (amber) LED flash alternately back and forth. After the POST, but during calibration, the left (green) LED flashes. Do one of the following:

   - If the left (green) LED is on steady, indicating that the autoloader powers on successfully, continue configuring the autoloader.
   - If the autoloader does not power on at all, or if the right (amber) LED is lit on flashing, ensure the following:
     – The power switch is on.
     – The power cord is inserted correctly.
     – The SCSI chain is terminated.
     – The SCSI cable is connected to the autoloader and to the host computer.
     – An error code does not appear on the autoloader's LCD. If an appears, see Appendix A, "Troubleshooting" on page A-1for more information.

When you first power on the autoloader, the default method for setting the IP address is the dynamic method (DHCP). If you want to use DHCP you can skip this step. To determine the IP address when using DHCP, view the Ethernet status information (see "Viewing Ethernet information" on page 3-14").

3.

**Statement 5:**



**CAUTION:**
**The power control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.**
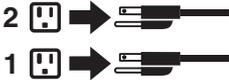


**To power off the autoloader:**

a. Press the power switch on the front panel for approximately five seconds.

b. When the LCD screen goes blank, push the power switch on the back of the autoloader to the OFF position (the 0 is pressed).

## Installing the software

Your autoloader includes trial version backup CDs. These CDs contain popular backup and restore applications for Microsoft® Windows® 2000 Professional, Microsoft Windows NT®, Netware, and Linux. You can install the application you choose for your computer by following the installation instructions that come with the CD. However, these trial versions expire 30 to 60 days, depending on the application.

You should use the trial period to determine the best application for your specific computer configuration. For information on purchasing a permanent upgrade license, go to http://www.pc.ibm.com/ww/eserver/xseries/tape.html, or follow the instructions from the CD. Not all of the applications on the trial CD's are

supported by the IBM Autoloader. Please go to
http://www.pc.ibm.com/us/compat, click **Tape Backup Units**, then search for
360716X, to see the current support list.

You can also use this autoloader directly from the Windows 2000 native
backup applets.

### Windows 2000 driver instructions

1. Start Windows 2000.
2. Click **Start->Settings->Control Panel.**
3. Click the System Icon.
4. Click the **Hardware tab.**
5. Click **Device Manager.**
6. Click **Other Devices.**
7. Click **Quantum SuperDLT SCSI Sequential Device.**
8. Click **Properties.**
9. Click **Reinstall Driver**, then click **Next.**
10. Click **Search**, then click **Next.**
11. Specify a location, (A:\, D:\) depending on using a diskette or CD.
12. Choose the Loader Folder.
13. Choose the Win-2000 folder (For the Robotics).
14. Choose the Ver_1-2a Folder (For the Robotics).
15. Then choose Qtmmc the Setup Information File (DLTVS Robotics Driver
    File).
16. Choose the Loader Folder.
17. Choose the Win-XP_32-bit Folder.
18. Choose the Ver_1-2a Folder.
19. Then choose Qtmmc the Setup Information File (DLTVS Driver File).

## Configuration

To configure your autoloader, start with the main menu on the front panel. (If
the main menu is not already visible on the LCD, press Enter.)

The Configuration submenu has the following options:

To configure the autoloader, you must set the following:

- SCSI ID
- Ethernet IP address (if you are not using DCHP)
- SNMP server IP address

- Time server IP address (or the time zone, date, and time, if configuring manually)
- Control mode
- Security option

## Setting the SCSI ID

Each SCSI device attached to a server or workstation must have a unique SCSI ID. You need to set only one SCSI ID for the autoloader; you do not need to set up separate SCSI IDs for the tape drive and autoloader. The autoloader utilizes a single SCSI ID and two logical units, one for the tape drive and the other for autoloader operations. Because the autoloader controls the tape drive, only the autoloader requires a SCSI ID.

The default ID for the autoloader is 05, but you can select any unused number between and including 00 and 15.

To set the SCSI ID:

1. On the main menu, scroll to Configuration. (If the main menu is not already visible on the LCD, press Enter.)
2. Press Enter.
3. On the Configuration submenu, scroll to SCSI ID.
4. Press Enter.
5. Scroll to the number that you want to set as the autoloader's SCSI ID.
6. Press Enter.

     Cycle Power for new SCSI ID to display on the LCD.

7. To shut down the autoloader, press and hold the power button on the front panel until Power Off displays on the LCD.
8. Press the power button again to power on the autoloader. The new SCSI ID is now in effect.

## Setting the Ethernet connection

Ethernet is the method that the autoloader uses to access a network. With an Ethernet connection, you can remotely access the autoloader over the network to which it is connected. To use the Ethernet connection, you must define the following:

- A dynamic or static IP address for the autoloader (Required)
- A subnet mask (Required)
- An IP gateway (Optional)
- A Simple Network Management Protocol (SNMP) server (Optional)
- A time server, or set the time and time zone manually (Optional)
- A time server, or set the time and time zone manually (Optional)

## IP address

An Internet Protocol (IP) address is the address of any device that is attached to a network. Each device must have a unique IP address. IP addresses are written as four sets of numbers separated by periods ranging from 0.0.0.0 to 255.255.255.255.

IP addresses are permanent or dynamically assigned. A permanent, or static, address remains the same each time the device connects to a network. A dynamic address changes each time the device connects to the network, and is assigned by the network server using a class of software called Dynamic Host Configuration Protocol (DHCP).

**To set a dynamic IP address:**

1. On the main menu, scroll to Configuration. (If the main menu is not already visible on the LCD, press Enter.)
2. Press Enter.
3. On the Configuration submenu, scroll to Ethernet.
4. Press Enter.
5. On the Ethernet submenu, scroll to Set IP.
6. Press Enter.
7. Scroll to Dynamic (DHCP).
8. Press Enter. `Please Cycle Power to use DHCP` displays on the LCD.
9. Press and hold the power button on the front panel until `System Shutdown Please Wait` displays on the LCD. Power off displays on the LCD, then the autoloader shuts off.

    `Power Off` displays on the LCD, then the autoloader shuts off.
10. Press the power button again to power on the autoloader. The IP address is now set by the DHCP server.

**To set a static IP address:**

1. On the main menu, scroll to Configuration. (If the main menu is not already visible on the LCD, press Enter).
2. Press Enter.
3. On the Configuration submenu, scroll to Ethernet.
4. Press Enter.
5. On the Ethernet submenu, scroll to Set IP.
6. Press Enter.
7. Scroll to Static IP and press Enter.
8. At each position of the IP address, use the up and down arrows to change the value of each digit. Press Enter to advance your cursor to the next digit.

**Note:** If you make a mistake, you can press Escape to backspace to the digit that you want to change.

When you have advanced through all of the digits of the IP address, the autoloader displays `Enter to save.`

9. Press Enter.

   The Configuration submenu reappears and the static IP is now in effect. You do not need to restart the autoloader.

10. Press the Escape or Enter button to return to the Ethernet submenu.

## Subnet Mask

Creating a subnet mask is a method to split IP networks into a series of subgroups, or subnets, to improve performance and security.

**To set a subnet mask:**

1. On the main menu, scroll to Configuration. (If the main menu is not already visible on the LCD, press Enter).

2. Press Enter.

3. On the Configuration submenu, scroll to Ethernet.

4. Press Enter.

5. On the Ethernet submenu, scroll to Set Subnet Mask.

6. Press Enter. The cursor automatically displays at the first digit.

7. At each position of the mask address, use the up and down arrow to change the value of each digit. Press Enter to advance your cursor to the next digit.

   **Note:** If you make a mistake, you can press Escape to backspace to the digit you want to change.

   When you have advanced through all of the digits of the mask address, the autoloader displays `Enter to save.`

8. Press Enter.

9. Press the Escape or Enter button to return to the Ethernet submenu.

## IP Gateway

An IP gateway is a device that converts data into the IP protocol.

**To set an IP gateway:**

1. On the main menu, scroll to Configuration. (If the main menu is not already visible on the LCD, press Enter).

2. Press Enter.

3. On the Configuration submenu, scroll to Ethernet.

4. Press Enter.

5. On the Ethernet submenu, scroll to Set Gateway.

6. Press Enter. The cursor automatically displays at the first digit.

7. At each position of the gateway address, use the up and down arrow to change the value of each digit. Press Enter to advance your cursor to the next digit.

   **Note:** If you make a mistake, you can press Escape to backspace to the digit you want to change.

8. Press Enter. GW changeddisplays on the display. You do not need to restart the autoloader.

9. Press the Escape or Enter button to return to the menu.

## Setting the SNMP server

An SNMP server monitors a network by processing reporting activity in each network device (hub, router, bridge, etc.). The server uses this information to define what is obtainable from each device and what can be controlled.

**To set an SNMP server:**

1. On the main menu, scroll to Configuration. (If the main menu is not already visible on the LCD, press Enter).

2. Press Enter.

3. On the Configuration submenu, scroll to Ethernet.

4. Press Enter.

5. On the Ethernet submenu, scroll to Set SNMP Server.

6. Press Enter. The cursor automatically displays at the first digit.

7. At each position of the SNMP server address, use the up and down arrow to change the value of each digit. Press Enter to advance your cursor to the next digit.

   **Note:** If you make a mistake, you can press Escape to backspace to the digit you want to change.

   When you have set the SNMP server address, the autoloader displays Enter to save.

8. Press Enter. SNMP Server changed to displays on the LCD. You do not need to restart the autoloader.

9. Press Escape or Enter to return to the Ethernet submenu.

## Setting the time server

If you locate a time server that is compatible with SNTP, you can connect the autoloader to a server that will supply the correct date and time. The autoloader uses this information to time stamp information in its memory and to initiate autocleaning.

**To set a time server:**

1. On the main menu, scroll to Configuration. (If the main menu is not already visible on the LCD, press Enter).

2. Press Enter.

3. On the Configuration submenu, scroll to Ethernet.

4. Press Enter.

5. On the Ethernet submenu, scroll to **Set Time Server.**

6. Press Enter.The cursor automatically displays at the first digit.

7. At each position of the time server address, use the up and down arrow to change the value of each digit. Press Enter to advance your cursor to the next digit.

   **Note:** If you make a mistake, you can press Escape to backspace to the digit you want to change.

   When you have set the time server address, the autoloader displays `Enter to save`.

8. Press Enter. `Time Server changed to` appears on the panel display. You do not need to restart the autoloader.

9. Press Escape or Enter to return to the Ethernet Submenu.

## Setting the time

Both the front panel and the Web Administration display time stamp information. If you are connected to a time server, the time stamp information displays as regular time (Month/Date/Year Time).

If you are not connected to a time server, the time stamp information displays as Power On Cycles (POC), Power On Hours (POH). POC (5-digit number) is the number of times the system has booted since it was manufactured. POH is the number of hours, minutes, and seconds since the current boot occurred.

For example, POC: 00121, POH: 00000:00:10

If you cannot connect the autoloader to a time server for security reasons, you can set the time manually. If you want to include time changes such as daylight savings time, you must make those changes manually as well.

**Note:** You must reset the time after each restart unless you are connected to a time server. If you are not connected to a time server and you lose power or power off, you lose your time setting. However, your Greenwich Mean Time (GMT) setting is preserved.

**To set the time zone:**

1. On the main menu, scroll to Configuration. (If the main menu is not already visible on the LCD, press Enter).

2. Press Enter.

3. On the Configuration submenu, scroll to Time.

4. Press Enter.

5. On the Ethernet submenu, scroll to Set Time zone.

6. Press Enter. The time zone screen displays enabling you to set the hours.

7. Scroll to set the number of hours' difference between your local time and GMT. If you do not know the difference between your local time and GMT, refer to Appendix B, "Time Zones."

8. Press Enter. A new time zone screen displays, enabling you to set the minutes.

9. Scroll to set the number of minutes' difference between your local time and GMT.

10. Press Enter. The new time zone is set.

**To set the date and time:**

1. On the main menu, scroll to Configuration. (If the main menu is not already visible on the LCD, press Enter).

2. Press Enter.

3. On the Configuration submenu, scroll to Time.

4. Press Enter.

5. On the Ethernet submenu, scroll to Set Date/Time.

6. Press Enter. The Date/Time screen displays, with the cursor under the first digit in the second row.

7. The first four digits represent the current year. At each position of the year, use the up and down arrow to change the value of each digit. Press Enter to advance your cursor to the next digit.

   **Note:** If you make a mistake, you can press Escape to backspace to the digit you want to change.

8. The next two digits represent the current month. At each position of the down arrow to change the value of each digit. Press Enter to advance your cursor to the next digit.

   **Note:** If you make a mistake, you can press Escape to backspace to the digit you want to change.

9. The next two digits represent the current day. At each position of the day, use the up and down arrow to change the value of each digit. Press Enter to advance your cursor to the next digit.

   **Note:** If you make a mistake, you can press Escape to backspace to the digit you want to change.

10. The next two digits represent the current hour. At each position of the hour, use the up and down arrow to change the value of each digit. Press Enter to advance your cursor to the next digit.

   **Note:** If you make a mistake, you can press Escape to backspace to the digit you want to change.

11. The last two digits represent the current minute. At each position of the down arrow to change the value of each digit. Press Enter to advance your cursor to the next digit.

   **Note:** If you make a mistake, you can press Escape to backspace to the digit you want to change.

12. `Enter to save` displays on the LCD.

13. Press Enter.

## Setting the change mode

You can set the autoloader to either Random or Sequential. The default control mode is Random. There is also a Mixed mode, but it is not currently used and is being reserved for future use.

In Random control mode, you (or the backup software) can specify which cartridge you want to use and where you want it to go. You will probably use this mode the most.

The Sequential control mode supports certain backup applications that do backup, when one cartridge is read or written to the end of the tape, the autoloader automatically returns that cartridge to its slot and loads the cartridge from the next higher numbered slot to the tape drive to be read or written to. This continues until the backup software stops accessing the drive or until all the cartridges have been sequentially accessed. The autoloader does not move the media until the host requests the tape drive to unload the tape.

In Seq Cycle Mode, which is an option of Sequential mode, the autoloader automatically starts over with magazine slot 1 when the last cartridge is used (slot 16 or highest filled slot). If this control mode is not set, the autoloader stops when the last cartridge available has been used. In Seq Cycle Mode, the autoloader continues to cycle until a user stops it.

## Setting the control mode

1. On the main menu, scroll to Configuration. (If the main menu is not already visible on the LCD, press Enter).

2. Press Enter.

3. On the Configuration submenu, scroll to Change Mode.

4. Press Enter. The mode options appear. A check mark appears after the enabled mode.

5. Do one of the following:
   - To leave the control mode unchanged, press Escape.
   - To change the control mode, scroll to the mode to which you want to set the autoloader and press Enter. Restart to enable new mode appears on the LCD.
     a. Press and hold the power button on the front panel until `System Shutdown Please Wait` displays on the LCD. Then Power Off appears on the LCD, and the autoloader shuts off.
     b. Press the power button again to power up the autoloader. The new control mode is now in effect.

       **Note:** When you enable the Sequential mode, LUN 1 no longer appears on the SCSI bus; only the tape drive appears.

## Sequential control mode operation

If you enable the Sequential control mode, you must use the Sequential Ops submenu under the Commands menu to operate the autoloader after you restart the autoloader. The Start command allows you to load the first cartridge. The Resume command enables you to continue from the last-used slot, if a user stopped the cycle. The Stop command allows you to stop the cycle.

**To start Sequential control mode operation:**

1. On the main menu, scroll to Commands. (If the main menu is not already visible on the LCD, press Enter).
2. Press Enter.
3. On the Commands submenu, scroll to Sequential Ops.
4. Press Enter.
5. On the Sequential Ops submenu, scroll to Start.
6. Press Enter. `Moving first tape to drive` displays on the LCD.

**To stop Sequential control mode operation:**

1. On the main menu, scroll to Commands. (If the main menu is not already visible on the LCD, press Enter).
2. Press Enter.
3. On the Commands submenu, scroll to Sequential Ops.
4. Press Enter.
5. On the Sequential Ops submenu, scroll to Stop.
6. Press Enter. `Ejecting tape from drive` displays on the LCD.

**To resume Sequential control mode operation:**

1. On the main menu, scroll to Commands. (If the main menu is not already visible on the LCD, press Enter).

2. Press Enter.

3. On the Commands submenu, scroll to Sequential Ops.

4. Press Enter.

5. On the Sequential Ops submenu, scroll to Resume.

6. Press Enter. `Moving next tape to drive` displays on the LCD.

## How to set Security

You can add security to the front panel by password-protecting the autoloader's functionality. The security only protects the front panel functionality. The default security setting is Off, meaning that no password is required. However, you can enable the security option so that users must enter a password to access functionality.

### Security option

When you first power on the autoloader, the security option is set to Off. Use the following procedure to enable the security option. You must have an administrator-level password to set passwords.

**To set the security option:**

1. On the main menu, scroll to Configuration. (If the main menu is not already visible on the LCD, press Enter).

2. Press Enter.

3. On the Configuration submenu, scroll to Security.

4. Press Enter.

5. On the Security submenu, scroll to Security. If a checkmark appears after the word, the security option is on. If no checkmark appears, the security option is off.

6. To change the setting, press Enter. This toggles the security option and off.

### Passwords

Many operations on the autoloader are password-protected to ensure data integrity. You can set passwords at the administrator level and at the operator level. Operator-level users have access to the Commands and Status menus. Administrator-level users have access to all functionality.

Passwords must be exactly six numbers long. The default password is 000000.

**To set a password:**

1. On the main menu, scroll to Configuration.

2. Press Enter.

3. On the Configuration submenu, scroll to Security.

4. Press Enter.

5. On the Security submenu, scroll to Set Password.

6. Press Enter.

7. To set a password at the operator level, scroll to Operator. To set a password at the administrator level, scroll to Administrator.

8. Press Enter. The Set Password screen appears.

9. Press Enter. If you are not logged in as Administrator, press Enter again to log in. A textbox appears above the first asterisk.

10. In the textbox, scroll to the first character of the password. The cursor automatically appears at the first number of the password.

11. At each position of the password, use the up and down arrow to change the value of each number. Press Enter to advance your cursor to the next number.

   **Note:** If you make a mistake, you can press Escape to backspace to the digit you want to change.

12. Press Enter. The textbox above the asterisk disappears and another textbox appears above the next asterisk.

13. Repeat steps 11 and 12 to enter the remaining digits of the password.

   **Note:** Press Escape to backspace to a previous textbox, if necessary.

   When you have entered six numbers, the autoloader displays `Submit Passoword` below the asterisks.

14. Press Enter to submit the password. `Password Successfully Changed` displays on the LCD.

15. Press Enter. The Operator and Administrator options reappear. You can enter another password or press Escape or Enter to return to the main menu.

# Chapter 3. Using the autoloader

This chapter describes how to use the autoloader. You can use the autoloader
by any of the following methods:

- Autoloader's front panel
- Ethernet Web Administration
- Host backup software

The front panel is located on the front of the autoloader and must be operated
manually.

The Ethernet connection allows you to perform administrative functions
remotely using Web Administration.

Both the front panel and Web Administration display time stamp information.
If you are connected to a time server, the time stamp information appears as
calendar/date time (Month/Date/Year Time).

If you are not connected to a time server, the time stamp information appears
as Power On Cycles (POC), Power On Hours (POH). POC (5-digit number) is
the number of times the system has booted since it was manufactured. POH is
the number of hours, minutes, and seconds since the current boot occurred.

## Front Panel components

The front panel includes a blue backlit LCD, four function keys (scroll up,
scroll down, Enter and Escape), and two LED's.

### Function keys

Use the function keys to navigate through the menu and select options. Use
the up and down scroll buttons to position the cursor next to the item you
want. Once the cursor is in place, press Enter to select the item. To return to a
previous menu without making a selection, use the Escape button. The Escape
button can also function as a backspace key.

### LEDs

The LEDs display autoloader and drive status information. When the
autoloader is powered on, the left, green LED provides ready status
information, and the right, amber LED provides fault status information.

*Table 3-1. Indicator Activity*

| Indicator | State | Operating Condition |
|-----------|-------|---------------------|
| Left (green) | On | Autoloader and tape drive are idle. |
| Left (green) | Slow flash | Tape drive only is active. |
| Left (green) | Fast flash | Autoloader only is active or Autoloader and tape drive are active. |
| Right (amber) | Off | No errors or problems detected. |
| Right (amber) | On | Tape drive or autoloader error is detected. |
| Right (amber) | Continuous flash | Non-hardware error is detected (for example, cleaning is required). |
| Right (amber) | Brief flash | POST in progress. |

## LCD

The LCD displays a scrolling menu that allows you to access information and execute commands.

**Note:** When the autoloader is idle for a few minutes, the logo screen displays on the LCD, similar to the screensaver function on your computer. Press any function key to launch the top-level menu.

The four menus displayed on the LCD are circular menus. That is, you can scroll through the options using either the up or down scroll buttons.

## Front Panel functionality

**Note:** If you try to execute a command without entering a password, the autoloader displays the Enter Password screen until you enter a password. After you enter a password, the autoloader takes you back to the command screen that you were at before entering the password.

You can perform the following functions through the front panel.

## Entering passwords

Many functions on the autoloader might be password protected to ensure data integrity. To access the menu items necessary to execute these functions, you must first enter your password. All passwords are six numeric digits long.

## To enter a password:

Security must be turned on before you can enter a password. See "Set Security Options" on page 4-37 for more information about security options.

1. On the main menu, scroll to Commands.

2. Press Enter.

3. On the Commands submenu, scroll to Enter Password.

4. Press Enter.

5. On the Enter Password submenu, scroll to:

   • Operator to enter an operator-level password.

   • Administrator to enter an administrator-level password.

6. Press Enter.

   The Login screen appears with a row of asterisks. A textbox appears above the first asterisk.

7. In the textbox, scroll to the first number of the password. The cursor automatically appears at the first character of the password.

```
* * * *
```

8. At each position of the password, use the up and down arrow to change the value of each number. Press Enter to advance your cursor to the next digit.

   **Note:** If you make a mistake, you can press Escape to backspace to the digit you want to change.

9. Press Enter.

   The textbox above the asterisk disappears and another textbox appears above the next asterisk.

10. Repeat steps 8 and 9 to enter the remaining digits of your password. When you have finished entering your password, the LCD displays Submit Password below the asterisks.

11. Press Enter to submit your password. You return to the Enter Password submenu. (If you submitted an incorrect password, Incorrect appears on the LCD and the row of asterisks reappears so that you can re-enter the password.)

When you enter a password, all password-protected functionality is available until you log out. See the "Logout" section below for information about how to log out. If you do not use the front panel for a period of time, the logo reappears on the LCD. When the logo reappears, the autoloader has automatically logged you out. You will have to re-enter your password again to access the menu functionality.

## Logging out

To log out do the following:

1. On the main menu, scroll to Commands.

2. Press Enter.

3. On the Commands submenu, scroll to Log Out.

   **Note:** You can also press Escape (back up until the logo appears) to log out.

## Setting the Control Mode

To change the control mode, see "To set the control mode:" on page 2-25.

## Using data cartridges

Your autoloader will recognize DLTIV or SDLT media cartridges. If you try to load an incompatible tape, the fault status LED will show solid yellow and the LCD will display an error message.

Typically, when you first install your autoloader, you load your cartridges into the magazines and then load the magazines into the autoloader. However, you can insert and eject cartridges individually using the mailslot, or you can eject a magazine, manually load and unload cartridges, then load the magazine back into the autoloader. The autoloader automatically detects the presence of a cartridge in the magazine slot.

**Note:** On the front panel menu, whenever you see Enter or Eject, it means the tape enters and leaves the autoloader through the mailslot. Whenever you see Load or Unload, it means the tape is loaded into or unloaded from the tape drive.

If you try to perform an illegal operation, the autoloader refuses to perform the operation. For example, if you try to load a cartridge through the mailslot to the drive but the drive already contains a cartridge, the mailslot does not unlock. If you try to unload a cartridge from the drive while the autoloader is writing to the tape, your command is ignored.

## Inserting a Single Cartridge

Security option is turned on, you have to enter a valid password to unlock the mailslot before you can load a cartridge. When you insert a cartridge through the mailslot, you can load it into the tape drive or store it in a magazine.

**To insert a cartridge to the tape drive:**

1. On the main menu, scroll to Commands.

2. Press Enter.

3. On the Commands submenu, scroll to Enter.

4. Press Enter. On the Enter submenu, scroll to To Drive.

5. Press Enter. After Load cartridge appears on the LCD, a countdown appears. You have 20 seconds to load a cartridge through the mailslot before it re-locks.

Note: Push in the cartridge until you meet resistance. The cartridge will be about two inches (5.0 cm) inside the mailslot, and only the end of the cartridge will be visible through the mailslot door.
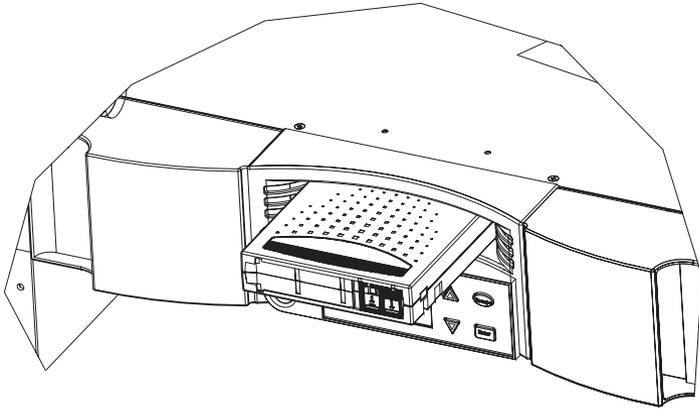


6. Once you have inserted the cartridge, the prompt Enter to Continue appears. You have five seconds to respond.
7. Press Enter.

Note: If the insert cartridge function fails, the cartridge ejects and you will have to perform steps 5 through 7 again.

**To insert a cartridge to a magazine slot:**
1. On the main menu, scroll to Commands.
2. Press Enter.
3. On the Commands submenu, scroll to Enter.
4. Press Enter. On the Enter submenu, scroll to To Location.
5. Press Enter.

   A map of all the magazine slots appears. Slots that are occupied by a data cartridge are indicated by an asterisk (*). The slot that is assigned to a cleaning tape is indicated with an exclamation point (!). The slot that is occupied by a cleaning tape is indicated with an @.
6. Scroll to the slot where you want to store the cartridge.
7. Press Enter. After Load cartridge appears on the LCD, a countdown appears. You have 20 seconds to load a cartridge through the mailslot before it re-locks. The autoloader automatically loads the cartridge into the selected slot.

**Note:** If the load cartridge function fails, the cartridge steps 4 through 7 again.

## Moving a single cartridge

You can easily move a single cartridge from one location to another inside the autoloader.

**To move a single cartridge:**

1. On the main menu, scroll to Commands.

2. Press Enter.

3. On the Commands submenu, scroll to Move.

4. Press Enter. The Move screen appears Under From:, scroll to the current location of the cartridge you want to move. Slots that are occupied by a data cartridge are indicated by an asterisk (*).

5. Press Enter.

6. Under To: scroll to the location to which you want to move the cartridge. Slots that are occupied by a data cartridge are indicated by an asterisk (*).

7. Press Enter. The LCD displays Ent or Esc below your selections.

8. Press Enter.

   An hourglass appears on the LCD as the autoloader moves the cartridge to its new location. If you select an empty location, No Source Element appears on the LCD. Choose a different location.

   If you select a location that is already occupied, Destination Full appears on the LCD. Choose a different location.

## Ejecting a single cartridge

When you want to remove a single cartridge from the autoloader, you can specify the cartridge you want by barcode or location, or select the cartridge currently in the tape drive.

**To eject a cartridge by barcode:**

1. On the main menu, scroll to Commands.

2. Press Enter.

3. On the Commands submenu, scroll to Eject.

4. Press Enter.

5. On the Eject submenu, choose where you want the cartridge ejected to.

6. Press Enter.

7. Scroll to By Barcode. A barcode label appears.

8. Scroll to the label that corresponds to the cartridge you want to unload.

9. Press Enter. An hourglass appears on the LCD as the cartridge you want is ejected from the mailslot.Wait until the hourglass disappears from the LCD before pulling out the cartridge.

**To eject a cartridge by location:**

1. On the main menu, scroll to Commands.
2. Press Enter.
3. On the Commands submenu, scroll to Eject.
4. Press Enter.
5. On the Eject submenu, choose where you want the cartridge ejected to.
6. Press Enter.
7. Scroll to By Location.

   A map of all the magazine slots appears. Slots that are occupied by a data cartridge are indicated by an asterisk (*). The slot that is assigned to a cleaning tape is indicated with an exclamation point (!). The slot that is occupied by a cleaning tape is indicated with an @. Scroll to the slot containing the cartridge you want to eject.
8. Press Enter. An hourglass appears on the LCD as the cartridge you want is ejected from the mailslot.Wait until the hourglass disappears from the LCD before pulling out the cartridge.

**To eject a cartridge from the tape drive:**

1. On the main menu, scroll to Commands.
2. Press Enter.
3. On the Commands submenu, scroll to Eject.
4. Press Enter.
5. On the Eject submenu, choose where you want the cartridge ejected to.
6. Press Enter.
7. Scroll to From Drive.
8. Press Enter. An hourglass appears on the LCD as the cartridge you want is ejected from the mailslot.Wait until the hourglass disappears from the LCD before pulling out the cartridge.

## Ejecting a magazine

When you want to remove several cartridges at once, eject the magazine(s) first.

To eject a magazine:

1. On the main menu, scroll to Commands.
2. Press Enter.
3. On the Commands submenu, scroll to Eject.
4. Press Enter.
5. On the Eject submenu, scroll to Right Magazine or Left Magazine.

6. Press Enter. You will hear a distinctive popping sound as the appropriate magazine is ejected from the autoloader. Left magazine has been ejected or Right magazine has been ejected appears on the LCD.

   **Attention:**
   To prevent damage to the autoloader or the magazine, use both hands when removing the magazine from the autoloader, supporting the entire length of the magazine.

7. Grasp the magazine by the handle with one hand and slide it out, supporting it underneath with the other hand.

   **Note:** Once you eject a magazine, you must fully remove it or fully re-install it before powering off the autoloader.

## Installing a magazine

To install a magazine, do the following:

1. Grasp the magazine by the handle with one hand and support it underneath with the other hand.

2. Slide the magazine into the magazine bay until clicks. Make sure that you position the magazine correctly; it should slide smoothly. If you meet resistance, verify the orientation of the magazine.
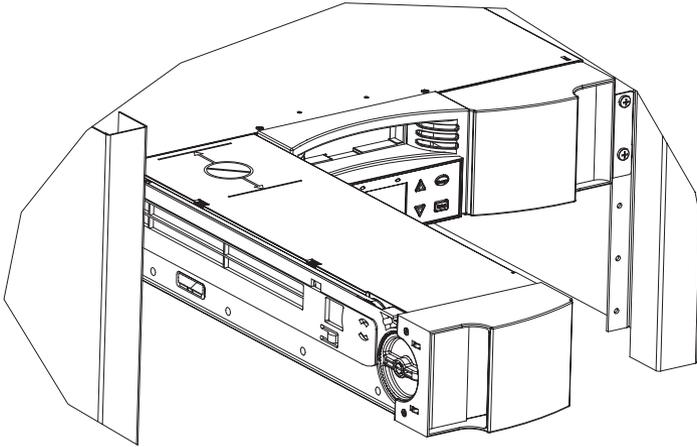


The magazine is correctly installed when you feel it click into place and the front is flush with the front panel. Left Mag Inserted or Right Mag Inserted

appears on the LCD. The autoloader automatically runs an inventory.
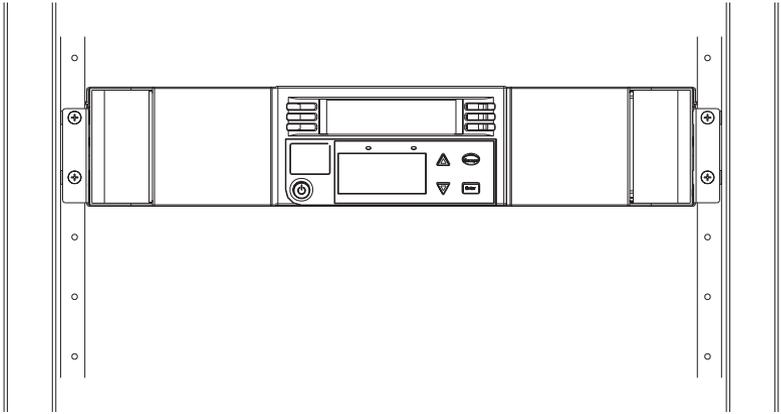


## Manually operate the magazine

To load cartridges from a fully ejected magazine do the following:

There are two handles located on both ends of the magazine. You can move the slots within the magazine by using these two handles. You can use the two openings along the top of the magazine and the four openings along the bottom of the magazine to load and unload cartridges from the eight slots within each magazine.

1. To load cartridges in the magazine, center a slot within one of the six openings located on the side of the magazine.
2. Properly orient the cartridge.

   **Note:** There is a keying feature in each slot that only allows you to fully insert the cartridge one way.

3. Fully insert the cartridge into the slot. When pushing the cartridge into the slot, you will feel a small resistance until the cartridge is properly latched into the slot. All forward progress stops when the cartridge is fully inserted.
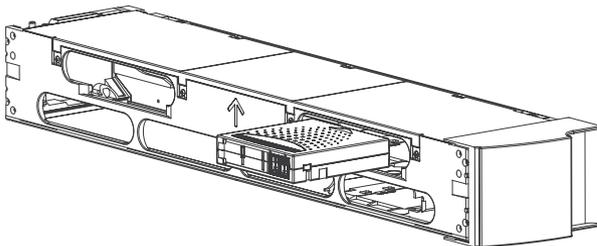
**Note:** It is fastest to load the cartridges when the magazine is fully removed from the autoloader using the four lower openings. When all four are loaded then rotate the next 4 empty slots into position for loading the next four cartridges.

## To unload cartridges from a fully ejected magazine

You can remove a cartridge in the same manner as you insert it. Use the handles to center the desired slot(s) in the openings on the side of the magazine. Using your thumb and index finger, pull out the cartridge. You will feel a small resistance but continue to pull the cartridge until it frees.

## How to load and unload cartridges from a partially ejected magazine

You can conveniently load and unload a cartridge from the magazine without fully removing the magazine.

1. Pull the ejected magazine until the large upper slot is accessible.
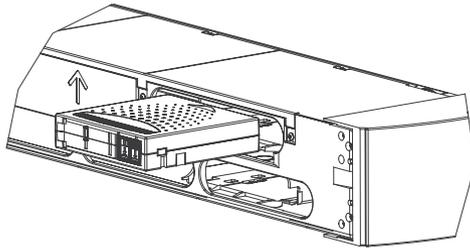


2. Rotate the desired slot into position (centered in the opening). Either load or unload a cartridge to that location. Do not expose more than the large upper opening when manually operating the magazine.

   **Attention:**
   When manually operating the left magazine, do not manually operate the magazine when it is positioned between the two marks on the top cover. Manually operating the magazine in this location can cause damage to the

autoloader and magazine.
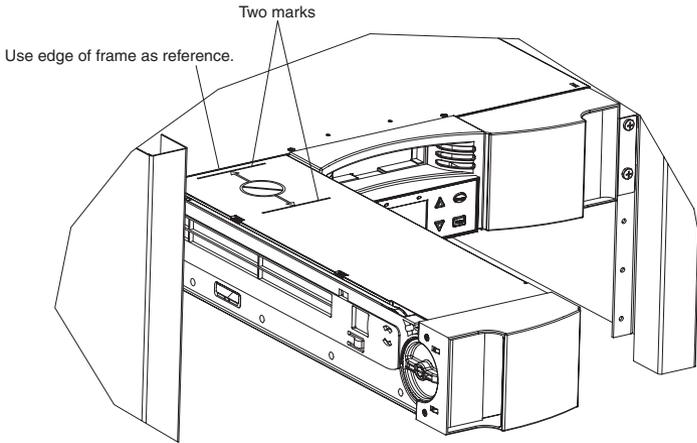


To identify a slot

Each slot has an identification mark that is exposed when the slots are on the
upper section of the magazine. You can see the identification mark on the top
side of the magazine.

Each slot has a unique identification number that corresponds to the side on
which the magazine is operating. If the magazine is operating on the left side,
the slots are numbered L1 through L8. If the magazine is operating on the
right side, the slots are numbered R9 through R16.
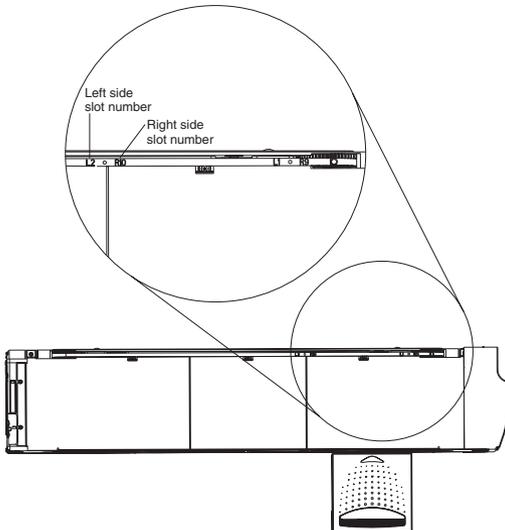
# Viewing status information

From the scrolling menu, you can view the following information:

- Autoloader status
- Firmware version
- Element status
- Tape drive status
- Tape drive version
- Ethernet information

## Viewing Autoloader status

The autoloader status provides information about the following:

- Whether a magazine is installed or not
- SCSI connection status
- Ethernet connection status
- Whether a barcode reader is installed or not

**To view the autoloader status:**

1. On the main menu, scroll to Status.
2. Press Enter.
3. On the Status submenu, scroll to Autoloader Info.
4. Press Enter.
5. On the Autoloader Info submenu, scroll to Status.
6. Press Enter. A list of messages similar to the following screen appears.

```
Magazines: L=* R=*

Loader: ONLINE

Drive: ONLINE

Mode: Random

Barcode Reader: *
```

*Table 3-2.*

| Magazines | |
|---|---|
| L=* | The left magazine is present. |
| R=* | The right magazine is present. |
| **Loader** | |
| ONLINE | The autoloader is available for use. |
| Offline | The autoloader is not available for use. |
| **Drive** | |
| ONLINE | The drive is available for use. |

*Table 3-2. (continued)*

**Magazines**

| | |
|---|---|
| OFFLINE | The drive is not available for use. |

**Mode**

| | |
|---|---|
| Random | The control mode is set to Random. |
| Mixed | The control mode is set to Mixed. |
| Sequential | The control mode is set to Sequential. |

**Barcode Reader**

| | |
|---|---|
| * | A barcode reader is present. |

## Viewing tape drive status

To view the tape drive status do the following:

1. On the main menu, scroll to Status.
2. Press Enter.
3. On the Status submenu, scroll to Drive Info.
4. Press Enter.
5. On the Drive Info submenu, scroll to Status.
6. Press Enter. A list of messages similar to the following screen appears.

```
SCSI ID 6

Loader LUN 1

Compression Disabled
```

*Table 3-3. Tape Drive Status Messages*

| **SCSI ID** | Indicates the autoloader's SCSI ID number. |
|---|---|
| **Loader LUN** | Indicates the Logical Unit Number of the media changer device. |
| **Compression** | Indicates whether the tape drive compression is enabled or disabled. |

## Viewing tape drive version

To view the tape drive version do the following:

1. On the main menu, scroll to Status.
2. Press Enter.
3. On the Status submenu, scroll to Drive Info.
4. Press Enter.
5. On the Drive Info submenu, scroll to Version.
6. Press Enter. A list of messages similar to the following screen appears

| Product Type: SDLT |
|---|
| Policy Version: |
| 35.7 |
| Servo Version: |
| 35.4 |

*Table 3-4.*

| | |
|---|---|
| **Product Type** | Indicates the type of drive installed (DLT1 or SDLT). |
| **Policy Version** | Indicates the version of the policy processor for the tape drive, typically the tape drive firmware version. |
| **Servo Version** | Indicates the servo processor firmware version. |

## Viewing Ethernet information

To view Ethernet information do the following:

1. On the main menu, scroll to Status.
2. Press Enter.
3. On the Status submenu, scroll to Ethernet Info.
4. Press Enter. A list of messages similar to the following screen appears.

| MAC address: |
|---|
| 00-e0-9e-03-0d-de |
| IP address: |
| 192.168.202.128 |
| Network: Connected |

*Table 3-5. Ethernet Information Messages*

| | |
|---|---|
| MAC address | Is the unique network identifier associated with the autoloader. |
| IP address | Indicates the static IP address or currently assigned dynamic IP address. |
| Network | Indicates whether the autoloader is connected to the network or not. |

# Run inventory

The autoloader automatically runs an inventory whenever you power it back
on or insert a magazine. If you need to run an inventory in addition to this,
you can do so manually.

**Note:** You cannot run an inventory if the picker contains a cartridge.

### How to take inventory

1. On the main menu, scroll to Commands.
2. Press Enter.
3. On the Command submenu, scroll to Inventory.
4. Press Enter. The autoloader scans the barcodes on all the cartridges present.

### Setting data compression

You can set the autoloader to write data to the tape in its native
(uncompressed) format, or to compress it. Compressing the data means that
the autoloader can write twice as much data to the same amount of tape.
Compression also increases the performance of the data transfers from or to
the SCSI bus. Typically you will want to leave this option enabled.

**Note:** If the data that you are writing to tape is already compressed, the
compression option will expand the data rather than compress it.

**To set compression option:**

1. On the main menu, scroll to Configuration.
2. Press Enter.
3. On the Configuration submenu, scroll to Compression.
4. Press Enter.

   If a check appears next to Compression, the compression option is enabled.
   If no checkmark appears, the compression option is disabled.

# Updating firmware

It is very important to keep your autoloader at the latest firmware. To update
your firmware, periodically visit http://www.ibm.com/support, search on
'Tapetool' and follow the instructions on the Tapetool page or use the Web
Administration feature to load the new firmware directly (see page 3-25).

# Web Administration functionality

Your autoloader's firmware includes an Ethernet interface to allow remote
administration of the autoloader. The interface, called Web Administration,
includes a Web server that provides a hypertext markup language
(HTML)-based graphical user interface (GUI) designed for ease of use.

Many of the operations that you can perform from the front panel you can also perform remotely using Web Administration.

## Open Web Administration

Web Administration has an HTML interface, which means you use a browser to open it. You must have Internet Explorer 4.0 or higher, or Netscape 4.0 or higher. You need an operator password to execute commands from the Commands page, and you need an administrator password to update the Configurations, Diagnostics, and Updates pages.

To configure either Microsoft Internet Explorer or Netscape browser settings, do the following:

For Internet Explorer 6.0:

1. Select **Tools→Internet Options→General**.
2. Be sure that all boxes under **Accessibility** are unchecked.
3. Under **Temporary Internet Files→Settings**, select **Automatically** or **Every visit to the page**.
4. Select **Tools→Internet Options→Advanced**. Be sure that **Always send URLs as UTF-8 is not selected**.

For Netscape Communicator 4.79:

1. Select **Edit→Preferences→Advanced**. Be sure that **Automatically Load Images, Enable Java, Enable JavaScript, Enable JavaScript for Mail and News**, and **Enable Style Sheets** are all checked.
2. Select **Edit→Preferences→Advanced→Cache**.
3. Select **Every Time**.

For Netscape Navigator 6.2.1:

1. Select **Edit→Preferences→Privacy & Security**. Be sure that **Accept all images**.
2. Select **Edit→Preferences→Advanced**. Be sure **Enable Java, Enable JavaScript, Enable JavaScript for Mail and Newsgroups**, and **Enable Style Sheets** are all checked.
3. Select **Edit→Preferences→Advanced→Cache**.
4. Select **Every Time I View the Page.**

To open the Web administration tool, do the following:

1. On your computer, open your browser.
2. In the browser's address field, enter the IP address for your autoloader. (For information on deter-mining the IP address for your autoloader, see "View Ethernet Information" on page 4-20.) The home page appears in your browser window.

When you access Web Administration, the home page looks like this:

## Status information

Status information appears on the right-hand side of the home page and every page of Web Administration except the Updates page. The status information is updated automatically every 60 seconds. So changes to the status appear in the status window update, but might take approximately 60 seconds to refresh. You can also click Status to get an immediate update on status information.

The menu headings also appear at the top of every page. To access the functionality under the menu heading, click the menu heading. The first time that you connect, Web Administration prompts you for your username and password, then it displays the opening page for that menu.

### Time display
If you are connected to a time server, the time stamp information appears as calendar/date time (Month/Date/Year Time).

Power On Cycles (POC), Power On Hours (POH) where POC (5-digit number) is the number of times the system has booted since it was manufactured.

POH is the number of hours, minutes, and seconds that the system has been on since the current boot occurred.

## Feedback on pages

If there is feedback when you submit a request, the feedback appears to the left of the submit button.

## Commands page

You can move tapes, run a system inventory, reset the picker to its home position, or set sequential operations from the Commands page. When you

click Commands, the following page appears:



## Moving tapes

From a remote location, you can request that a tape be moved from one position to another.

**To move a tape:**

1. On any Web Administration page, click **Commands.**

2. From the drop-down menu under From:, select the current location of the tape that you want to move.

   **Note:** You can also click the slot on the graphic to select it.

3. From the drop-down menu under To:, select the location to which you want to move the tape.

4. Click **submit.**

## Run inventory

The autoloader automatically runs an inventory whenever you power it on or insert a magazine. If you need to run an inventory in addition to this, you can use Web Administration to do it remotely.

**To run an inventory:**

1. On any Web Administration page, click **Commands.**

2. On the Commands page, click **Inventory.**

## Set to home

If the autoloader is not able to successfully execute a move or inventory command, try executing a Home command and then retry the move or inventory command again.

The Home command resets the autoloader as a means to help the autoloader recover from an unexpected internal condition.

**To set to Home:**

1. On any Web Administration page, click **Commands.**
2. On the Commands page, click **Home.**

## Set sequential operations

The Sequential operations mode supports certain backup applications that do not manage media. During backup, when one cartridge is read or written to the end of the tape, the autoloader automatically returns that cartridge to its slot and loads the cartridge from the next higher numbered slot to the tape drive to be read or written to. This continues until the backup software stops accessing the drive or until all the cartridges have been sequentially accessed. The autoloader does not move the media until the host requests the tape drive to unload.

To start Sequential operations, click **Start.**

To stop Sequential operations, click **Stop.**

To stop Sequential operations, click **Resume.**

## Configurations page

The Configurations page includes a submenu on the left-hand side of the page. When you click Configurations, the following page appears:



## Set System Operations options

When you click System Operations, the following page appears.

### How to change the SCSI ID
You can change the autoloader's SCSI ID from Web Administration.

**How to change the SCSI ID:** On any Web Administration page, click **Configurations.**

1. From the drop-down list under SCSI ID, click the number to which you want to set the ID.

2. Click **submit.** You must perform a system reset before the new SCSI ID takes effect, or you can use the front panel to power cycle your machine.

### Set the compression
To set the compression do the following

1. On any Web Administration page, click **Configurations.**

   If a checkmark appears in the box next to Compression, compression is enabled. To disable compression, click the box to remove the checkmark. If

no checkmark appears in the box next to Compression, compression is disabled. To enable compression, click the box to enter a checkmark.

2. Click **submit.**

## Set the cleaning mode

To enable the Auto Clean function, you must have a slot designated for the cleaning tape cartridge. If you or another user have already designated a slot, that slot's number appears next to Cleaning Cartridge Location. If a slot has not been designated, the box displays None.

**Note:** For optimal performance, leave autoclean set at disabled. It is better to let your application software handle the cleaning.

### How to set the cleaning tape slot:

1. On any Web Administration page, click **Configurations.**

2. From the drop-down list next to Cleaning Tape Location, select the number of the slot in which you want to store the cleaning cartridge, or select None if no cleaning cartridge is desired.

3. Click **submit.**To clean the tape drive manually, use the Move function to load and unload the cleaning tape from the tape drive. If you want to set the Auto Clean option, use the following procedure.

## How to set auto clean:

1. On any Web Administration page, click **Configurations.**

2. If a checkmark appears in the box next to Enable Auto Clean, the option is enabled. To disable Auto Clean, click the box to remove the checkmark. If no checkmark appears in the box next to Enable Auto Clean, the option is disabled. To enable Auto Clean, click the box to enter a check-mark.

3. Click **submit.**

## Set the system time

Both the front panel and Web Administration display time stamp information. If you are connected to a time server, the time stamp information appears as calendar/date time (Month/Date/Year Time).

If you are not connected to a time server and you do not manually set the time through the front panel or via the Web Administration, the time stamp information appears as Power On Cycles (POC), Power On Hours (POH). POC (5-digit number) is the number of times the system has booted since it was manufactured. POH is the number of hours, minutes, and seconds since the current boot occurred.

**Note:** You only need to set the time zone if you are using a time server.

**Note:** The time zone does not reset when power cycled.

**To set the time zone:**

1. On any Web Administration page, click **Configurations.**

2. From the first drop-down list next to Time Zone, select the number of hours' difference between your local time and Greenwich Mean Time (GMT). For example, if you live in Colorado, the time difference is 6 hours. See Appendix C, "Time Zones" for a list of times and time zones.

3. From the second drop-down list next to Time Zone, select the number of minutes' difference between your local time and Greenwich Mean Time (GMT).

4. From the month drop-down list, select the current month.

5. From the day drop-down list, select the current day.

6. From the year drop-down list, select the current year.

7. In the hour textbox, type the current hour, in 24-hour format.

8. In the minute textbox, type the current minute.

9. Click submit.

## Set Networking Options

When you originally installed the autoloader, you set the Ethernet configurations through the front panel. However, you can change them through the Web Administration tool.

**To change the Ethernet configurations:**

1. On any Web Administration page, click **Configurations.**

2. On the secondary menu, click **Networking.** The following page appears, showing the current settings:

3. If a checkmark appears in the box next to DHCP, the dynamic IP address option is enabled. To set a static IP address:

   a. Click the box to remove the checkmark.

   b. In the IP address fields, type the static IP address, using your Tab key to move from box to box.

4. If no checkmark appears in the box next to DHCP, the static IP address option is enabled. To change a static IP address, in the IP address fields, type in the new address, using your Tab key to move from box to box.

5. To change the IP address from a static address to a dynamic address, click the box next to DHCP. The static address is used if DHCP fails to acquire an address.

6. To change the values of the subnet mask, gateway, SNMP server, or the new address, using your Tab key to move from box to box.

7. Click **submit.** You must perform a system reset before the new IP address takes effect, or you can use the front panel to power cycle your machine.

## Set security options

When you enable the security option, users must enter a password to access the autoloader's functionality. A password enables administrator-level access or operator-level access. (For more information on levels of password-protection, see "Set Security" on page 2-27.)

**How to set Security Option:**

1. On any Web Administration page, click **Configurations.**
2. On the secondary menu, click **Security.** The following page appears:

**To reset the front panel passwords:**

1. On any Web Administration page, click **Configurations.**
2. On the secondary menu, click **Security.**
3. Click the box next to Reset Front Panel Password. A checkmark appears.
4. Click **submit.**

**To set a password:** When you enter your password on the autoloader's front panel there is no associated username. However, when you click any menu heading on the Web Administration's home page, you are prompted for a username and password.With Web Administration, you can set up to four usernames and IDs, which can include both alpha and numeric characters. Usernames and IDs must be between four and eight characters long.

1. On any Web Administration page, click **Configurations.**
2. On the secondary menu, click **Security.**
3. From the drop-down list next to Select User Type, select Administrator or Operator.
4. In the Username field, enter a username.
5. In the Password field, enter the password.
6. In the Verify Password field, re-enter the password.
7. Click **submit.**

## To set the authorized client list:

1. On any Web Administration page, click **Configurations.**
2. On the secondary menu, click **Security.**

   Under Client Authorization Control is a list of the IP addresses that are authorized to perform web administration of this unit. There are two sets of IP address boxes. You can individually enable/disable and configure each set.

   If enabled, each set can be used to specify either a range of IP addresses or a pair of specific IP addresses that are allowed to administer this unit. A set can also be used to specify a single IP address if the desired IP address is entered into both the "a" and "b" portions of the set. When a set is used to

specify a range of IP addresses, the "b" portion of each address set must be greater than or equal to the "a" portion of that address set.

If neither set is enabled, any IP client can administer the unit. If a single set is enabled, only clients that pass the test specified by that set are allowed administration access. If both sets are enabled, any client that passes either of the two filter tests can administer the unit. The web server always allows any client to view the status information of the unit, regardless of the authorized client list or the overlap control policy.

3. Use the drop-down box to enable or disable the sets.

4. Type the IP addresses in the boxes.

5. Click **submit.**

**To set the client overlap control:**

1. On any Web Administration page, click **Configurations.**

2. On the secondary menu, click **Security.**

3. Select a security option from the Client Overlap Control options:

   • No Locking allows multiple users to access the system and issue requests.

   • Full Locking allows only one user to access the system and issue requests.

   • Time-based Locking allows only one user to access the system and issue requests with the lock expiring after a designated amount of inactivity (in seconds).

   • Home/Logout is used to release a full or time-based lock and permit another user to access the system.

   **Note:** Locking is only available to users on the authorized client list.

4. Click **submit.**

## Diagnostics page

From the Diagnostics page, you can run loader test and drive tests.

### How to run a diagnostic test

1. On any Web Administration page, click **Diagnostics.**

2. From the Test t drop-down menu, select the diagnostic test that you want to run.

3. Specify a loop count if desired.

4. Click **submit.** If you selected a loader test, the test runs. If you selected a drive test, additional options appear. Select the desired options and press submit.

5. While the test is running, you can view the status of the test. Under View Diagnostic Test Progress, click **View Status.**

6. To refresh the status information, click **Diagnostics** and then click **Security.**

## How to view error or history logs:

To view error or history logs do the following:

1. On any Web Administration page, click **Diagnostics.**

2. Under View Error and History Logs, select Autoloader or Drive.

3. Under View Error and History Logs, click **View Logs.** You can also save the logs to a file by clicking **Save Logs.** If you save logs to a file, you must select a destination folder within 60 seconds.

   **Note:** Service personnel might want to use these logs.

## Identify autoloader

You can identify the physical location of the autoloader by requesting the LCD backlight to flash for a specified number of seconds.

1. Under Identification, enter the number of seconds.

2. Click **Identify.** The LCD backlight flashes for the specified number of seconds.

## Perform a system reset

You can perform a system reset by clicking System Reset under System Reset. A system resets takes at least three minutes if there is a tape in the drive, or approximately 30 seconds otherwise. You will use system reset when making SCSI ID changes, mode changes, and IP address changes.

## Get system updates

You can browse to find system updates and then upload the updates. To get system updates on any Web Administration page, click **Updates.**

1. Click **Browse.**

2. Go to http://www.ibm.com/support, search on 'Tapetool', and download the appropriate firmware file to a temporary directory on your server.

3. Navigate to the location of the system update.

4. Click **Upload.** The autoloader automatically uploads the new code and updates the system.

# Chapter 4. Using tape cartridges

This chapter how to use the tape cartridges and to clean the tape drive.

## Inspect your tapes

A Visual Mechanical Inspection (VMI) allows you to identify any potential tape cartridge problems and prevent accidental loss of data or damage to the DLT tapes or Super DLT tapes that are in your tape drives. Perform a VMI in the following situations:

- Whenever you change or load a new tape cartridge
- If a tape cartridge is dropped or subjected to physical shock
- If the tape drive becomes inoperable after loading a tape cartridge
- If you receive a shipment of tape cartridges that shows any sign of shipping damage
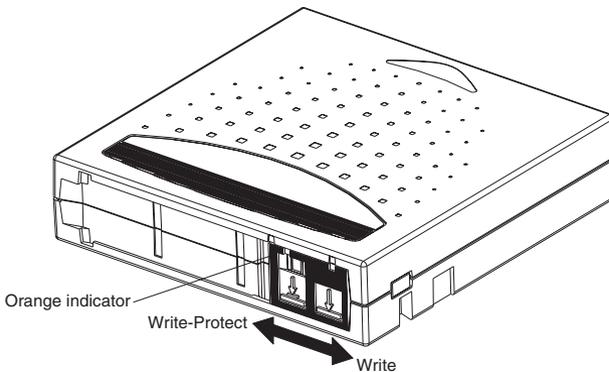


## How to perform a VMI

To perform a VMI, do the following:

1. Remove the tape cartridge from its protective plastic case.
2. Check the tape cartridge for obvious cracks or other physical damage. Look for broken or missing parts.
3. Gently shake the tape cartridge. Listen for any rattling or sounds of loose pieces inside the cartridge. If you hear anything, do not use the cartridge.
4. Hold the tape cartridge so that the end that is inserted into the tape drive is facing you. On the left-hand side of the tape cartridge you should see a small plastic tab. This is the left reel lock and can break if the cartridge is

dropped. If you cannot see the tab, do not use the cartridge.
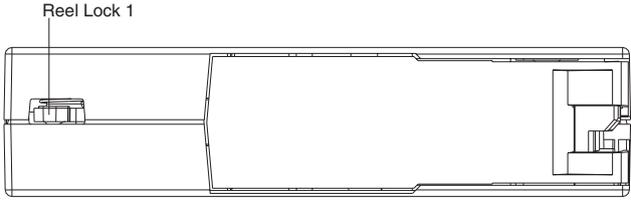
Reel Lock 1

5. Look at the bottom of the tape cartridge. The bottom reel lock is located in the lower right corner and can break if the cartridge is dropped. If you cannot see the tab, do not use the cartridge.

> **Note:** On normal DLT tape cartridges, the reel lock is white and easy to see. On the SDLT tape cartridge the reel lock is black and more difficult to see.

Spring loaded hub

Reel Lock 2
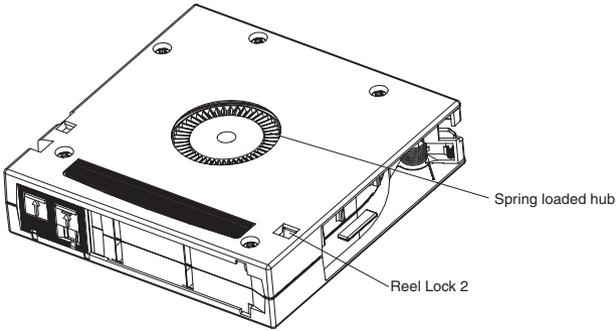
6. Finally, check for proper operation of the tape cartridge's write-protect switch. This sliding switch, located on the end of the tape cartridge and used for the tape label, snaps back and forth. If the tape cartridge is set to provide write protection, an orange indicator will be visible.

## Protecting your tapes

The following tips will help to extend the life of your tapes:

- Remove dust on the outside of tape cartridges with a damp cloth.
- Do not use adhesive labels or POST-IT notes on the top, side, or bottom of your tape cartridge. Use only the label provided with each cartridge and slide it in the label slot on the cartridge.
- Do not use graphite pencils, water-soluble felt pens, or other debris-producing writing instruments on labels.
- Never erase a label always replace it.
- Put unused cartridge labels in a separate location. A static electricity charge on a cartridge might cause a label to cling to the cartridge. If you

accidentally insert a label into the drive along with a cartridge, the label might prevent the hub reel and drive gear from meshing.

- Do not touch or allow direct contact with tape or tape leader. Dust or natural skin oils might contaminate the tape and impact tape performance.
- Do not expose the tape cartridge to moisture or direct sunlight.
- Do not expose cartridges to extreme temperatures or humidity. Refer to the documentation that comes with your tape media for appropriate operating and storage temperatures.
- Do not expose tape cartridges to magnetic fields.
- Avoid unnecessary opening of the cartridge door; this can expose the tape to contamination or physical damage.
- Do not drop the tape cartridges or subject the cartridges to physical shock.
- Do not insert any cartridge that has been dropped into a tape drive without a thorough VMI. A dropped cartridge can have dislodged, loosened, or damaged internal components which can also damage the tape drive.
- Do not take tape cartridges apart.
- Do not leave cartridges in the tape drive when the autoloader power is off.

## Transporting your tapes
The following tips will help you move your tapes safely from one location to another:

- Always keep each tape cartridge in its protective plastic case when it is not in the tape drive or autoloader magazine.
- When carrying tape cartridges in their cases, always orient the cases so that the grooves in the cases interlock. This prevents the cases from slipping apart and falling.
- Do not carry cartridges loosely in a box or in any other container. Allowing cartridges to hit together exposes them to unnecessary physical shock.

## Storing your tapes
The following tips will help you protect your tapes and the data that they contain when you store them:

- Never stack the tape cartridges in a stack of more than five.
- When placing tape cartridges in archival storage, make sure you stand each tape cartridge vertically.
- Store tape cartridges in their plastic containers and in the environmental conditions recommended in your tape media documentation.
- If storage and/or transportation of a tape cartridge has exposed the tape cartridge to conditions outside the recommended environment, "condition" by letting the tape set in its new environment for a 24-hour period.
- Do not place cartridges on or near devices that might produce magnetic fields such as computer monitors, motors, or video equipment. Such exposure can alter or erase data on the tape.

## The Write-Protect Switch

All tape cartridges have a write-protect switch to prevent accidental erasure of data. When you enable write-protection, existing data on the tape cannot be overwritten, nor can additional data be appended to the tape. When you disable write-protection, existing data on the tape can be overwritten, and additional data can be appended.

**Note:** Before loading a cartridge into your autoloader, make sure that you set the write-protect switch to the desired position.
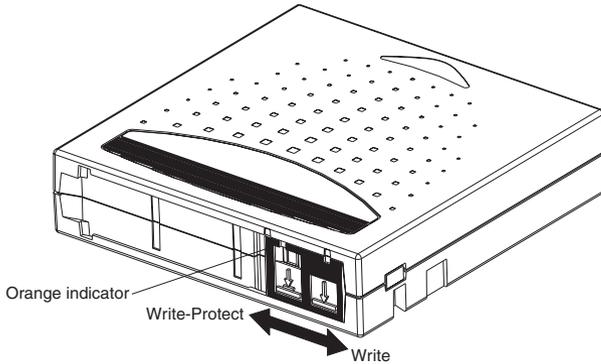


The following table shows the status of the orange indicator and the results for each write-protect switch position.

*Table 4-1.*

| Write-Protect switch position | Orange indicator | Result |
|---|---|---|
| **Write-Protected** (With the hub facing down and the write-protect switch facing you as shown in Figure 3-4, slide switch to the left). | Visible | Data cannot be written to the tape.<br><br>Existing data on the tape cannot be overwritten.<br><br>Additional data cannot be appended to the media. |

*Table 4-1.  (continued)*

| Write-Protect switch position | Orange indicator | Result |
|---|---|---|
| **Write-Enabled** (With the hub facing down and the write-protect switch facing you as shown in Figure 3-4, slide switch to the right). | Not visible | Unless the cartridge is write-protected via software:<br>• Data can be written to the tape.<br>• Existing data on the tape can be overwritten<br>• Additional data can be appended to the media. |

## Cleaning the tape drive

Your tape drive's read/write head might need to be cleaned periodically. When cleaning is needed, the drive automatically requests the backup software to perform a cleaning operation. However, you can also initiate cleaning from the front panel as needed.

To clean your tape drive, you need to use a cleaning tape (included in your option package for your convenience). You can order additional cleaning or data cartridges by following the directions on the cartridge insert. The DLT tape cleaning tape looks just like a DLT tape IV cartridge, except that it has a beige shell. The Super DLT tape cleaning tape looks just like a Super DLT tape I cartridge, except that its shell is also beige.

### Insert the Cleaning Tape

You can insert the cleaning tape by one of the following methods:

• Load the cleaning tape directly into an ejected magazine and then reload the magazine. You can then configure your application software to remember where that cleaning cartridge is located, and use it at appropriate intervals.

• Insert the cleaning tape through the mailslot.

**To insert the cleaning tape through the mailslot:**

1.  On the main menu, scroll to Command.

2.  Press Enter.

3.  On the Command submenu, scroll to Cleaning Tape.

4.  Press Enter.

5.  On the Cleaning Tape submenu, scroll to Enter Cleaning Tape.

6.  Press Enter.

A countdown appears on the LCD. You have 20 seconds to insert the cleaning tape through the mailslot before it re-locks. Push the cartridge in until you meet resistance. If you do not push the cartridge in far enough, the autoloader rejects the tape.

7. After you have inserted the cartridge, the prompt Enter to Continue displays. You have five seconds to respond.

8. Press Enter.

> **Note:** If the insert cartridge function fails, the cartridge ejects and you will have to perform steps five through seven again.

9. After you insert the cleaning tape through the mailslot, proceed directly to manual cleaning or store the cleaning tape in a magazine slot to be used later (see "Manual Cleaning" on page 4-7).

## Storing the cleaning tape

Always store your cleaning tape. When you store the cleaning tape, you can use it in the following ways:

- You can use it later for manual cleaning (see "Manual Cleaning" on page 3-9).
- If the Auto Clean function is enabled, the autoloader can move the cleaning tape from the magazine slot to the tape drive and, after the cleaning cycle, return it to its slot (see "Auto Clean" on page 3-9).
- If backup software's cleaning function is enabled, the software can move the cleaning tape from the magazine slot to the tape drive and, after the cleaning cycle, return it to its slot (for more information, see your backup software's documentation).

**To store the cleaning tape:**

1. After you have inserted the tape through the mailslot, on the main menu, scroll to Configuration.

2. Press Enter. The Configuration submenu appears.

3. On the submenu, scroll to Cleaning Tape Location.

4. Press Enter. A map of all the magazine slots appears.

   Whenever a map of the magazine slots appears on the display, an asterisk (*) indicates a slot occupied by a data cartridge, and an exclamation point (!) indicates a slot occupied by a cleaning cartridge.occupied by a cleaning tape is indicated with an exclamation point (!).

5. Scroll to the slot where you want to store the cleaning tape.

> **Note:** If you store the cleaning tape, you must specify in which slot the tape is to be stored.

6. Press Enter. The autoloader moves the tape to its new location.

## Ejecting the cleaning tape

You need to eject the cleaning tape from the autoloader under the following conditions:

- If you do not want to store the cleaning tape in a magazine slot after manually cleaning the tape drive.
- If the cleaning tape has expired

  A cleaning tape cartridge can be used for 20 cleanings. When the tape has been used up, `Cleaning Tape Expired` displays on the front panel LCD. If you store your cleaning tape, store a new tape after you eject the expired one (see "Manual Cleaning" on page 3-9).

**To eject a cleaning tape:**

1. On the main menu, scroll to Command.
2. Press Enter.
3. On the Command submenu, scroll to Cleaning Tape.
4. Press Enter.
5. On the Cleaning Tape submenu, scroll to Eject Cleaning Tape.
6. Press Enter. The autoloader ejects the cleaning tape from the mailslot.

## Tape drive cleaning methods

You can clean your tape drive in three ways:

- Manual Cleaning
- Software

## Manual Cleaning

If neither Auto Clean nor the backup software's cleaning option are enabled, and the drive requires cleaning, the autoloader displays a cleaning message on the LCD.

**Attention:** Because the cleaning cartridge is abrasive, you should not use it unless the cleaning message appears.

**To clean the tape drive manually:**

1. On the main menu, scroll to Command.
2. Press Enter.
3. On the Command submenu, scroll to Cleaning Tape.
4. Press Enter.
5. On the Cleaning Tape submenu, scroll to Load to Drive.
6. Press Enter.

   The autoloader moves the cleaning tape from its slot to the tape drive and then cleans the drive with it. When the cleaning is finished, you must return the cleaning tape to its magazine slot.

7. On the main menu, scroll to Command.

8. Press Enter.

9. On the Command submenu, scroll to Cleaning Tape.

10. Press Enter.

11. On the Cleaning Tape submenu, scroll to Unload from Drive.

12. Press Enter. The autoloader removes the cleaning tape from the tape drive.

13. When you have finished manually cleaning the tape drive, do one of the following:

    - Store it to its magazine slot (see "Store the Cleaning Tape" on page 3-7).

    - Eject the cleaning tape from the autoloader (see "Eject the Cleaning Tape" on page 3-8).

## Software

Set the cleaning option in your software application (if available) so that the software monitors drive cleaning. If your application software supports automatic cleaning, store a cleaning cartridge in the slot specified by the application.

# Appendix A. Troubleshooting

Errors that you may experience with your autoloader can range from severe hardware damage to simple connection problems. Before you send the autoloader back to IBM or your service provider, you may be able to fix the problem yourself by following some basic troubleshooting procedures.

This chapter describes how to troubleshoot common errors. It also describes how to contact IBM support and how to return the Customer Replaceable Unit (CRU) that is failing for exchange or repair if necessary.

There is no routine maintenance of the autoloader.

## Before contacting support

Before you contact IBM support or your service provider, be sure that you try all appropriate recommended procedures. The front panel provides some troubleshooting capabilities but is limited. Web Administration provides more detailed information about the autoloader's present state and past performance and is more helpful for troubleshooting errors.

*Table A-1. Suggested Actions for Performance Problems*

| Problem | Suggested Action |
|---------|------------------|
| Front Panel and light indicators do not turn on. | 1. Verify that the autoloader is plugged in. |
| | 2. Verify that the power switch on the back is turned on. |
| | 3. Verify that the DCA is locked into the autoloader Chassis with the 4 screws supplied. |
| | 4. Contact your Service Provider, or refer to the Service Manual. |
| Front Panel does not display information but light indicators above the Front Panel are turned on. | 1. Connect to the autoloader, using Web Administration with the Ethernet and issue a reset from the diagnostic page. |
| | 2. Verify that the DCA is locked into the autoloader Chassis with the four screws supplied. |
| | 3. On the Front Panel, press and hold the power switch for 15 seconds, then turn the rear power switch off. Wait 60 seconds and turn the rear power switch back on. |
| | 4. Contact your service provider, or refer to the Service Manual. |

*Table A-2. Suggested Actions for Performance Problems (continued)*

| Problem | Suggested Action |
|---|---|
| The autoloader will not communicate with the host system via the SCSI bus. | 1. Verify that the SCSI cables are connected to the rear of the autoloader and that the correct LVD Host controller card is installed. |
| | 2. Verify that the SCSI cables are not damaged or crimped and the total SCSI cable length is not exceeding the maximum required length. |
| | 3. Verify that a LVD SCSI Terminator is attached to the last SCSI device on the SCSI chain. |
| | 4. Verify that the autoloader SCSI ID is set to a unique SCSI ID that is not used by any other SCSI device on the same SCSI chain. |
| | 5. Issue a System Reset either by using the Web Administration Diagnostic System Reset or by turning off power from the front panel. |
| | 6. Contact your Service Provider, or refer to the Service Manual. |
| The autoloader will not communicate with the host system via the Ethernet. | 1. Verify that the Ethernet cable is connected to the correct hub. |
| | 2. Verify the Ethernet configuration settings via the Front Panel. If the DHCP server is available, Ethernet status should indicate DHCP. Otherwise you must set a unique IP address and mask. |
| | 3. Power off the autoloader by turning off the system from the front panel and turning it back on. |
| | 4. Contact your service provider, or refer to the Service Manual. |
| The application software reports a failure locating a piece of media, or the application software fails to move a piece of media as requested. | 1. Use the Web Administration page and verify that the media is in the expected location internal to the autoloader. |
| | 2. Using the Web Administration diagnostic tool, execute the Health Check command. |
| | 3. Issue a System Reset either by using the Web Administration Diagnostic System Reset or by turning off power from the front panel. |
| | 4. Contact your Service Provider, or refer to the Service Manual. |
| The application software reports an error while reading or writing a piece of media. | 2. From the Web Administration Diagnostic page, execute the Write/Read Tape drive test. |

*Table A-2. Suggested Actions for Performance Problems (continued) (continued)*

| Problem | Suggested Action |
|---|---|
| | 3. Issue a System Reset either by using the Web Administration Diagnostic System Reset or by turning off power from the front panel. |
| | 4. Contact your Service Provider, or refer to the Service Manual. |
| Other failures occur. | 1. Issue a System Reset either by using the Web Administration Diagnostic System Reset or by turning off power from the front panel. |
| | 2. Contact your Service Provider, or refer to the Service Manual. |

# Appendix B. Time Zones

*Table B-1. Times and time zones*

| Country/Region | Time Zone | Time |
|---|---|---|
| Canada/USA | Newfoundland Standard Time | GMT - 3:30 |
| | Newfoundland Daylight Time | GMT - 2:30 |
| | Atlantic Standard Time | GMT - 4:00 |
| | Atlantic Daylight Time | GMT - 3:00 |
| | Eastern Standard Time | GMT - 5:00 |
| | Eastern Daylight Time | GMT - 4:00 |
| | Central Standard Time | GMT - 6:00 |
| | Central Daylight Time | GMT - 5:00 |
| | Mountain Standard Time | GMT - 7:00 |
| | Mountain Daylight Time | GMT - 6:00 |
| | Pacific Standard Time | GMT - 8:00 |
| | Pacific Daylight Time | GMT - 7:00 |
| | Alaska Standard Time | GMT - 9:00 |
| | Alaska Daylight Time | GMT - 8:00 |
| | Hawaii Standard Time | GMT - 10:00 |
| Mexico | Time Zone I Standard Time | GMT - 6:00 |
| | Time Zone I Summer Time | GMT - 5:00 |
| | Time Zone II Standard Time | GMT - 7:00 |
| | Time Zone II Summer Time | GMT - 6:00 |
| | Time Zone III Standard Time | GMT - 8:00 |
| | Time Zone III Summer Time | GMT - 7:00 |
| | Time Zone IV Standard Time | GMT - 7:00 |
| | Time Zone IV Summer Time | GMT - 6:00 |
| Central America (except Panama) | Standard Time | GMT - 6:00 |
| Panama | Standard Time | GMT - 5:00 |
| Columbia, Ecuador, Peru | Standard Time | GMT - 5:00 |
| Chile, Paraguay | Standard Time | GMT - 4:00 |
| | Daylight Time | GMT - 3:00 |
| Argentina, French, Guiana, Suriname, Uruguay | Standard Time | GMT - 3:00 |
| Brazil | Standard Time | GMT - 3:00 |
| | Summer Time | GMT - 2:00 |
| | West Brazil | GMT - 2:00 |

*Table B-1. Times and time zones  (continued)*

| Country/Region | Time Zone | Time |
|---|---|---|
|  | Northeast Brazil | GMT - 4:00 |
|  | Acre | GMT - 5:00 |
| Bolivia, Venezuela, Guyana | Standard Time | GMT - 4:00 |
| Europe | Western European Standard Time | GMT |
|  | Western European Summer Time | GMT + 1:00 |
|  | Central European Standard Time | GMT + 1:00 |
|  | Central European Summer Time | GMT + 2:00 |
|  | Eastern European Standard Time | GMT + 2:00 |
|  | Eastern European Summer Time | GMT + 3:00 |
| China/Hong Kong/Macau | Standard Time | GMT + 8:00 |
| Japan, North Korea, South Korea | Standard Time | GMT + 9:00 |
| Australia | Eastern Standard Time | GMT + 10:00 |
|  | Eastern Daylight Time | GMT + 11:00 |
|  | Central Standard Time | GMT + 9:30 |
|  | Central Daylight Time | GMT + 10:30 |
|  | Western Standard Time | GMT + 8:00 |
| New Zealand (except Chatham Islands) | Standard Time | GMT + 12:00 |
|  | Daylight Time | GMT + 13:00 |
| Chatham Islands | Standard Time | GMT + 12:45 |
|  | Daylight Time | GMT + 13:45 |
| Vietnam, Cambodia, Laos, Thailand | Standard Time | GMT + 7:00 |
| India | Standard Time | GMT + 5:30 |
| Pakistan | Standard Time | GMT + 5:00 |

# Appendix C. Product warranty and support information

## Getting help and technical assistance

If you need help, service, technical assistance, or just want more information
about IBM products, you will find a wide variety of sources available from
IBM to assist you. This section contains information about where to go for
additional information about IBM and IBM products, what to do if you
experience a problem with your server, and whom to call for service should it
be necessary.

## Before initiating a call, please take the following steps:

- Check all cables to ensure connection
- Check your power "on/off " switches
- Use your "self help" functions to troubleshoot
- Check the IBM Web site for technical information, hints, tips, new device
  drivers, etc.
- Use the IBM Discussion Forum on the Web for questions

You can solve many server problems without outside assistance by following
the troubleshooting procedures that IBM provides in the online help or in the
publications that are provided with your server and software. The information
that comes with your server also describes the diagnostic tests that you can
perform. Most servers, operating systems, and programs come with
information that contains troubleshooting procedures and explanations of error
messages and error codes. If you suspect a software problem, refer to the
information for the operating system or program.

## Using the documentation

Information about your IBM server and preinstalled software, if any, is
available in the documentation that comes with your server. That
documentation includes printed books, online books, README files, and help
files. See the troubleshooting information of your server documentation for
instructions on using the diagnostic programs. The troubleshooting information
or the diagnostic programs might tell you that you need additional or updated
device drivers or other software. IBM maintains pages on the World Wide Web
where you can get the latest technical information and download device
drivers and updates. To access these pages, go to
http://www.ibm.com/pc/support/ and follow the instructions. Also, you can
order publications through the IBM Publications Ordering System at
http://www.elink.ibmlink.ibm.com/public/applications/publications/cgibin/pbi.cgi.

## Getting help and information from the World Wide Web

On the World Wide Web, the IBM Web site has up-to-date information about IBM xSeries products, services and support. The address for the IBM xSeries country home page is http://www.ibm.com/eserver/xseries/.

You can find service information for your IBM products, including supported options, at http://www.ibm.com/pc/support/. If you select Profile from the support page, you can create a customized support page. Below is just a sample of the many things available:

- Diagnose problems using the IBM Online Assistant
- Download the latest device drivers and updates for your products
- View a list of frequently asked questions (FAQ)
- View a list of hints and tips to aid the troubleshooting of your problem
- Participate in the IBM discussion forums
- Receive e-mail notifications of technical updates related to your products

## Software service and support

Customer telephone assistance with usage, configuration, and software defects for the xSeries servers, workstations and appliances is provided for a fee via IBM Operational Support Services - Support Line. For information about what products are supported by Support Line in your country, see http://www.ibm.com/services/sl/products.

For more information about Support Line and other IBM Services see http://www.ibm.com/services or see www.ibm.com/planetwide/ for in country telephone numbers.

## Hardware service and support

Hardware services can be provided either by IBM Integrated Technology Services (see http://www.ibm.com/planetwide/ for in country telephone numbers), or your reseller, if approved by IBM to provide warranty service.

In the U.S. and Canada, these services are available 24 hours a day, 7 days a week. In the U.K., these services are available Monday through Friday, from 9:00 a.m. to 6:00 p.m.

## Warranty information

### Warranty period
The warranty period varies by machine type and country or region.

**Notes:**

1. Contact your place of purchase for warranty service information. Some IBM Machines are eligible for on-site warranty service depending on the country or region where service is performed.

   **Prior to on-site warranty service, customers are required to go through problem determination with an IBM service specialist call center technician.**

2. A warranty period of 1 year on parts and 1 year on labor means that IBM will provide warranty service without charge for:

   a. parts and labor during the first year of the warranty period.

   b. parts only, on an exchange basis, in the first year of the warranty period.

      IBM will charge you for any labor provided in performance of the repair or replacement(s) in the first year of warranty period.

3. The IBM Machine Warranties Web site at http://www.ibm.com/servers/support/machine_warranties/ contains a worldwide overview of the IBM Limited Warranty for IBM Machines, a glossary of terms used in the Statement of Limited Warranty, Frequently Asked Questions (FAQ), and links to Product Support Web pages. The IBM Statement of Limited Warranty is available from this Web site in 29 languages in Portable Document Format (PDF).

*Table C-1. Machine Type XXXX*

| Country or region | Warranty period | Service delivery methods |
|---|---|---|
| | Parts - 1 year; Labor - 1 year | |

## Execute diagnostics:

The IBM service specialist will assist with determining if your equipment is functioning as specified. It may be necessary to isolate the failing xSeries/Netfinity and/or IBM component from any active production environment in order to execute diagnostics and perform defect isolation routines. It is the responsibility of the customer to make the IBM system and/or IBM components available for the execution of diagnostics and the defect isolation routines.

## Check software:

The IBM service specialist will assist you to ensure that the proper BIOS, firmware, device drivers and other supporting IBM software have been installed and configured correctly. This may require gathering information about the relevant software levels manually or having to run IBM approved utilities to capture this information. If necessary, your server may need to be in an isolated environment. It is the responsibility of the customer, with the

assistance of the service specialist, to perform this activity, as the IBM Statement of Limited Warranty does not include on-site assistance with this information gathering activity.

## Warranty service and support

With the original purchase of an IBM server, you have access to extensive service and support. During the IBM Machine warranty period, you may call IBM or your reseller for problem-determination assistance under the terms of the IBM Statement of Limited Warranty.

The following services are available during the warranty period:

**Problem determination** - Trained personnel are available to assist you with determining if you have a hardware problem and deciding what action is necessary to fix the problem.

**IBM hardware repair** - If the problem is determined to be caused by IBM hardware under warranty, trained service personnel are available to provide the applicable level of service, either on-site or at an IBM service center as determined by IBM.

**Engineering Change management** - Occasionally, there might be changes that are required after a product has been shipped from IBM. In those instances, IBM will make Engineering Changes (ECs) available that apply to your hardware.

**Customer Replaceable Units (CRU)** - Some parts of IBM machines are designated as Customer Replaceable Units. IBM ships CRU's to you for replacement by you.

| Customer Replaceable Units (CRU) |
| --- |
| Keyboard, Monitor |
| Memory, diskette drive |
| Hard disk drive |
| Mouse |

This list is not inclusive of all CRUs.

The following are not covered under warranty:
- Replacement or use of non-IBM parts. All IBM parts contain a 7-character identification in the format IBM FRU XXXXXXX.
- Identification of software problem sources.
- Installation of customer replaceable units (CRUs).

- Installation and configuration of BIOS, firmware or device drivers that is designated as customer installable.

Refer to the IBM Statement of Limited Warranty for a full explanation of IBM warranty terms. Be sure to retain your proof of purchase to obtain warranty service.

## Other services

**International warranty service (IWS)**

IWS is available during the warranty period to customers who travel or relocate to countries where their server is sold and serviced by IBM or IBM resellers authorized to perform warranty service. Eligible IBM servers are identified by their four-digit machine type. You can obtain IWS through the service delivery method, such as depot, carry-in or on-site, provided in the servicing country. Service methods and procedures vary by country, and some service or parts may not be available in all countries. Service centers in certain countries may not be able to service all models of a particular machine type. In addition, some countries may have fees and restrictions that apply at the time of service.

To determine the eligibility of your server, visit:

Http://www.pc.ibm.com/support.

Click the **Warranty Lookup** tab.

## IBM Statement of Limited Warranty Z125-4753-06 8/2000

This warranty statement consists of two parts: Part 1 and Part 2. Be sure to read Part 1 and the country-unique terms in Part 2 that apply to your country or region.

## Part 1 - General Terms

This Statement of Limited Warranty includes Part 1 - General Terms and Part 2 - Country-unique Terms. The terms of Part 2 replace or modify those of Part 1. The warranties provided by IBM in this Statement of Limited Warranty apply only to Machines you purchase for your use, and not for resale, from IBM or your reseller. The term "Machine" means an IBM machine, its features, conversions, upgrades, elements, or accessories, or any combination of them. The term "Machine" does not include any software programs, whether pre-loaded with the Machine, installed subsequently or otherwise. Unless IBM specifies otherwise, the following warranties apply only in the country where you acquire the Machine. Nothing in this Statement of Limited Warranty affects any statutory rights of consumers that cannot be waived or limited by contract. If you have any questions, contact IBM or your reseller.

**The IBM Warranty for Machines**

IBM warrants that each Machine 1) is free from defects in materials and workmanship and 2) conforms to IBM's Official Published Specifications ("Specifications"). The warranty period for a Machine is a specified, fixed period commencing on its Date of Installation. The date on your sales receipt is the Date of Installation unless IBM or your reseller informs you otherwise.

If a Machine does not function as warranted during the warranty period, and IBM or your reseller are unable to either 1) make it do so or 2) replace it with one that is at least functionally equivalent, you may return it to your place of purchase and your money will be refunded.

**Extent of Warranty**

The warranty does not cover the repair or exchange of a Machine resulting from misuse, accident, modification, unsuitable physical or operating environment, improper maintenance by you, or failure caused by a product for which IBM is not responsible. The warranty is voided by removal or alteration of Machine or parts identification labels.

**THESE WARRANTIES ARE YOUR EXCLUSIVE WARRANTIES AND REPLACE ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THESE WARRANTIES GIVE YOU**

**SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM JURISDICTION TO JURISDICTION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF EXPRESS OR IMPLIED WARRANTIES, SO THE ABOVE EXCLUSION OR LIMITATION MAY NOT APPLY TO YOU. IN THAT EVENT, SUCH WARRANTIES ARE LIMITED IN DURATION TO THE WARRANTY PERIOD. NO WARRANTIES APPLY AFTER THAT PERIOD.**

**Items Not Covered by Warranty**

IBM does not warrant uninterrupted or error-free operation of a Machine.

Any technical or other support provided for a Machine under warranty, such as assistance via telephone with "how-to" questions and those regarding Machine set-up and installation, will be provided **WITHOUT WARRANTIES OF ANY KIND.**

**Warranty Service**

To obtain warranty service for a Machine, contact IBM or your reseller. If you do not register your Machine with IBM, you may be required to present proof of purchase.

During the warranty period, IBM or your reseller, if approved by IBM to provide warranty service, provides without charge certain types of repair and exchange service to keep Machines in, or restore them to, conformance with their Specifications. IBM or your reseller will inform you of the available types of service for a Machine based on its country of installation. At its discretion, IBM or your reseller will 1) either repair or exchange the failing Machine and 2) provide the service either at your location or a service center. IBM or your reseller will also manage and install selected engineering changes that apply to the Machine.

Some parts of IBM Machines are designated as Customer Replaceable Units (called "CRUs"), e.g., keyboards, memory, or hard disk drives. IBM ships CRUs to you for replacement by you. You must return all defective CRUs to IBM within 30 days of your receipt of the replacement CRU. You are responsible for downloading designated Machine Code and Licensed Internal Code updates from an IBM Internet Web site or from other electronic media, and following the instructions that IBM provides.

When warranty service involves the exchange of a Machine or part, the item IBM or your reseller replaces becomes its property and the replacement becomes yours. You represent that all removed items are genuine and unaltered. The replacement may not be new, but will be in good working order and at least functionally equivalent to the item replaced. The replacement

assumes the warranty service status of the replaced item. Many features, conversions, or upgrades involve the removal of parts and their return to IBM. A part that replaces a removed part will assume the warranty service status of the removed part.

Before IBM or your reseller exchanges a Machine or part, you agree to remove all features, parts, options, alterations, and attachments not under warranty service.

You also agree to
1. ensure that the Machine is free of any legal obligations or restrictions that prevent its exchange;
2. obtain authorization from the owner to have IBM or your reseller service a Machine that you do not own; and
3. where applicable, before service is provided:
    a. follow the problem determination, problem analysis, and service request procedures that IBM or your reseller provides;
    b. secure all programs, data, and funds contained in a Machine;
    c. provide IBM or your reseller with sufficient, free, and safe access to your facilities to permit them to fulfill their obligations; and
    d. inform IBM or your reseller of changes in a Machine's location.

IBM is responsible for loss of, or damage to, your Machine while it is 1) in IBM's possession or 2) in transit in those cases where IBM is responsible for the transportation charges.

Neither IBM nor your reseller is responsible for any of your confidential, proprietary or personal information contained in a Machine which you return to IBM or your reseller for any reason. You should remove all such information from the Machine prior to its return.

**Limitation of Liability**

Circumstances may arise where, because of a default on IBM's part or other liability, you are entitled to recover damages from IBM. In each such instance, regardless of the basis on which you are entitled to claim damages from IBM (including fundamental breach, negligence, misrepresentation, or other contract or tort claim), except for any liability that cannot be waived or limited by applicable laws, IBM is liable for no more than
1. damages for bodily injury (including death) and damage to real property and tangible personal property; and
2. the amount of any other actual direct damages, up to the charges (if recurring, 12 months' charges apply) for the Machine that is subject of the claim. For purposes of this item, the term "Machine" includes Machine Code and Licensed Internal Code.

This limit also applies to IBM's suppliers and your reseller. It is the maximum for which IBM, its suppliers, and your reseller are collectively responsible.

**UNDER NO CIRCUMSTANCES IS IBM LIABLE FOR ANY OF THE FOLLOWING: 1) THIRD-PARTY CLAIMS AGAINST YOU FOR DAMAGES (OTHER THAN THOSE UNDER THE FIRST ITEM LISTED ABOVE); 2) LOSS OF, OR DAMAGE TO, YOUR RECORDS OR DATA; OR 3) SPECIAL, INCIDENTAL, OR INDIRECT DAMAGES OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES, LOST PROFITS OR LOST SAVINGS, EVEN IF IBM, ITS SUPPLIERS OR YOUR RESELLER IS INFORMED OF THEIR POSSIBILITY. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.**

**Governing Law**

Both you and IBM consent to the application of the laws of the country in which you acquired the Machine to govern, interpret, and enforce all of your and IBM's rights, duties, and obligations arising from, or relating in any manner to, the subject matter of this Agreement, without regard to conflict of law principles.

## Part 2 - Country-unique Terms

<u>AMERICAS</u>

**BRAZIL**

**Governing Law:** *The following is added after the first sentence:*Any litigation arising from this Agreement will be settled exclusively by the court of Rio de Janeiro.

<u>NORTH AMERICA</u>

**Warranty Service:** *The following is added to this Section:* To obtain warranty service from IBM in Canada or the United States, call 1-800-IBM-SERV (426-7378).

**CANADA**

**Governing Law:** *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:* laws in the Province of Ontario.

**UNITED STATES**

**Governing Law:** *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:* laws of the State of New York.

## ASIA PACIFIC

### AUSTRALIA

**The IBM Warranty for Machines:** *The following paragraph is added to this Section:* The warranties specified in this Section are in addition to any rights you may have under the Trade Practices Act 1974 or other similar legislation and are only limited to the extent permitted by the applicable legislation.

**Limitation of Liability:** *The following is added to this Section:* Where IBM is in breach of a condition or warranty implied by the Trade Practices Act 1974 or other similar legislation, IBM's liability is limited to the repair or replacement of the goods or the supply of equivalent goods. Where that condition or warranty relates to right to sell, quiet possession or clear title, or the goods are of a kind ordinarily acquired for personal, domestic or household use or consumption, then none of the limitations in this paragraph apply.

**Governing Law:** *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:* laws of the State or Territory.

### CAMBODIA, LAOS, AND VIETNAM

**Governing Law:** *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*laws of the State of New York.

*The following is added to this Section:* Disputes and differences arising out of or in connection with this Agreement shall be finally settled by arbitration which shall be held in Singapore in accordance with the rules of the International Chamber of Commerce (ICC). The arbitrator or arbitrators designated in conformity with those rules shall have the power to rule on their own competence and on the validity of the Agreement to submit to arbitration. The arbitration award shall be final and binding for the parties without appeal and the arbitral award shall be in writing and set forth the findings of fact and the conclusions of law.

All proceedings shall be conducted, including all documents presented in such proceedings, in the English language. The number of arbitrators shall be three, with each side to the dispute being entitled to appoint one arbitrator.

The two arbitrators appointed by the parties shall appoint a third arbitrator before proceeding upon the reference. The third arbitrator shall act as chairman of the proceedings. Vacancies in the post of chairman shall be filled by the

president of the ICC. Other vacancies shall be filled by the respective nominating party. Proceedings shall continue from the stage they were at when the vacancy occurred.

If one of the parties refuses or otherwise fails to appoint an arbitrator within 30 days of the date the other party appoints its, the first appointed arbitrator shall be the sole arbitrator, provided that the arbitrator was validly and properly appointed.

The English language version of this Agreement prevails over any other language version.

## HONG KONG AND MACAU

**Governing Law:** *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:* laws of Hong Kong Special Administrative Region.

## INDIA

**Limitation of Liability:** *The following replaces items 1 and 2 of this Section:*
1. liability for bodily injury (including death) or damage to real property and tangible personal property will be limited to that caused by IBM's negligence;
2. as to any other actual damage arising in any situation involving nonperformance by IBM pursuant to, or in any way related to the subject of this Statement of Limited Warranty, IBM's liability will be limited to the charge paid by you for the individual Machine that is the subject of the claim.

## JAPAN

**Governing Law:** *The following sentence is added to this Section:*Any doubts concerning this Agreement will be initially resolved between us in good faith and in accordance with the principle of mutual trust.

## NEW ZEALAND

**The IBM Warranty for Machines:** *The following paragraph is added to this Section:* The warranties specified in this Section are in addition to any rights you may have under the Consumer Guarantees Act 1993 or other legislation which cannot be excluded or limited. The Consumer Guarantees Act 1993 will not apply in respect of any goods which IBM provides, if you require the goods for the purposes of a business as defined in that Act.

**Limitation of Liability:** *The following is added to this Section:* Where Machines are not acquired for the purposes of a business as defined in the Consumer Guarantees Act 1993, the limitations in this Section are subject to the limitations in that Act.

## PEOPLE'S REPUBLIC OF CHINA (PRC)

**Governing Law:** *The following replaces this Section:* Both you and IBM consent to the application of the laws of the State of New York (except when local law requires otherwise) to govern, interpret, and enforce all your and IBM's rights, duties, and obligations arising from, or relating in any manner to, the subject matter of this Agreement, without regard to conflict of law principles.

Any disputes arising from or in connection with this Agreement will first be resolved by friendly negotiations, failing which either of us has the right to submit the dispute to the China International Economic and Trade Arbitration Commission in Beijing, the PRC, for arbitration in accordance with its arbitration rules in force at the time. The arbitration tribunal will consist of three arbitrators. The language to be used therein will be English and Chinese. An arbitral award will be final and binding on all the parties, and will be enforceable under the Convention on the Recognition and Enforcement of Foreign Arbitral Awards (1958).

The arbitration fee will be borne by the losing party unless otherwise determined by the arbitral award.

During the course of arbitration, this Agreement will continue to be performed except for the part which the parties are disputing and which is undergoing arbitration.

## EUROPE, MIDDLE EAST, AFRICA (EMEA)

*THE FOLLOWING TERMS APPLY TO ALL EMEA COUNTRIES:* The terms of this Statement of Limited Warranty apply to Machines purchased from IBM or an IBM reseller.

**Warranty Service:**

If you purchase an IBM Machine in Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland or United Kingdom, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM. If you purchase an IBM Personal Computer Machine in Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Georgia, Hungary, Kazakhstan, Kirghizia, Federal Republic of

Yugoslavia, Former Yugoslav Republic of Macedonia (FYROM), Moldova, Poland, Romania, Russia, Slovak Republic, Slovenia, or Ukraine, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM.

If you purchase an IBM Machine in a Middle Eastern or African country, you may obtain warranty service for that Machine from the IBM entity within the country of purchase, if that IBM entity provides warranty service in that country, or from an IBM reseller, approved by IBM to perform warranty service on that Machine in that country. Warranty service in Africa is available within 50 kilometers of an IBM authorized service provider. You are responsible for transportation costs for Machines located outside 50 kilometers of an IBM authorized service provider.

**Governing Law:**

The applicable laws that govern, interpret and enforce rights, duties, and obligations of each of us arising from, or relating in any manner to, the subject matter of this Statement, without regard to conflict of laws principles, as well as Country-unique terms and competent court for this Statement are those of the country in which the warranty service is being provided, except that in 1) Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Hungary, Former Yugoslav Republic of Macedonia, Romania, Slovakia, Slovenia, Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan, the laws of Austria apply; 2) Estonia, Latvia, and Lithuania, the laws of Finland apply; 3) Algeria, Benin, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chad, Congo, Djibouti, Democratic Republic of Congo, Equatorial Guinea, France, Gabon, Gambia, Guinea, Guinea-Bissau, Ivory Coast, Lebanon, Mali, Mauritania, Morocco, Niger, Senegal, Togo, and Tunisia, this Agreement will be construed and the legal relations between the parties will be determined in accordance with the French laws and all disputes arising out of this Agreement or related to its violation or execution, including summary proceedings, will be settled exclusively by the Commercial Court of Paris; 4) Angola, Bahrain, Botswana, Burundi, Egypt, Eritrea, Ethiopia, Ghana, Jordan, Kenya, Kuwait, Liberia, Malawi, Malta, Mozambique, Nigeria, Oman, Pakistan, Qatar, Rwanda, Sao Tome, Saudi Arabia, Sierra Leone, Somalia, Tanzania, Uganda, United Arab Emirates, United Kingdom, West Bank/Gaza, Yemen, Zambia, and Zimbabwe, this Agreement will be governed by English Law and disputes relating to it will be submitted to the exclusive jurisdiction of the English courts; and 5) in Greece, Israel, Italy, Portugal, and Spain any legal claim arising out of this Statement will be brought before, and finally settled by, the competent court of Athens, Tel Aviv, Milan, Lisbon, and Madrid, respectively.

*THE FOLLOWING TERMS APPLY TO THE COUNTRY SPECIFIED:*

**AUSTRIA AND GERMANY**

**The IBM Warranty for Machines:** *The following replaces the first sentence of the first paragraph of this Section:* The warranty for an IBM Machine covers the functionality of the Machine for its normal use and the Machine's conformity to its Specifications.

*The following paragraphs are added to this Section:*

The minimum warranty period for Machines is six months. In case IBM or your reseller is unable to repair an IBM Machine, you can alternatively ask for a partial refund as far as justified by the reduced value of the unrepaired Machine or ask for a cancellation of the respective agreement for such Machine and get your money refunded.

**Extent of Warranty:** *The second paragraph does not apply.*

**Warranty Service:** *The following is added to this Section:* During the warranty period, transportation for delivery of the failing Machine to IBM will be at IBM's expense.

**Limitation of Liability:** *The following paragraph is added to this Section:* The limitations and exclusions specified in the Statement of Limited Warranty will not apply to damages caused by IBM with fraud or gross negligence and for express warranty.

*The following sentence is added to the end of item 2:* IBM's liability under this item is limited to the violation of essential contractual terms in cases of ordinary negligence.

**EGYPT**

**Limitation of Liability:** *The following replaces item 2 in this Section:* as to any other actual direct damages, IBM's liability will be limited to the total amount you paid for the Machine that is the subject of the claim. For purposes of this item, the term "Machine" includes Machine Code and Licensed Internal Code.

*Applicability of suppliers and resellers (unchanged).*

**FRANCE**

**Limitation of Liability:** *The following replaces the second sentence of the first paragraph of this Section:*In such instances, regardless of the basis on which you are entitled to claim damages from IBM, IBM is liable for no more than: *(items 1 and 2 unchanged).*

**IRELAND**

**Extent of Warranty:** *The following is added to this Section:* Except as expressly provided in these terms and conditions, all statutory conditions, including all warranties implied, but without prejudice to the generality of the foregoing all warranties implied by the Sale of Goods Act 1893 or the Sale of Goods and Supply of Services Act 1980 are hereby excluded.

**Limitation of Liability:** *The following replaces items one and two of the first paragraph of this Section:*1. death or personal injury or physical damage to your real property solely caused by IBM's negligence; and 2. the amount of any other actual direct damages, up to 125 percent of the charges (if recurring, the 12 months' charges apply) for the Machine that is the subject of the claim or which otherwise gives rise to the claim.

*Applicability of suppliers and resellers (unchanged).*

*The following paragraph is added at the end of this Section:* IBM's entire liability and your sole remedy, whether in contract or in tort, in respect of any default shall be limited to damages.

**ITALY**

**Limitation of Liability:** *The following replaces the second sentence in the first paragraph:*In each such instance unless otherwise provided by mandatory law, IBM is liable for no more than: 1. *(unchanged)* 2. as to any other actual damage arising in all situations involving nonperformance by IBM pursuant to, or in any way related to the subject matter of this Statement of Warranty, IBM's liability, will be limited to the total amount you paid for the Machine that is the subject of the claim. *Applicability of suppliers and resellers (unchanged).*

*The following replaces the third paragraph of this Section:* Unless otherwise provided by mandatory law, IBM and your reseller are not liable for any of the following: *(items 1 and 2 unchanged)* 3) indirect damages, even if IBM or your reseller is informed of their possibility.

**SOUTH AFRICA, NAMIBIA, BOTSWANA, LESOTHO AND SWAZILAND**

**Limitation of Liability:** *The following is added to this Section:* IBM's entire liability to you for actual damages arising in all situations involving nonperformance by IBM in respect of the subject matter of this Statement of Warranty will be limited to the charge paid by you for the individual Machine that is the subject of your claim from IBM.

**UNITED KINGDOM**

**Limitation of Liability:** *The following replaces items 1 and 2 of the first paragraph of this Section:*

1. death or personal injury or physical damage to your real property solely caused by IBM's negligence;
2. the amount of any other actual direct damages or loss, up to 125 percent of the charges (if recurring, the 12 months' charges apply) for the Machine that is the subject of the claim or which otherwise gives rise to the claim;

*The following item is added to this paragraph:* 3. breach of IBM's obligations implied by Section 12 of the Sale of Goods Act 1979 or Section 2 of the Supply of Goods and Services Act 1982.

*Applicability of suppliers and resellers (unchanged).*

*The following is added to the end of this Section:* IBM's entire liability and your sole remedy, whether in contract or in tort, in respect of any default shall be limited to damages.

# Appendix D. Notices

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## Electronic emission notices

## Federal Communications Commission (FCC) statement

IBM 1x16 SDLT Autoloader

**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 conformite a la reglementation d'Industrie Canada**

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

**Deutsche EMV-Direktive (electromagnetische Verträglichkeit)**

Dieses Gerät ist berechtigt in Übereinstimmung mit dem deutschen EMVG vom 9.Nov.92 das EG-Konformitätszeichen zu führen.

Der Aussteller der Konformitätserklärung ist die IBM UK, Greenock.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse A. Für diese Klasse von Geräten gilt folgende Bestimmung nach dem EMVG:

Geräte dürfen an Orten, für die sie nicht ausreichend entstört sind, nur mit besonderer Genehmigung des Bundesminesters für Post und Telekommunikation oder des Bundesamtes für Post und Telekommunikation betrieben werden. Die Genehmigung wird erteilt, wenn keine elektromagnetischen Störungen zu erwarten sind.

(Auszug aus dem EMVG vom 9.Nov.92, Para.3. Abs.4)

> **Hinweis:** Dieses Genehmigungsverfahren ist von der Deutschen Bundespost noch nicht veröffentlicht worden.

**Europen Union - EMC directive**

This product is in conformity with the protection requirements of EU Council Directive 89/336/ECC 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 non-recommended 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.

> **Warning:** 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.

**Union Européenne - Directive Conformité électromagnétique**

Ce produit est conforme aux exigences de protection de la Directive 89/336/EEC du Conseil de l'UE sur le rapprochement des lois des États membres en matière de compatibilité électromagnétique.

IBM ne peut accepter aucune responsabilité pour le manquement aux exigences de protection résultant d'une modification non recommandée du produit, y compris l'installation de cartes autres que les cartes IBM.

Ce produit a été testé et il satisfait les conditions de l'équipement informatique de Classe A en vertu de CISPR22/Standard européen EN 55022. Les conditions pour l'équipement de Classe A ont été définies en fonction d'un contexte d'utilisation commercial et industriel afin de fournir une protection raisonnable contre l'interférence d'appareils de communication autorisés.

> **Avertissement :** Ceci est un produit de Classe A. Dans un contexte résidentiel, ce produit peut causer une interférence radio exigeant que l'utilisateur prenne des mesures adéquates.

**Union Europea - Normativa EMC**

Questo prodotto è conforme alle normative di protezione ai sensi della Direttiva del Consiglio dell'Unione Europea 89/336/CEE sull'armonizzazione legislativa degli stati membri in materia di compatibilità elettromagnetica.

IBM non accetta responsabilità alcuna per la mancata conformità alle normative di protezione dovuta a modifiche non consigliate al prodotto, compresa l'installazione di schede e componenti di marca diversa da IBM.

Le prove effettuate sul presente prodotto hanno accertato che esso rientra nei limiti stabiliti per le le apparecchiature di informatica Classe A ai sensi del CISPR 22/Norma Europea EN 55022. I limiti delle apparecchiature della Classe A sono stati stabiliti al fine di fornire ragionevole protezione da interferenze mediante dispositivi di comunicazione in concessione in ambienti commerciali ed industriali.

> **Avvertimento:** Questso è un prodotto appartenente alla Classe A. In ambiente domestico, tale prodotto può essere causa di interferenze radio, nel qual caso l'utente deve prendere misure adeguate.

## Unione Europea - Directiva EMC (Conformidad électromagnética)

Este producto satisface los requisitos de protección del Consejo de la UE, Directiva 89/336/CEE en lo que a la legislatura de los Estados Miembros sobre compatibilidad electromagnética se refiere.

IBM no puede aceptar responsabilidad alguna si este producto deja de satisfacer dichos requisitos de protección como resultado de una modificación no recomendada del producto, incluyendo el ajuste de tarjetas de opción que no sean IBM.

Este producto ha sido probado y satisface los límites para Equipos Informáticos Clase A de conformidad con el Estándar CISPR22 y el Estándar Europeo EN 55022. Los límites para los equipos de Clase A se han establecido para entornos comerciales e industriales a fin de proporcionar una protección razonable contra las interferencias con dispositivos de comunicación licenciados.

> **Advertencia:** Este es un producto de Clase A. En un entorno doméstico este producto podría causar radiointerferencias en cuyo caso el usuario deberá tomar las medidas adecuadas.

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