TROUBLESHOOTING THE IBM VXA-2 TAPE DRIVE

This document describes problems that you might encounter while operating the IBM VXA-2 tape drive and provides suggestions for resolving the problems.

PROBLEMS AND SOLUTIONS

TAPE DRIVE WILL NOT ACCEPT A CARTRIDGE

If the tape drive does not accept a cartridge when you insert it into the tape drive door, do the following:

1. Determine if there's already a cartridge loaded. Press the eject button; there may be a cartridge already loaded in the tape drive.

2. Make sure you are using either VXA X-Tape cartridges or VXATape cartridges. The tape drive automatically ejects other cartridge types.

3. Check that the tape drive is powered on and that it is not indicating an error state on its LEDs. Refer to the Product Manual for a complete list of LED states.

4. Check to see if the Fault (!) LED is orange, indicating that the tape drive is over-temperature. If the tape drive is over-temperature, it must cool down before operations can continue.

5. Check to see if the LEDs indicate a firmware download failure. A firmware download failure is indicated with the Ready, Activity, and Fault LEDs flashing. If a firmware upgrade was interrupted or did not complete successfully, the firmware must be reloaded. The tape drive will not accept a cartridge until the firmware is successfully reloaded.

6. Power cycle the tape drive. Power down the tape drive. Wait 10 seconds, then turn the tape drive back on. On power-up, observe the tape drive's LED code sequence. If the LEDs do not illuminate, check the power supply and power cable connection. If the tape drive is installed internally in a server, try connecting a different power cable to the tape drive.

7. Push the cartridge straight into the tape drive. If the cartridge is inserted or pushed at an angle, you will feel resistance and will not be able to load the cartridge.

TAPE DRIVE WILL NOT EJECT A CARTRIDGE

If the tape drive does not eject a cartridge when you press the eject button, do the following:

1. Use your backup application to eject the cartridge.
   To protect against accidental tape ejection during a backup or restore operation, many applications prevent using the tape drive's eject button for media removal.

   If you cannot eject the cartridge through the application, use VXATool to unload the cartridge. Refer to the readme file or on-line help available with VXATool for instructions.

2. If you cannot eject the cartridge through the application, use VXATool to unload the cartridge. Refer to the readme file or on-line help available with VXATool for instructions.

3. Reset the tape drive.

Press and hold the unload button for at least 10 seconds, then release the button. This clears any error, ejects any cartridge that is in the tape drive (unless a hardware error occurred), and resets the tape drive.

Note: If the tape drive contains a cartridge, the tape drive rewinds the tape to the beginning before ejecting the cartridge. The time required to complete the rewind depends on what size cartridge you are using and if the tape was positioned near the end.

4. Power cycle the tape drive.
   Power down the tape drive. Wait 10 seconds, then turn the tape drive back on. Depending on what function the tape drive was performing before the reset, the tape drive may automatically start a lengthy format recovery process, which involves reading the data to determine where the end of data is located. This may take as long as 2 to 3 hours. Wait for the format recovery to complete.

5. If the cartridge appears to be stuck in the tape drive, return the tape drive for service.
   If you still cannot eject the cartridge, you may need to return the tape drive for repair with the cartridge in place.

THE FAULT (!) LED IS ON

If the Fault (!) LED is on but not flashing, the tape drive is over temperature and must cool down before operations can continue. Do the following:

1. Wait for the tape drive to cool. When the tape drive cools down, the Fault LED turns off. Do not attempt to load a cartridge or perform any operations during this time. If there is a tape loaded in the tape drive, press the eject button to unload the tape and move it to a cooler environment.

2. If necessary, power cycle the tape drive. If the tape drive does not cool down on its own, power down the tape drive. Wait a few minutes, then turn the tape drive back on. If the Fault LED is still on after power-up, the tape drive may be in an environment that is too hot.

   - If the tape drive is an external model, check that the ambient temperature is within the specifications noted in the Product Manual. If the temperature is within the specifications, the enclosure's fan may not be working properly and you should return the tape drive for service.

   - If the tape drive is an internal model, check that the tape drive is not located near devices that are emitting excessive heat.

TAPE DRIVE IS NOT DETECTED BY THE OPERATING SYSTEM OR BACKUP APPLICATION

If the tape drive powers up, loads and unloads cartridges, but is not recognized by the operating system or backup application, do the following:

1. Check the SCSI host bus adapter installation.

   - Confirm that the tape drive is connected to an LVD SCSI controller.
   - Check that the SCSI controller and the most recent drivers available for it are installed according to the manufacturer's instructions.
   - Check that the SCSI controller is fully seated in its slot. You can also try moving the SCSI controller to a different slot.

2. Make sure the tape drive is installed properly on the bus, as described in the Product Manual. In particular, check the following:
   - Is the tape drive set to a unique SCSI ID?
   - Is a terminator installed at the physical end of the SCSI bus? Try another terminator.
   - Is there a broken cable or defective connector? Try another, known-good cable.
   - Is the cable correctly oriented and firmly seated on the tape drive connector?

3. Check that the tape drive is powered-on and that its LEDs are not indicating an error state. See the Product Manual for a complete list of LED states.

4. Reboot your system.

5. Try using VXATool to communicate with the tape drive. Before running VXATool, stop all services for your backup application. If VXATool can detect and communicate with the tape drive, but your backup application cannot, contact the application provider for software support.

6. Verify that the tape drive is supported by your operating system and backup application.

   If necessary, install device drivers for the tape drive during the software installation. Follow the instructions provided with your backup software for installing the tape drive device drivers.

   Note: Install the Exabyte VXA tape device driver for Windows only if you are using the Windows native backup application or if instructed to do so by your backup application.

BACKUP APPLICATION IS REPORTING AN ERROR

Your backup application may report an error as a result of a failure to communicate with the tape drive, a failure by the tape drive to write or read data, or because of a software configuration issue.

Failure to communicate with the tape drive

Communication problems on the SCSI bus may be reported by the backup application as resets, a loss of communication with the tape drive, failure to detect the tape drive, I/O device errors, or parity errors. These types of errors may occur intermittently. Most often, these issues are due to SCSI cabling and termination problems.

- Check tape drive installation on the SCSI bus, as described in the Product Manual.
- Use VXATool to capture the diagnostic log from the tape drive immediately after an error is reported by your backup application. Technical Support can examine the log to determine the nature of the reported error.

Failure by the tape drive to write or read data

If your backup application reports a media error, one of the following situations may have occurred:

- The tape drive needs cleaning. Always try cleaning the tape drive before you assume the cartridge is bad. Be sure to use a VXA Cleaning Cartridge.

- The cartridge needs to be replaced. Try using a different cartridge for the backup. Mark any cartridge that fails. If you notice that the same cartridge results in multiple failures, it may be time to replace the cartridge.
- The backup application has attempted to append data to a cartridge that previously failed. If a write media error previously occurred on the tape, the tape drive cannot append data at the point where the write media error occurred. You can attempt to overwrite the tape, but any attempt to append data will fail.
- If you are trying to write data, the cartridge may be write-protected. Check the switch on the edge of the cartridge. If the switch does not cover the opening, the tape is write-protected. If the switch covers the opening, you can write to the tape. Use a pen or small screwdriver to move the switch.
- If you used an application other than your normal backup application to write data to the tape, your backup application may report that it does not recognize the tape. For example, if you have used VXATool to write and read test data, the test tape will not be "recognized" by your backup application. Perform a tape erase using either VXATool or your backup application.

Backup Application configuration issues

If you suspect an issue with the backup application configuration, use VXATool to first confirm that the hardware is working properly. Run a VXATool Write/Read test to verify that the tape drive is communicating over the SCSI bus and that it can perform write and read operations. The readme file that accompanies the program (or the online help for the Windows version) provides instructions for using VXATool.

For any questions regarding software configuration, contact your software provider.

TROUBLESHOOTING WITH VXATOOL

To troubleshoot problems with the tape drive, you can use the VXATool diagnostic software. This program allows you to conduct diagnostic testing and update the firmware. VXATool is available for a variety of operating environments.

Download VXATool free of charge from the Support section of Exabyte's web site at www.exabyte.com. The readme file that accompanies the program (or the online help for the Windows version) provides instructions for using VXATool.

GETTING STARTED (IMPORTANT FIRST STEP)

Before running VXATool—completely shut down your backup application and any services it may be running. The backup application may prevent communications with the tape drive or may interrupt VXATool functions resulting in their failure.

PERFORMING A WRITE/READ TEST

Use VXATool to perform a Write/Read test of the tape drive. The Write/Read test verifies that the tape drive is communicating over the SCSI bus and that it can perform write and read operations. Refer to the readme file or on-line help available with the VXATool for detailed instructions.

UPDATING FIRMWARE

As improvements to tape drive firmware are made, they are made available for download from Exabyte's web site at www.exabyte.com. Use VXATool to check the current version of firmware in your tape drive and to update the firmware as needed.

CAPTURING A DIAGNOSTIC LOG

A diagnostic log is a snapshot of the tape drive's current condition. If the tape drive reports an error, use VXATool to capture the diagnostic log as soon as possible after the error occurred. To ensure that the diagnostic log accurately reflects the condition of the tape drive when the error occurred, avoid disturbing the tape drive (for example, power-cycling, loading or unloading tapes, or writing or reading more data) before capturing the diagnostic log.

GATHERING TROUBLESHOOTING INFORMATION FOR TECHNICAL SUPPORT

Before contacting Technical Support, complete the following steps to gather all of the required information. Having this information available before you call Technical Support will allow your representative to help you as efficiently as possible.

VXA TAPE DRIVE INFORMATION

- **Serial number.** What is the tape drive's serial number? The serial number is located on the label attached to the tape drive. Alternatively, you can use VXATool to display the tape drive serial number.
- **Firmware level.** What version of firmware is currently loaded in the tape drive? Use VXATool to display the current version of firmware in your tape drive. Check www.exabyte.com for the latest release of VXA tape drive firmware. If your tape drive is not at the latest firmware level, use VXATool to update the firmware.
- **Tape drive configuration.** Is the tape drive an internal model (installed in a server); external model; or integrated within a library?
- **LED status.** Do the tape drive LEDs indicate an error state? Refer to the Product Manual for a description of the LED states.

SCSI BUS INFORMATION

- **SCSI host bus adapter make and model.** What is the make and model of SCSI host bus adapter connected to the tape drive?
- **SCSI bus configuration.** What is the configuration of the SCSI bus used by the tape drive?
    - Are other SCSI devices attached to the SCSI bus?
    - What are the SCSI IDs of all devices attached to the same bus (both internal and external devices)?
    - Is the SCSI bus terminated at the physical end of the bus?
    - What is the total SCSI cable length for all devices (both internal and external devices) on the SCSI bus? See the Product Manual for information about determining the total SCSI bus length.
    - Check all SCSI cables connectors for bent pins and confirm that all connectors are firmly seated

OPERATING SYSTEM INFORMATION

- **Operating system.** What operating system is being used? Are all current patches installed?
- **Device drivers.** Are the appropriate drivers installed for the SCSI host bus adapter? Refer to the installation instructions for your SCSI host bus adapter card.

BACKUP APPLICATION INFORMATION

- **Backup application name and version.** What backup application is being used?
- **Compatibility.** Does your application support the IBM VXA-2 tape drive? Refer to the supported hardware devices list from the application provider.
- **Device driver.** Is the appropriate driver installed for the tape drive? Refer to the installation instructions for your backup application.
- **Backup application log files.** Have the log files from your backup application ready to send to Technical Support.

TAPE DRIVE DIAGNOSTIC INFORMATION

- **Write/Read test results.** Use VXATool and run a Write/Read test and then capture the diagnostic log from the tape drive and save it to a file. Have the diagnostic log file ready to send to Technical Support. Refer to the readme file or on-line help available with the VXATool for detailed instructions.

  If the VXATool Write/Read test reports an error, clean the tape drive and run the test again on a new tape.

- **Diagnostic log taken after an error.** Use VXATool to capture the diagnostic log from the tape drive immediately after your backup application reports an error.