# FUJITSU Storage ETERNUS LT140 Tape Library

User's Guide -Server Connection-



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# Preface

Fujitsu would like to thank you for purchasing our FUJITSU Storage ETERNUS LT140 Tape Library (hereinafter referred to as "LT140").

Before using the LT140, read this manual and the manuals that are provided with the server and backup software to ensure correct usage of the LT140.

This manual describes settings for the LT140, the operating system, and the backup software.

The purpose of this manual is to provide an understanding of the conditions, procedures, and operation methods for installing the LT140 prior to its use.

This manual is intended for users who have a basic knowledge of tape libraries and how they are used in computer systems.

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# About this Manual

## Organization

This manual is composed of the following five chapters:

Chapter 1 Overview

This chapter describes the operating environment and the setup procedure for the LT140.

Chapter 2 Setting the LT140

This chapter describes the settings for the Fibre Channel topology and the Mailslots.

Chapter 3 Setting the Operating System

This chapter describes the operating system settings that are required to use the LT140 and provides notes that are related to the settings.

Chapter 4 Setting Backup Software

This chapter describes the backup software settings that are required to use the LT140 and provides notes that are related to the settings.

Chapter 5 LTFS Option

This chapter provides notes on the LTFS option that is used with the LT140.

## Additional Information

## Symbols Used in This Manual

The following symbols are used throughout this manual:



This symbol alerts operators to particularly important information. Be sure to read this information.



Functions and know how which can be useful when setting up or operating the LT140.

## **Product Names**

The following abbreviations for products are used throughout this manual.

Long title	Abbrevia	tion			
Oracle Solaris 11 Operating System	Solaris 11 OS	Solaris OS			
Microsoft <sup>®</sup> Windows Server <sup>®</sup> 2008 R2 Standard (64-bit)	Windows Server 2009 D2				
Microsoft <sup>®</sup> Windows Server <sup>®</sup> 2008 R2 Enterprise (64-bit)					
Microsoft <sup>®</sup> Windows Server <sup>®</sup> 2012	Windows Server 2012	Windows			
Microsoft <sup>®</sup> Windows Server <sup>®</sup> 2012 R2	Windows Server 2012 R2	- WINDOWS			
Microsoft® Windows Server® 2016	Windows Server 2016				
Microsoft <sup>®</sup> Windows Server <sup>®</sup> 2019	Windows Server 2019				
Red Hat <sup>®</sup> Enterprise Linux <sup>®</sup> 6 (for x86)	Ded Hat Enterprise Linux 6				
Red Hat <sup>®</sup> Enterprise Linux <sup>®</sup> 6 (for Intel64)					
Red Hat <sup>®</sup> Enterprise Linux <sup>®</sup> 7 (for Intel64)	Red Hat Enterprise Linux 7				
SUSE <sup>®</sup> Linux Enterprise Server 10	SLES 10				
SUSE <sup>®</sup> Linux Enterprise Server 11	SLES 11				
SUSE <sup>®</sup> Linux Enterprise Server 12	SLES 12				
Veritas NetBackup™	Veritas NetBackup	NetBackup			
NetWorker <sup>®</sup> Power Edition					
NetWorker® Network Edition	NetWorker				
NetWorker® Workgroup Edition	-				
Arcserve <sup>®</sup> Backup	Arcserve Backup				
Veritas Backup Exec™	Backup Exec				
NetVault <sup>®</sup> Backup	NetVault				
Microsoft <sup>®</sup> Internet Explorer <sup>®</sup>	Internet Explorer	IE			

## Abbreviations Used in This Manual

- "LT140" refers to the FUJITSU Storage ETERNUS LT140 Tape Library.
- Trademark symbols such as <sup>™</sup> and <sup>®</sup> are omitted in this document.

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# Chapter 1 Overview

This chapter explains the operating systems, backup software products, and host bus adapters (HBAs) that support the LT140 and their operating environments.

#### 🔵 Note

- Not every combination of OS version, platform, and backup software may be supported.
- For details about the functions and support status of the OSs and backup software products, refer to the relevant product manuals.

# 1.1 Operating Environment

## 1.1.1 Hardware

For hardware information, refer to our web site (https://www.fujitsu.com/global/products/computing/storage/ tape/). For more details, contact a Fujitsu sales representative.

## 1.1.2 Operating System (OS)

For OS information, refer to our web site (https://www.fujitsu.com/global/products/computing/storage/tape/). For more details, contact a Fujitsu sales representative.

## 1.1.3 Host Bus Adapter (HBA)

For HBA information, refer to our web site or contact a Fujitsu sales representative.

#### 1.1.4 FC/SAS Switches

For FC/SAS switch information, refer to our web site or contact a Fujitsu sales representative.

# 1.2 References for Setup

## 1.2.1 Solaris OS

#### 1.2.1.1 SAS Connection for Solaris OS

The following procedure explains how to connect the LT140 to a Solaris OS server with a SAS connection.

Workflow



	Setting Backup Software Apply patches, make settings for the robot driver, and set up the backup software.
	Refer
- 1	Backup software used
	- NetBackup
	• <u>"4.1 NetBackup" (page 34)</u>
	- NetWorker
	• <u>"4.2 NetWorker" (page 37)</u>
	- IBM Spectrum Protect (IBM Tivoli Storage Manager)
	• "4.3 IBM Spectrum Protect" (page 38)

### 1.2.1.2 Fibre Channel Connection (FC-AL Connection) for Solaris OS

The following procedure explains how to connect the LT140 to a Solaris OS server with an FC-AL connection (direct connection to a server).

#### Workflow





## 1.2.1.3 Fibre Channel Connection (Fabric Connection) for Solaris OS

The following procedure explains how to connect the LT140 to a Solaris OS server with a fabric connection.

Workflow





## 1.2.2 Linux

#### 1.2.2.1 SAS Connection for Linux

The following procedure explains how to connect the LT140 to a Linux server with a SAS connection.

Workflow



Арр	ly patches, make settings for the robot driver, and set up the backup software.
Refer	
• Bac	kup software used
-	NetBackup
	• <u>"4.1 NetBackup" (page 34)</u>
-	NetWorker
	• <u>"4.2 NetWorker" (page 37)</u>
-	IBM Spectrum Protect (IBM Tivoli Storage Manager)
	• <u>"4.3 IBM Spectrum Protect" (page 38)</u>
-	NetVault
	• "4.5 NetVault" (page 40)

### 1.2.2.2 Fibre Channel Connection (FC-AL Connection) for Linux

The following procedure explains how to connect the LT140 to a Linux server with an FC-AL connection (direct connection to a server).

#### Workflow





## 1.2.2.3 Fibre Channel Connection (Fabric Connection) for Linux

The following procedure explains how to connect the LT140 to a Linux server with a fabric connection.

Workflow

1	Making a Check before Starting the Procedure Check the FC switches and the environment (operating system, backup software, and HBAs) of the server to be connected to the LT140. Refer - <u>"1.1 Operating Environment" (page 8)</u>
2	Setting the LT140         Perform the settings for the LT140.         IMPORTANT         Change the topology setting to "Fabric". Set a fixed value for the link speed.         Reference <ul> <li>"Chapter 2 Setting the LT140" (page 22)</li> <li>"2.2 Settings for Fibre Channel Connections" (page 22)</li> <li>"2.2.1 Setting the Link Speed" (page 22)</li> <li>"2.2.3 Setting the Topology (for Connections via FC Switches)" (page 23)</li> </ul>
3	Setting the Operating System Make settings for the HBA driver and the device driver. Perer - "3.2 Linux" (page 28) - "3.2.1 Fibre Channel Connections/SAS Connections" (page 28)

A	noly natches make settings for the robot driver, and set up the backup software
Refer	
• Ba	ackup software used
	- NetBackup
	• <u>"4.1 NetBackup" (page 34)</u>
	- NetWorker
	• <u>"4.2 NetWorker" (page 37)</u>
	- IBM Spectrum Protect (IBM Tivoli Storage Manager)
	• <u>"4.3 IBM Spectrum Protect" (page 38)</u>
	- NetVault
	• "4.5 NetVault" (page 40)

## 1.2.3 Windows

## 1.2.3.1 SAS Connection for Windows

The following procedure explains how to connect the LT140 to a Windows server with a SAS connection.

#### Workflow





## 1.2.3.2 Fibre Channel Connection (FC-AL Connection) for Windows

The following procedure explains how to connect the LT140 to a Windows server with an FC-AL connection (direct connection to a server).

#### Workflow





## 1.2.3.3 Fibre Channel Connection (Fabric Connection) for Windows

The following procedure explains how to connect the LT140 to a Windows server with a fabric connection.

#### Workflow







#### Setting the Operating System

Make settings for the HBA driver and the device driver.

- "3.3 Windows" (page 29)
- "3.3.2 Fibre Channel Connections" (page 30)



#### Setting Backup Software

Apply patches, make settings for the robot driver, and set up the backup software.

Refer

Refer

- Backup software used
  - NetBackup
    - <u>"4.1 NetBackup" (page 34)</u>
  - NetWorker
    - "4.2 NetWorker" (page 37)
  - IBM Spectrum Protect (IBM Tivoli Storage Manager)
    - "4.3 IBM Spectrum Protect" (page 38)
  - Backup Exec
    - <u>"4.4 Backup Exec" (page 39)</u>
  - NetVault
    - "4.5 NetVault" (page 40)
  - Arcserve Backup
    - <u>"4.6 Arcserve Backup" (page 50)</u>
  - Veeam Backup & Replication
    - <u>"4.7 Veeam Backup & Replication" (page 50)</u>

# Chapter 2 Setting the LT140

This chapter describes the necessary LT140 settings to use the LT140 from backup software. Use the operator panel to perform the settings that are described below. For more details about how to use the operator panel, refer to "FUJITSU Storage ETERNUS LT140 Tape Library User's Guide -Panel Operation-" and "FUJITSU Storage ETERNUS LT140 Tape Library User's Guide -Installation & Operation-".

Check whether the LT140 supports your server environment by referring to our web site (https://www.fujitsu.com/global/products/computing/storage/tape/).

# 2.1 Settings for SAS Connections

No setting is required for SAS models.

# 2.2 Settings for Fibre Channel Connections

This section explains how to set up the drives for Fibre Channel connections.

## 2.2.1 Setting the Link Speed

For the link speed of a drive path, 2Gbit/s, 4Gbit/s, or 8Gbit/s can be selected. For more details about the settings, refer to "FUJITSU Storage ETERNUS LT140 Tape Library User's Guide -Panel Operation-".

#### 🔵 Note

Although the "Auto" setting can be selected, select one of the fixed values according to the FC switch or the HBA of the connection destination that is used.

#### **Caution**

When connecting the LT140 to a Brocade 16G FC switch (BR65xx/EBRDC8x) with a link speed of 8Gbit/s, apply firmware version v7.3.0c or later to the FC switch and perform the following settings.

#### • FC switch

- (1) For the port to which the LT140 tape drive is connected, fix the speed to 8Gbit/s with the "portcfg-speed" command.
- (2) For the port to which the LT140 tape drive is connected, disable the DFE function (\*1) with the "portcfgnondfe" command.
  - \*1: The Decision Feedback Equalization (DFE) function corrects signal noises on the receiver. Disable this function because it may prevent the port connected to the LTO drive from correctly recognizing the signal.

• LT140

(3) Fix the link speed of the LT140 tape drive to 8Gbit/s. These settings are not required if the LT140 is connected to a Brocade 32G FC switch (Brocade G610/G620/G630/X6-4/X6-8) because the LT140 automatically recognizes the link speed.

## 2.2.2 Setting the Topology and the Loop ID (for Direct Server Connections)

The following settings are required for direct server connections:

 If the Fibre Channel card of the server is an LPe3xxxx series, a PY-FC33x/PY-FC35x series, an MC-0JFCFx/MC-0JFCGx/MC-0JFCMx/MC-0JFCNx series, or an SP1X7FBC2F

Port Type: Fabric (N/F)

• If the Fibre Channel card of the server is a series other than the above

Port Type: Loop(L) Addressing mode: Hard Loop ID/ALPA: Any value

For more details about the settings, refer to "FUJITSU Storage ETERNUS LT140 Tape Library User's Guide -Panel Operation-".

### 2.2.3 Setting the Topology (for Connections via FC Switches)

The following settings are required for connections via FC switches. For more details about the settings, refer to "FUJITSU Storage ETERNUS LT140 Tape Library User's Guide -Panel Operation-".

Port Type: Fabric(N/F)

**Caution** 

Although the "Auto" setting can be selected, select one of the fixed values described above.

# 2.3 Setting the Mailslot

The LT140 has Mailslots that allow tape cartridges to be inserted into or ejected from the library while the library is online.

For more details about how to enable the Mailslots, refer to "FUJITSU Storage ETERNUS LT140 Tape Library User's Guide -Panel Operation-".

# Chapter 3 Setting the Operating System

This chapter describes the operating system settings that are required to use the LT140 and provides notes that are related to the settings.

#### 🔵 Note

- Refer to the manual of the applicable operating system for information about how to perform operations in that operating system.
- Special setting for the LT140 is not required for the operating system unless it is noted in this manual.

# 3.1 Solaris OS

This section provides notes on Solaris OS settings.

## 3.1.1 SAS Connections

When the LT140 is used with a SAS connection, operations are performed with the OS standard device driver.

## 3.1.2 Fibre Channel Connections

When the LT140 is used with a Fibre Channel connection, operations are performed with the OS standard device driver.

## 3.1.3 Device Drivers

#### 3.1.3.1 Getting the Server to Recognize the Device

(1) Check the settings.

Add the descriptions of the device to the st driver setting file (/kernel/drv/st.conf) by using a text editor (such as vi).

Example

```
#
# Copyright 2004 Sun Microsystems, Inc. All rights reserved.
#
  Use is subject to license terms.
#
#
#pragma ident
                "@(#)st.conf
                                1.34
                                        04/06/24 SMI"
#
name="st" class="scsi" target=0 lun=0;
name="st" class="scsi" target=1 lun=0;
name="st" class="scsi" target=2 lun=0;
name="st" class="scsi" target=3 lun=0;
name="st" class="scsi" target=4 lun=0;
name="st" class="scsi" target=5 lun=0;
name="st" class="scsi" target=6 lun=0;
#
# In case there are wide tape drives, one can use these targets
#
#name="st" class="scsi" target=8 lun=0;
#name="st" class="scsi" target=9 lun=0;
#name="st" class="scsi" target=10 lun=0;
#name="st" class="scsi" target=11 lun=0;
#name="st" class="scsi" target=12 lun=0;
#name="st" class="scsi" target=13 lun=0;
#name="st" class="scsi" target=14 lun=0;
#name="st" class="scsi" target=15 lun=0;
# This line adds support for Fibre Channel Tapes
name="st" parent="fp" target=0;
```

FC-AL connection

For "target=", specify the Loop-ID that is set in the LT140.

Fabric connection (for SE0X7F11X or SE0X7F12X only)
 For "target=", specify the target ID of the "fcp-bind-target" parameter that is described in the setting file of the HBA device driver (/kernel/drv/fjpfca.conf).

#### Note

The setting file does not need to be edited for SE0X7F21X, SE0X7F22X, SE0X7F31X, and SE0X7F32X.

#### (2) Restart the server.

Reconfigure and restart the server to make the server recognize the registered device. Execute the following command.

```
# touch /reconfigure
# /usr/sbin/shutdown -y -g0 -i6
```

#### (3) Check the device files.

Check the device files after the server reboots.

```
# ls /dev/rmt
```

#### • Example

The following example shows the device files when a 2-drive model LT140 is connected to a server (with only internal DAT devices installed) that is not connected to any other tape libraries.

# ls	/dev/r	mt															
0 0b 0bn 0c #	0cb 0cbn 0cn 0h	0hb 0hbn 0hn 01	Olb Olbn Oln Om	0mb 0mbn 0mn 0n	0u 0ub 0ubn 0un	1 1b 1bn 1c	1cb 1cbn 1cn 1h	1hb 1hbn 1hn 11	11b 11bn 11n 1m	1mb 1mbn 1mn 1n	lu lub lubn lun	2 2b 2bn 2c	2cb 2cbn 2cn 2h	2hb 2hbn 2hn 21	21b 21bn 21n 2m	2mb 2mbn 2mn 2n	2u 2ub 2ubn 2un

In this example, "0xxx" are device files for the internal DAT devices and "1xxx" and "2xxx" are device files for the drives in the LT140.

## 3.1.4 File System Performance Tuning

UFS performance may be reduced in an environment that uses ZFS.

If performance is reduced, set an appropriate value for the "zfs\_arc\_max" parameter in order to increase the performance.

Refer to "Oracle Solaris ZFS Tunable Parameters" in "Oracle Solaris Tunable Parameters Reference Manual" for details.

# 3.2 Linux

This section provides notes on Linux settings.

## 3.2.1 Fibre Channel Connections/SAS Connections

This section provides notes on using a Fibre Channel connection or SAS connection to connect the LT140.

(1) Checking the devices

Perform the following procedure to check whether the devices (tape drives) are correctly connected to the server.

#### Procedure

- **1** Log in to the server with the root privilege.
- 2 Execute the "cat /proc/scsi/scsi" command to display a list of the connected devices.
  - Example of an LT140 FC model with a single drive configuration

```
# cat /proc/scsi/scsi
Host: scsi5 Channel: 00 Id: 00 Lun: 00
Vendor: IBM Model: Ultrium 6-SCSI Rev: Y67B
Type: Sequential-Access ANSI SCSI revision: 05
Host: scsi5 Channel: 00 Id: 00 Lun: 01
Vendor: FUJITSU Model: ETERNUS LT140 Rev: 4.41
Type: Medium Changer ANSI SCSI revision: 05
```

#### 🔵 Note

- "Vendor: IBM Model: Ultrium6-SCSI" indicates an Ultrium6 drive.
- "Vendor: FUJITSU Model: ETERNUS LT140" indicates an LT140 library controller.

From the above contents, check whether the LT140 controller and drives are recognized in correct paths and whether the values of the recognized target ID and LUN match those of the LT140 drives.

End of procedure

(2) Setting fixed device file names

When a Fibre Channel connection or SAS connection is used to connect the LT140, the device file name that is assigned to a device must be associated with a physical device. This association is a fixed setting.

Note that this setting is not required when the device that is being used can be associated by the backup software, such as NetBackup, NetVault, or IBM Spectrum Protect. For information on whether the backup software supports associations and for version information, contact your sales representative or maintenance engineer.

# 3.3 Windows

This section provides notes on Windows settings.

## 3.3.1 SAS Connections

This section provides notes on using a SAS connection to connect the LT140.

(1) Install the driver.

For more details about how to obtain and install the driver, refer to the manual that is provided with each SAS HBA.

(2) Check the devices.

Reboot the server, and then perform the following procedure to check that the devices are properly connected:

#### Procedure

- **1** Open [Device Manager] from [Control Panel].
- 2 Change [View] of [Device Manager] to [Device (by Connection)].
- 3 Confirm that "IBM UltriumX SCSI Sequential Device" or "Unknown Medium Changer Device" (controller) are displayed for the HBA that is connected to the LT140. "UltriumX" shows the drive type. For example, "Ultrium7" is displayed for LT07 drives and "Ultrium8" is displayed for LT08 drives.

🔵 Note

The "?" icon may be displayed for "HP UltriumX SCSI Sequential Device" or "IBM UltriumX SCSI Sequential Device". In this situation, the LTO drive is not recognized due to the backup software or the version of the backup software used. To solve this problem, reinstall the driver using the procedure indicated in "3.3.4 Installing a Driver" (page 33).

End of procedure

After the contents in <u>Step 3</u> are checked in the Device Manager, the connection test is complete.

#### IMPORTANT

If the above contents cannot be checked, check again whether the HBA driver has been successfully installed. If no problem is found with the installation of the HBA driver, a powered-off LT140 or loose connection can be assumed. Check the settings and reboot the server before considering the contents.

## 3.3.2 Fibre Channel Connections

This section explains how to set up the server to connect the tape library by using a Fibre Channel connection.

(1) Install the driver and set up the Fibre Channel card.

For details about how to install the driver and set up the Fibre Channel card, refer to the manual that is provided with each Fibre Channel card.

Caution

Fixing the target ID

The target ID is assigned to a device which connects to the Fibre Channel card. By default, the target ID is automatically set by the driver. Therefore, the assigned target ID of the device may be changed when adding or removing devices. It may also be changed based on the state in which the device is recognized. If the target ID is different before and after rebooting the server, depending on the OS and application, the device may go off-line and become unavailable. To avoid this, setting the fixed target ID to each device is recommended.

(2) Check the devices.

#### Procedure

**1** Open [Device Manager] from [Control Panel].

- 2 Change [View] of [Device Manager] to [Device (by Connection)].
- 3 Confirm that "IBM UltriumX SCSI Sequential Device" or "Unknown Medium Changer Device" (controller) are displayed for the HBA that is connected to the LT140. "UltriumX" shows the drive type. For example, "Ultrium7" is displayed for LT07 drives and "Ultrium8" is displayed for LT08 drives.

#### Note

The "?" icon may be displayed for "HP UltriumX SCSI Sequential Device" or "IBM UltriumX SCSI Sequential Device". In this situation, the LTO drive is not recognized due to the backup software or the version of the backup software used. To solve this problem, reinstall the driver using the procedure indicated in "3.3.4 Installing a Driver" (page 33).

End of procedure

After the contents in <u>Step 3</u> are checked in the Device Manager, the connection test is complete.

#### IMPORTANT

If the above contents cannot be checked, check again whether the HBA driver has been successfully installed. If no problem is found with the installation of the HBA driver, a powered-off LT140, loose connection, or a setting error of topology/Loop ID can be assumed. Check the settings and reboot the server before considering the contents.

## 3.3.3 Removable Storage Manager (RSM)

If the Removable Storage Manager (RSM) service is enabled, backup software operations may be affected. RSM must be stopped.

Perform the following procedure to stop RSM.

#### Procedure

**1** Open [Services] and double-click [Removable Storage].



**2** Set [Startup type] to [Manual]. Click the [Stop] button in [Service status] to stop the service.

Removable Stora	ge Properties (Local Computer)	<u>?</u> X
General Log On	Recovery Dependencies	
Service name:	NtmsSvc	
Display name:	Removable Storage	
Description:	Manages and catalogs removable media and operates automated removable media devices. If the	his 🗸
Path to executab	ole:	
C:\WINDOWS\	system32\svchost.exe -k netsvcs	
Startup typ <u>e</u> : (	Manual	
Service status:	Started	
Start	Stop Pause Resum	e
You can specify from here.	the start parameters that apply when you start the ser	vice
Start parameters		

**3** Click the [Apply] button to enable the setting.

Removable Stora	ge Properties (Local Computer)	? X
General Log On	Recovery Dependencies	
Service name:	NtmsSvc	
Display name:	Removable Storage	
emovable Storage Properties (Local Computer)     ? X       General     Log On     Recovery     Dependencies       Service name:     NtmsSvc       Display parse:     Removable Storage       Description:     Manages and catalogs removable media and operates automated removable media devices. If this       Path to executable:     C:\WINDOWS\system32\svchost.exe -k netsvcs       Startup type:     Manual       Service status:     Stopped       Start     9100       Pause     Besume       You can specify the start parameters that apply when you start the service from here.       Start parageters:		
Path to executab C:\WINDOWS\s	le: ystem32\svchast.exe +k netsvcs	
Startup typ <u>e</u> :	Manual	•
Service status:	Stopped	-
<u>S</u> tart	Stop <u>P</u> ause <u>B</u> esume	
You can specify from here.	he start parameters that apply when you start the servic	æ
Start parameters:		
	OK Cancel	ply

**4** Close the window after checking that [Manual] is displayed for [Startup Type].

						<u> </u>
ile Action View Window Help						2
→ 🗈 💷 😭 🕄 🖳 🔮 🕨 = 🗉 =>						
omputer Management (Local)						
System Tools						
Event Viewer Removable Storage	Name A	Description	Status	Startup Type	Log On As	
E Shared Folders	Subgical Disk Manager	Detects an	Started	Automatic	Local System	
Local Users and Groups Start the service	🚳 Logical Disk Manag	Configures		Manual	Local System	
Performance Logs and Alert:	4 Messenger	Transmits		Disabled	Local System	
Description:	Microsoft Software	Manages s		Manual	Local System	
Manages and catalogs removable media	Net Logon	Maintains a		Manual	Local System	
And operates automated removable	NetMeeting Remot	Enables an		Disabled	Local System	
Disk Management	Network Connections	Manages o	Started	Manual	Local System	
Services and Applications Removable Storage, such as Backup and	Network DDE	Provides n		Disabled	Local System	
Remote Storage, will operate more	Network DDE DSDM	Manages D		Disabled	Local System	
Services Services service is disabled, any	Network Location A	Collects an	Started	Manual	Local System	
	Network Provisionin	Manages X		Manual	Local System	
🛛 🞑 Indexing Service	NT LM Security Sup	Provides s		Manual	Local System	
-	Performance Logs	Collects pe		Automatic	Network 5	
	Plug and Play	Enables a c	Started	Automatic	Local System	
	Portable Media Seri	Retrieves t		Manual	Local System	
	Print Spooler	Manages al	Started	Automatic	Local System	
	Protected Storage	Protects st	Started	Automatic	Local System	
	Remote Access Aut	Creates a		Manual	Local System	
	Remote Access Co	Creates a		Manual	Local System	
	Remote Desktop H	Manages a		Manual	Local System	
	Remote Procedure	Serves as t	Started	Automatic	Network S	
	Remote Procedure	Enables re		Manual	Network S	
	Remote Registry	Enables re	Started	Autometic	Local Service	
	Removable Storage	Manages a		(Manual )	Local System	
	Resultant Set of Po	Enables a		Manual	Local System	
	Routing and Remot	Offers rout		Disabled	Local System	
	🍓 Secondary Logon	Enables st	Started	Automatic	Local System	
	Security Accounts	The startu	Started	Automatic	Local System	
	Server	Supports fil	Started	Automatic	Local System	
	Shell Hardware Det	Provides n	Started	Automatic	Local System	
	Smart Card	Manages a		Manual	Local Service	
	Special Administrati	Allows adm		Manual	Local System	
B Sambel ( Studed /	AP 2 1 2 1111					

End of procedure

## 3.3.4 Installing a Driver

When a server is configured or an LTO drive is replaced, the LTO drive may not be recognized by the backup software used. In this case, the LTO drive may not be recognized properly by the device manager. Therefore, reinstall the driver using the following procedure.

#### Procedure

- **1** Open [Device Manager] from [Control Panel] and right-click on the tape drive displayed with the "?" icon.
- **2** Select [Update Driver Software].
- **3** Select [Browse my computer for driver software].
- **4** Select [Let me pick from a list of device drivers on my computer].
- **5** Select [Tape drives] from [Common hardware types].
- **6** Select the following driver to install it. Manufacturer: LTO Model: LTO Tape drive
- 7 Click the [Next] button and then click the [Yes] button for [Update Driver Warning].
- **8** Close the driver installation completion window.

End of procedure

# Chapter 4 Setting Backup Software

This chapter provides information on the backup software settings that are required to use the LT140 and notes that are related to the settings.

#### 🔵 Note

- Refer to the manual supplied with each type of backup software for information about standard settings and operating procedures for that backup software.
- Displayed windows and operations may vary depending on the backup software version. If differences exist, perform the operation according to the manual supplied with the backup software.
- If the backup software can specify whether to return a tape cartridge from a tape drive to the slot in a library after a backup or restore processing is complete, set the backup software to return the tape cartridge to the slot. A tape is left exposed from a tape cartridge that is left unremoved from a tape drive. If a tape is left exposed for a long time, dust may accumulate on the surface of the tape on which the data is recorded. This may cause a data read/write error.

#### ┝ Caution

"ETERNUS LT260" is displayed as the inquiry information in the device management window. This is the identification information as a device and does not indicate the library's name. The item name that indicates the inquiry information differs depending on the backup software. Replace the

The item name that indicates the inquiry information differs depending on the backup software. Replace the item name according to the manual supplied with the backup software to check the inquiry information.

## 4.1 NetBackup

This section provides notes about the settings that are performed for NetBackup.

## 4.1.1 Notes on Operation

#### Cleaning tape drives

NetBackup has a function to automatically clean tape drives. When automatically cleaning tape drives, use the NetBackup's automatic cleaning function.

### 4.1.2 Applying Patches

Before using NetBackup for the LT140, contact the seller of NetBackup to download the latest Release Updates and latest Device Mappings Package.

## 4.1.3 Notes on Using Solaris OS

For Solaris 11 OS, only the global zone is supported by NetBackup. When using NetBackup on Solaris 11.4 OS, perform the following actions.

(1) Apply SRU19061 or later to Solaris 11.4 OS.

(2) Disable the shared memory on the NetBackup master server with the following procedure.

🔵 Note

- This procedure must be performed on the Solaris NetBackup master server.
- This procedure does not need to be performed on the Solaris NetBackup media server or client.

#### Procedure

- **1** Stop the NetBackup service.
- 2 Copy "server.conf" to back it up. Example:

```
# cd /usr/openv/var/global
# cp -rp server.conf server.conf-orig
```

**3** Add "-hs" to the options specified in the "server.conf" file. In the following example, "-hs" is added before "-k". Example:

```
# cat /usr/openv/var/global/server.conf
-c 200M -ch 32768M -cl 200M -gd DBA -gk DBA -gl DBA -gna 1 -gp 4096 -hs -k -m
-n NB_bk_server
-o /usr/openv/db//log/server.log -os 1M -ti 0 -ud -wc- -x
tcpip(LocalOnly=YES;ServerPort=13785)
```

- 4 Start the NetBackup service.
- 5 Check "/usr/openv/db/log/server.log" after starting the NetBackup service. Make sure the following messages are not output when NetBackup is started.

```
I. 02/05 08:37:56. Trying to start SharedMemory link ...
I. 02/05 08:37:56. SharedMemory link started successfully
```

End of procedure

### 4.1.4 Notes on Using Windows

If NetBackup 7 or later is used, download and install the driver corresponding to the Windows OS version and CPU on the IBM web site "Fix Central".

## 4.1.5 Setting the Media Mount Timeout

• For details on how to set the media mount timeout for NetBackup, refer to the manual supplied with NetBackup.

For UNIX or Linux, refer to "Symantec NetBackup X.X Administrator's Guide for UNIX and Linux, Volume I". For Windows, refer to "Symantec NetBackup X.X Administrator's Guide for Windows, Volume I".

• Use the following formula to determine what media mount timeout value should be set for the LT140:

Media mount timeout (in minutes) =  $4 \times$  Number of installed tape drives + 43

For example, the media mount timeout value is 75 minutes for the LT140 in which eight tape drives are installed.

When the media mount timeout is set to "0", the LT140 can be operated with an infinite timeout value. However, using an infinite timeout value may prevent a backup/restore failure from being detected. Setting a media mount timeout value that is based upon the configuration is recommended.

• The media mount timeout value is a minute-based value for Windows and a second-based value for Solaris or Linux.

🕨 Caution

"NetBackup X.X" shows the software name and version for example "NetBackup 7.5". Please refer the appropriate manual to the software version.

## 4.1.6 Notes on Using Batch Files or Shell Scripts

When multiple backup/restore operations are executed at the same time by using batch files or shell scripts, the LT140 may become busy due to multiple NetBackup robot operations. This may cause any backup/restore operations to fail. Use of the NetBackup Administration Console is recommended for multiple backup/restore execution.

To execute multiple backup/restore operations at the same time by using batch files or shell scripts, set an interval after a mount operation or an unmount operation is complete. The recommended guideline for the time to set as the interval after a mount operation or an unmount operation is the total number of tape drives multiplied by 120 (in seconds). To set the interval, use the sleep operation or another operation.

In addition, perform the settings that are described in <u>"4.1.5 Setting the Media Mount Timeout" (page 36)</u>.

## 4.2 NetWorker

This section provides notes about the settings that are performed for NetWorker.

## 4.2.1 Notes on Operation

#### Cleaning tape drives

- NetWorker has a function to automatically clean tape drives. When automatically cleaning tape drives, use the NetWorker's automatic cleaning function.
- To use the NetWorker cleaning function, set the cleaning delay to 300 or more. For details, refer to the manual supplied with NetWorker. When the automatic cleaning setting is enabled for the library type setting or the drive type setting of Networker, the slot with the last slot number is used as a cleaning slot by default. However, any slot can be set as the cleaning slot. For more details, refer to the manual supplied with NetWorker.

#### Name resolution

When the name resolution of the server IP address and the server name fails, NetWorker may not be able to recognize the LT140. For correct name resolution, check the server settings. For more details, refer to the manual supplied with NetWorker.

## 4.2.2 Notes on Using Solaris OS

For Solaris 11 OS 11/11 or later, only the global zone is supported by NetWorker. A tape library (jukebox) may not be automatically detected with the "jbconfig" command when Solaris 11 OS 11/11 or later is used. If this occurs, the tape library must be manually specified. For details, refer to the manual supplied with NetWorker.

### 4.2.3 Notes on Using Windows

If NetWorker is used, download and install the driver corresponding to the Windows OS version and CPU on the IBM web site "Fix Central".

If the LT140 has multiple tape drives, a restart of the Windows OS may change the recognition order of the tape drives during the system startup.

If NetWorker uses the LT140, the changed recognition order of the tape drives becomes inconsistent with the recognition order in NetWorker and prevents NetWorker from using the LT140. To prevent this problem, configure the registry so that NetWorker uses the unique identification information (such as serial numbers) that is specified for the tape drive.

Refer to the user's guide of the IBM driver for details.

# 4.3 IBM Spectrum Protect

This section provides notes on the settings that are performed for IBM Spectrum Protect.

## 4.3.1 Notes on Operation

#### Cleaning tape drives

IBM Spectrum Protect has a function to automatically clean tape drives. When automatically cleaning tape drives, use the IBM Spectrum Protect's automatic cleaning function.

## 4.3.2 Device Drivers

When using IBM Spectrum Protect for the LT140, use the IBM Spectrum Protect device driver. The IBM Spectrum Protect device driver is supplied with IBM Spectrum Protect. For details, refer to the manual supplied with your software.

## 4.3.3 Notes on Using Solaris OS

For Solaris 11 OS, only the global zone is supported by IBM Spectrum Protect. In case that the Solaris 11 OS is used, only IBM Spectrum Protect agent can connect to the LT140 library.

# 4.4 Backup Exec

This section provides notes on the settings that are performed for Backup Exec.

## 4.4.1 Notes on Operation

#### Cleaning tape drives

Backup Exec has a function to automatically clean tape drives. When automatically cleaning tape drives, use the Backup Exec's automatic cleaning function.

## 4.4.2 Device Drivers

A Veritas Technologies LLC tape device driver is required to use the LT140 if the OS is Windows Server 2008 R2 or earlier. Windows Server 2012 or later doesn't require a driver. To download the latest tape device driver, contact the seller of the software.

# 4.5 NetVault

This section provides notes about the settings that are performed for NetVault.

## 4.5.1 Notes on Operation

#### Cleaning tape drives

1

- NetVault has a function to automatically clean tape drives. When automatically cleaning tape drives, use the NetVault's automatic cleaning function.
- To use the NetVault cleaning function, make settings as follows.
  - For NetVault Backup 9 and earlier To use the cleaning function for NetVault Backup 9 or earlier, perform the following settings.

#### Procedure

Specify the Generic Cleaning items of the drive as follows:

- Issue a load command to start cleaning cycle: off (the default setting is "on")
- Use Generic Cleaning: on (the default setting is "off")

The following shows an example configuration in which "Issue a load command to start cleaning cycle" is set to "off" and "Use Generic Cleaning" is set to "on".

Edit Drive	×
NDMP Configuration   Performance   Statistics   SCSI Configuration Generic Cleaning	_
Length of cleaning cycle (seconds) 350	
☐ Issue a load command to start cleaning cycle	
List of ASC/ASQ codes that indicate cleaning has completed	1
Use Generic Cleaning	
_OK _ Can	cel

2 Specify the Configuration item of the drive as follows:Cleaning Tapes Supported: on



- 3 Specify the Cleaning items of the drive as follows:
  - Automatic Cleaning Supported: on
  - Barcode Prefix(es) of cleaning media: Set with the character string that is on the label of the cleaning cartridge.
  - Cleaning Slots: Slot number where a cleaning cartridge is stored.

Ξ	)			Configu	re			×
	Configuration	Entry/Exit Ports	Cleaning	Mixed Media	SCSI Configuration	1		
	<ul> <li>Automatic C</li> <li>Barcode Prefix(</li> </ul>	Cleaning Supported (es) of cleaning me	dia CLI	4				
	Cleaning Slots		8				_	
							Cancel	ОК

End of procedure

#### - For NetVault Backup 10 and later

To use the cleaning function for NetVault Backup 10 or later, perform the following settings using the "deviceconfig" command.

#### Note

If NetVault Backup 11.2 or later is used, the settings can be performed with the WebUI. For details, refer to <u>"- When WebUI is used with NetVault Backup 11.2 or later" (page 46)</u>.

#### Procedure

- 1 Start the command prompt and change directory to the following location. <Installation folder for NetVault>\bin
- 2 Execute the "deviceconfig" command to perform the drive cleaning settings.

deviceconfig.exe -username <user\_name\_for\_NetVault> -password <password>
-drivemachine <NetVault\_machine\_name\_where\_the\_drive\_is\_connected>
-drivepath <drive\_name\_or\_path\_to\_the\_drive>

The Drive Configuration screen appears.

3 Enter "6" and then press the [Enter] key.



"6) Generic Cleaning..." is selected. The Generic Cleaning screen appears.

- 4 Specify the Generic Cleaning items as follows:
  - Issue a load command to start cleaning cycle: OFF (the default setting is "ON")
  - Use Generic Cleaning: ON (the default setting is "OFF")

The following shows an example configuration in which "Issue a load command to start cleaning cycle" is set to "OFF" and "Use Generic Cleaning" is set to "ON".



- 5 Enter "b" and then press the [Enter] key. The Device Configuration screen appears again.
- 6 Enter "2" and then press the [Enter] key."2) Configuration..." is selected. The Configuration screen appears.
- 7 Confirm that the item described below is set to "ON". Change to "ON" if this item is currently set to "OFF".
  - Cleaning Tapes Supported



8 Enter "b" and then press the [Enter] key. Return to the Drive Configuration screen.

9 In the Device Configuration screen, enter "s" to save the settings.

The drive setting is complete.

- 10 Enter "q" to quit the Drive Configuration screen.
- 11 Execute the following command to perform the library cleaning settings.

```
deviceconfig.exe -username <user_name_for_NetVault> -password <password>
    -librarymachine <NetVault_machine name_where_the_library_is_connected>
    -libraryname <library_name>
```

The Changer Configuration screen appears.

12 Enter "2" and then press the [Enter] key.



"2) Cleaning..." is selected. The Cleaning screen appears.

- 13 Set the Cleaning items as shown below.
  - Automatic Cleaning Supported ON (the default setting is "ON")
  - Barcode Prefix(es) of cleaning media Set with the character string that is on the label of the cleaning cartridge.
  - Cleaning Slots

The slot numbers where the cleaning cartridges are to be stored.

Cleaning					
1) Automa 2) Barcoco 3) Cleani	tic Cleaning He Prefix(es) ng Slots -	Supported - ON of cleaning media 8	-	CLN	
Please se	elect an item	(1-3):			
'b' = go	back				
-					

- 14 Enter "b" and then press the [Enter] key. The Changer Configuration screen appears again.
- 15 In the Changer Configuration screen, enter "s" to save the settings.
- 16 Enter "q" to quit the Drive Configuration screen.
- 17 In [Manage Devices] of NetVault WebUI, click the [Manage Library] button of the target library to switch to the Tape Library Management screen. Reboot the library by clicking the [Restart] button at the lower right. The new settings are applied after the library is rebooted.

End of procedure

- When WebUI is used with NetVault Backup 11.2 or later When using the cleaning function for NetVault Backup 11.2 or later, use WebUI to perform the following settings.

#### Procedure

1 In the WebUI menu, click [Manage Devices] to open the [Manage Devices] page.

Quest ON	JetVault		<b>p</b> -	\$	0	admin •
Jobs ↑	Manage Devices   Ust View   Tree View  Remember this selection					
<ul> <li>Manage Sets</li> <li>Manage Job Definitions</li> <li>Manage Policies</li> <li>Explore Storage</li> </ul>	► Tape Library: nvrhel8svy: SL_LTDE65453947_LL0 (FUJITSU ETERNUS LT S2) Drives: 2 Slots: 21 Ports: 3	(Online)		0 0	•	
Reporting View Reports B Job History						
Configuration						
Manage Devices Users and Groups						
Configure Notifications     Change Settings						
Documentation     Video and Tutorials     Support Diagnostics				4	- Add	Device

2 Select [Tree View] to switch the view to the tree view mode. Click the name of the drive and select [Configure] from the menu that appears.

Quest 🔘	VetVault		<b>□</b> • 💭 • ·	Ø- 0	💄 admin
jobs Create Backup Job Create Restore Job	Manage Devices	○ List View ● Tree View □ Remember this selection			
Manage Sets Manage Job Definitions Manage Policies Conjuga Structure	C DRIVE 1 (HU	TDE65453947_LL0 (FUJITSU ETERNUS LT 52) (Online) Status.			^
Reporting View Reports Job History	SLOT 2: F SLOT 2: F SLOT 3: 8 SLOT 4: 8 SLOT 5	Under Gebruck Volley Offline Sep 22:12-1 Clean Properties			
Configuration Guided Configuration Manage Clients	SLOT 6 SLOT 7 SLOT 7 SLOT 8 SLOT 9 SLOT 10	Configure			
Manage Devices Users and Groups Gatalog Search Configure Notifications	SLOT 11 SLOT 12 SLOT 13 SLOT 14				1.200
⇐ Change Settings Help	- CLOT 15 - SLOT 16				~
Documentation     Video and Tutorials     Support Diagnostics	,			+ Add [	Device

3 In the [Edit Drive] page that appears, click the [Configuration] tab and check that the [Cleaning Tapes Supported] checkbox is selected. If cleared, select it.

NDMP Configuration Co	nfiguration	Performance	Statistics	SCSI Cor	nfiguration	Generic Cl	eaning
Device Serial Number				10W	/T031866		^
Amount of media reserved	at end of tap	e (MB)		0	÷		
Cleaning Tapes Support	ted						
Time (in seconds) to wait fo	or tape to go i	ready		600	÷		
Time (in seconds) to wait fo	or tape to stop	p reporting no m	edia present	10	\$		
Time (in seconds) to wait fo drive	or cleaning ta	pe to start repor	ting cleaning	20	÷		
Time between polling emp	ty drive [0 = n	ever] (mins)		1			- 1

- 4 Click the [OK] button to go back to the [Manage Devices] page in the tree view mode. When the drive becomes idle, click the name of the same drive again and select [Configure].
- 5 In the [Edit Drive] page that appears, click the [Generic Cleaning] tab and set the following Generic Cleaning items.
  - Issue a load command to start cleaning cycle: off (the default setting is "on")
  - Use Generic Cleaning: on (the default setting is "off")

NDMP Configuration	Configuration	Performance	Statistics		SCSI Configuration	Generic Cleanin
Length of cleaning cy	cle (seconds)		350	;		
Issue a load comm	nand to start clear	ning cycle				
List of ASC/ASQ codes	s that indicate clea	ning has complete	ed			
Use Generic Clean	ning					

6 After confirming that the checkboxes are set correctly, click the [OK] button to go back to the [Manage Devices] page in the tree view mode.

The setting of one drive is now complete. When using multiple drives, set the other drives in the same way.

After setting all the drives, proceed to the library setting.

7 In the [Manage Devices] page, switch the page view to the tree view mode, click the name of the library, and select [Modify] from the menu that appears.

Quest 🙆 Ne	etVault					EN -	<b>∜</b> - 0	💄 admin 🕶
View Events		_	_					
C Deployment Task status	Manage Devices	O List View	Tree View	Rememi Rememi	ber this selection			
Jobs								
Create Backup Job								_
Ω Create Restore Job	Print A didicit	Status	JITSU ETERNUS LI	r S2) (Online)				^
😭 Manage Sets	DRIVE 1 (Idle)	Modify						
Manage Job Definitions	SLOT 1 : FORE	Baung Librard	ct 16:13-1					
Manage Policies	SLOT 2 : FORE	Restart Library	p 22:12-1					
🗢 Explore Storage	SLOT 3 : BLAN	Change View						
	SLOT 4 : BLAN	Remove						
Reporting	SLOT 5	Open Door						
View Reports	SLOT 6	Pulk Plank						
1週 Job History	SLOT 7	Durk Drank						
Configuration	SLOT 8	Bulk Label						
Comparation	SLOT 10	Open Entry/Exit						
Guided Configuration	- SLOT 11	Import Media						
2 Manage Clients	SLOT 12	Scan						
Manage Devices	SLOT 13	Joan						
Catalog Search	SLOT 14	Force Scan						
Configure Natifications	SLOT 15							
Change Settings	SLOT 16							~
Help								
B Documentation							- Adv	Denice
Video and Tutorials							+ A00	Device
Q. Support Diagnostics								

8 Click the library name that appears under [Library Configuration] and click [Configure] from the menu that appears.

		💭 • 🚸 • 🚯 🛓 admin •
Monitoring Server Monitor	Edit Device - nvrhel8svy: SL_LTDE65453947_LL0 (FUJITSU ETER	NUS LT S2)
Job Status	Library Configuration Select	ted Drives
Device Activity     View Logs     View Events     Deployment Task Status	Corport         Impletions         Impletion         Impletion         Bay           Impletion         Impletion         Impletion         Impletion         Bay           Impletion         Impletion	v Number tor 2
Jobs	Rvrbel8svy: SL_10WT031857 (IBM ULTRIUM-HH7) (10WT031857)	TRM
Create Backup Job		
Manage Sets  Manage Job Definitions  Manage Policies  Explore Storage		
Reporting		Туре
View Reports	IBM Ultriun	n 7 Tape Drive 🗸
🔁 Job History		Details
Configuration Guided Configuration	IBM TotalS Ultrium 7 1	torage
Manage Devices     Users and Groups	Rem	nove Drive

- 9 Click the [Cleaning] tab in the [Configure Device] page that appears, set the following Cleaning items, and click the [OK] button.
  - Automatic Cleaning Supported: on (the default setting is "on")
  - Barcode Prefix(es) of cleaning media: Set with the character string that is on the label of the cleaning cartridge.
  - Cleaning Slots: Slot number where a cleaning cartridge is stored.

The following is a settings example with a label string of "CLN" and a slot number of "5".

onfiguration	Entry/Exit Ports	Cleaning	Mixed Media	SCSI Configuration
Automatic Cl	leaning Supported			
Barcode Prefix(e	s) of cleaning media	CLN		
		6		

10 Click the [OK] button to go back to the [Edit Device] page and then click the [Save] button at the bottom right of the page.

Selected Drives			
1 0 of 2 IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII			
	Type TMULTINUM 7 Tape Drives BMM TotalStorage Ultrium 7 Tape Drives: TMUM Total Storage Ultrium 7 Tape Drives: TMUM Total Storage Common Commo	Type Type IBM Ultrium 7 Tape Drive Details IBM TotalStorage Ultrium 7 Tape Drives:	Type Type IBM Ultrium 7 Tape Drive Details IBM TotalStorage Ultrium 7 Tape Drives:

11 In the [Manage Devices] page of the WebUI, click the [Manage Library] button of the target library to switch to the [Tape Library Management] page. Reboot the LT140 by clicking the [Restart] button at the bottom right of the page. The new settings are applied after the LT140 is rebooted.

End of procedure

## 4.5.2 Notes on Using Windows Server 2019

To use NetVault on Windows Server 2019, ETERNUS LT series Tape Library Driver is required. Install the Windows Server 2016 device driver (w2k16) in Windows Server 2019. For the download and the installation procedure of the Tape Library Driver, refer to the following website. https://www.fujitsu.com/global/support/products/computing/storage/download/

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## 4.6 Arcserve Backup

This section provides notes about the settings that are performed for Arcserve Backup.

## 4.6.1 Notes on Operation

#### Cleaning tape drives

- Arcserve Backup has a function to automatically clean tape drives. When automatically cleaning tape drives, use the Arcserve Backup's automatic cleaning function.
- Arcserve Backup can display the number of times each drive has been cleaned. It cannot display the number of times each cleaning cartridge has been used.

## 4.6.2 Notes on Using Windows

A dedicated driver is used (this driver is automatically installed during installation of Arcserve Backup). Do not use an IBM tape driver.

## 4.7 Veeam Backup & Replication

This section provides notes about the settings that are performed for Veeam Backup & Replication.

## 4.7.1 Notes on Operation

#### Cleaning tape drives

Veeam Backup & Replication does not have a function to manually clean tape drives. Use the tape library to manually clean the tape drives.

#### Label of a data cartridge

Veeam recognizes any media with a barcode label whose first three letters are "CLN" or "CLR" as cleaning media. Therefore, if the first three letters of the barcode label of a data cartridge are set to "CLN" or "CLR", that data cartridge becomes unavailable.

#### Automatically cleaning the tape library

If the tape library's automatic cleaning function conflicts with a Veeam backup or restore operation, a drive error occurs in Veeam. Therefore, do not use the tape library's automatic cleaning function.

## 4.7.2 Notes on Using Windows Server 2019

To use Veeam Backup & Replication on Windows Server 2019, ETERNUS LT series Tape Library Driver is required.

Install the Windows Server 2016 device driver (w2k16) in Windows Server 2019.

For the download and the installation procedure of the Tape Library Driver, refer to the following website.

https://www.fujitsu.com/global/support/products/computing/storage/download/

# 4.8 Tuning Backup Performance

The LT140 backup performance may improve by changing the block size. For details on the procedure for changing the block size and any additional notes that are required, contact your sales representative or maintenance engineer. The upper limit of the block size must be 128KB.

# Chapter 5 LTFS Option

This chapter provides notes on the LTFS option that is used with the LT140.

# 5.1 Notes on Operation

### Cleaning tape drives

The LTFS option has a command used to clean the tape drives. When cleaning tape drives, use the LT140's automatic cleaning function (Auto Cleaning) or the LTFS option's cleaning command. For more details, refer to "3.7 Cleaning the Tape Drive" in "FUJITSU Storage ETERNUS LT series Tape Libraries LTFS Option User's Guide".

#### ┝ Caution

When LTFS is running, performing a manual cleaning of the LT140 may cause a device usage conflict or an inconsistent status for the tape cartridges or tape drives. This conflict or inconsistency may cause an error. Do not perform a manual cleaning while LTFS is running.

# 5.2 Notes on the LTFS Option Installation

## 5.2.1 LTFS Server OS

For stable operation of the LT140, always applying the latest OS security patches for the LTFS server is recommended.

#### FUJITSU Storage ETERNUS LT140 Tape Library User's Guide -Server Connection-

#### P3AG-3752-03ENZ0

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