

**Softek TDMFTM, Open Systems Edition
Installation Guide for Windows NTTM and
Windows 2000TM**

Version 1.2



FUJITSU SOFTWARE
TECHNOLOGY CORPORATION

SOFTEK *TDMF*™ Open Systems Edition

Installation Guide for Windows NT™ and Windows 2000™

Version 1.2

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Revision Notice

This is the first release of this manual. A complete revision history is provided at the end of the manual.

Abstract

The *Softek TDMF, Open Systems Edition, Installation Guide for Windows NT and Windows 2000, Version 1.2 (ML-144XXX-001)*, contains installation instructions. Once you have installed or upgraded the software, refer to the appropriate *Administrator's Guide* for information on starting and configuring the software.

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Contents

Preface

Chapters

1	Installing	1
	System Requirements	3
	Enterprise Requirements	3
	Server and Operating System Requirements	3
	Before You Install	4
	Protecting Your System	4
	Sizing the System	4
	Sizing the BAB	5
	Minimum and Maximum BAB Sizes	5
	Other Considerations	5
	Sizing the Pstore	5
	Sizing the Journal File Directory	5
	Creating the Required Partitions	6
	Entering a License Key	7
	Installing Softek TDMF Block	8
	Verifying The Softek TDMF Block Installation	9
	Removing Softek TDMF Block	13
	Revision History	15

Figures

Softek TDMF Setup Window 1	8
Softek TDMF Setup Window 2	8
Softek TDMF Configuration Tool - Main Window	9
Add Group Window	10
Softek TDMF Configuration Tool - Systems Tab	10
Softek TDMF Configuration Tool - TDMF Devices Tab	11
Add/Modify Mirrors Window	11



Preface

Description of the Manual

The *Softek TDMF™, Open Systems Edition, Version 1.2, Installation for Windows NT™ and Windows 2000™*, contains information on how to install the block mode of the TDMF product. The **Softek TDMF, Open Systems Edition Block** allows you to replicate data from source to target server(s) from entire Windows NT partitions.

After you install the Softek TDMF software, refer to the *Administrator's Guide* for detailed instructions on how to configure, administer, and use the Softek TDMF software.

Throughout the manual, the **Softek TDMF, Open Systems Edition** product will be referred to as Softek TDMF.

Audience for this Manual

The information in this guide is intended for system administrators who are responsible for installing software and maintaining the servers and clients on a network.

Contents of this Manual


Chapter *Installing*

Describes
System Requirements
Before You Install
Installing Softek TDMF Block
Verifying The Softek TDMF Block Installation
Removing Softek TDMF Block

Notation Conventions

This supplement uses the following typographic conventions and symbols to make information easier to access and understand.

Softek TDMF Notations

Convention	Indicates	Example
boldface	Names of DOS or UNIX line commands, daemons, options, programs, or scripts	The start command starts the TDMF Block Server.
<i>italic in text</i>	Pathnames, filenames, computer names, new terms defined in the Glossary or within the chapter, or emphasized words	The default install location is <i>C:\Program Files\Softek_tdmf</i>
<i>italic in command line</i>	A variable that you need to provide in the command line	spec /dfs target_site
fixed-width	Examples and information displayed on the screen	Are you sure you want to uninstall all TDMF components?
fixed-width, boldface	Commands and options that you must type exactly as shown	pause on
< <i>italic in brackets</i> >	Variables that appear in messages	Unable to open logical group device <deviceid>.
[text text]	Message variables that can display two different values	License file has keyword that is not [PMD RMD]_LICENSE.
Menu_Name> Command> Command	A path or an order to follow for making selections in the GUI	Maintenance>Add Specification>Global Exclude
Note:	Important information that you must read and follow to ensure successful backup and recovery of your data	 NOTE: You must exclude the TDMF DATA directory from tape backups.

Related Documentation

The following publications contain related information.

Softek TDMF, Open Systems Edition Block Administrator's Guide for Windows NT and Windows 2000, Version 1.2

(ML-144XXX-001)

Softek TDMF, Open Systems Edition Message Log Guide for Windows NT and Windows 2000, Version 1.2

(ML-144XXX-001)



Installing

• <i>System Requirements</i>	3
• <i>Before You Install</i>	4
• <i>Installing Softek TDMF Block</i>	8
• <i>Verifying The Softek TDMF Block Installation</i>	9
• <i>Removing Softek TDMF Block</i>	13

This section provides requirements and instructions for installing Softek TDMF Block for Windows NT and Windows 2000.

Once installed, refer to the *Administrator's Guide* for information on starting and configuring the software.

System Requirements

Enterprise Requirements

The following is a list of components required to install Softek TDMF:

- Primary system with additional available partitions
- Secondary system with additional available partitions
- LAN or WAN IP network(s) between primary and secondary systems
- Physical memory allocated exclusively to Softek TDMF for the BAB (Big Asynchronous Buffer) on primary
- Disk partitions for the following:
 - Pstore (primary) — this should be an unformatted partition with an assigned drive letter
 - Local data (primary), formatted as NTFS
 - Mirrored data (secondary), formatted as NTFS
 - Journal file area (secondary), formatted as NTFS
- Softek TDMF supports up to 1000 logical groups and a maximum of 32 partitions on a system (for example, you can mirror a drive more than once).

Server and Operating System Requirements

The following list contains the server and operating system requirements necessary for installing Softek TDMF Block:

- Windows NT Server 4.0 with service pack 5 or above installed
- Windows 2000 or later



NOTE:

It is recommended that the same version of operating system be installed on both primary and secondary systems. Data cannot be replicated from Windows NT to Windows 2000 or vice versa.

-
- At least 14 MB of available disk space in the system directory on both the primary and secondary systems

- Enough available physical memory to allocate exclusively to Softek TDMF for the BAB (64 MB minimum) on the primary system
- Systems using SCSI devices and the NTFS file system only
- Each server must have at least one static IP address; these addresses must be used during the configuration of the primary and secondary systems.

Before You Install

This section describes the steps involved in planning and preparing for Softek TDMF installation.

Protecting Your System

As with any software and hardware installation, it is strongly recommended that you back the system up fully before creating any new partitions or installing Softek TDMF. A backup enables you to recover original files if needed. If there are irreplaceable files on the system, you should create and verify a backup before proceeding with the installation.

Sizing the System

You should size certain components such as the BAB and pstore before starting the installation. These rules can be helpful when sizing and allocating resources:

- Mirror partitions must be at least as large as local data partitions. In symmetric environments, they must be identically sized.
- Use the Windows NT performance tools to profile the I/O characteristics and demands of your system.

Look for:

- Peak I/O update activity over time. Allow for quarter-end or year-end processing requirements.
- Ratio of reads to writes.
- Number of disk blocks updated over a measurable amount of time. This data is especially useful when determining the appropriate size for the journal file area on the secondary system and the amount of memory for the BAB.

Factor in the maximum rate for data transfer across the network and how long you can tolerate a network outage without a BAB overflow. A BAB overflow moves Softek TDMF into TRACKING MODE and requires a refresh to resynchronize the primary and secondary systems.

If possible, perform an iterative implementation of Softek TDMF and monitor incidents when network connection is lost, when the secondary system goes down, or during unanticipated bursts in I/O activity.

Sizing the BAB

You should install additional physical memory on any primary system in the Softek TDMF enterprise for the BAB's exclusive use. The BAB is in physical, kernel memory, not virtual memory.

Minimum and Maximum BAB Sizes

You should allocate a minimum of 64 megabytes to the BAB (this is the default size). The maximum BAB size is 192 megabytes. Also, the BAB size cannot be over 50% of your total physical memory.

Other Considerations

Since the BAB stores changes made to the primary data set, the following variables are important in determining the appropriate size:

- Amount of data changed during a measurable period of time
- Speed of network and how fast entries are removed from the BAB
- How long you can tolerate a network outage

During configuration, if Softek TDMF cannot allocate all of the requested memory, a message prompts you to reboot the system. The reboot allows Softek TDMF to obtain the requested memory. When Softek TDMF is started, you can determine the amount of memory actually allocated to the BAB with the **tdmfinfo -a** command.

Sizing the Pstore

The pstore is a partition that stores state information, tunable parameter definitions, and tracking bitmaps. *The pstore must be a raw partition.*

Consider additional partitions that you may add in the future, and size the pstore adequately to accommodate these additions. Resizing the pstore is not a trivial matter, since you must stop Softek TDMF, resize the pstore, and then reboot the primary system. It is best to be generous when sizing the pstore. A large pstore partition has no detrimental effects on performance. The maximum pstore size is 140 MB.

Sizing the Journal File Directory

Journaling on the secondary system allows incoherent data to be transferred over the network without affecting the coherence or recoverability of the data on the mirrored data partitions. Journaling also allows you to *checkpoint* mirrored data partitions on the secondary system, taking a snapshot of the data allowing applications to access it. During a checkpoint, new updates from the primary system are accumulating in the journal file until after the checkpoint has been released. At that time, the journaled updates are automatically applied to the appropriate mirrored partitions.

Note that if any changes have been made to the snapshot data on the secondary system during checkpoint, you must do a *checksum refresh* to ensure that the local and mirrored data is in sync. See the *Administrator's Guide* for more information on checkpointing and the **tdmflaunchrefresh** command.

All journal files are written to the same journal file area directory and are differentiated by a naming convention (refer to the *Administrator's Guide* for details). Sizing the journal file area directory is somewhat tricky. You want the journal file area to be large enough to handle all changed data from a smart refresh of one or more logical groups and to accommodate the updates that occur during checkpointing.

The journal file directory is not written to during a *full refresh*. A full refresh forces a refresh of *all* data on the local partitions and is generally used to create the initial mirror image on the secondary. During a full refresh, data is written directly to the mirrored partitions only. Knowing the rate of changes made to data on the primary system is also useful in estimating the amount of data written to journal files during a checkpoint.

You can determine the time to complete a backup by simply dividing the total amount of data to be backed up by the speed of writes to the partitions to be backed up. Then, you can determine the average amount of data changed during that time period and make accommodations for data bursts. The secondary journal needs to be large enough to accommodate this amount of data.

A good rule to follow when sizing the journal file system is to make it 25% of the entire amount of data stored on all local partitions in a logical group. Thus, if logical group 0 has three local data partitions totaling 12 GB, then you should make 3 GB available to the journal file area directory file system for this group.

Creating the Required Partitions

Softek TDMF requires certain partitions on the primary and secondary. You can create these partitions before or after installation, but it is best to have sized the pstore and journal file directory before creating partitions for them.

The following table lists the required partitions, indicates which system they must be on, and how they must be formatted.

Partition	System	Format
pstore	primary	Unformatted
Local data	primary	NTFS
Mirrored data	secondary	NTFS
Journal file directory	secondary	NTFS

Create the partitions as follows:

1. Open Disk Administrator.
2. On the primary machine, create one *unformatted* partition for the pstore and at least one *formatted* partition for local data. On the secondary, create one *formatted* partition for the journal file area and at least one *formatted* partition for the mirrored data.

IMPORTANT:

Do not create a mirrored data partition that is significantly larger than the local data partition. When you run the **tdmflaunchrefresh** command, the mirrored data partition is automatically formatted to the size of the local partition. Thus, the extra space is wasted.

Entering a License Key

After you obtain a license key from Fujitsu Softek, you can enter it as follows:

1. Open Configuration Tool. Select Start>Programs>Softek_tdmf>ConfigTool.
2. Click the icon in the upper-left corner of Configuration Tool, and select **About ConfigTool**.
3. In the dialog box, select the **Edit License Key** checkbox, and enter your new license key.

IMPORTANT:

The license key is case sensitive. You must enter it using uppercase letters.

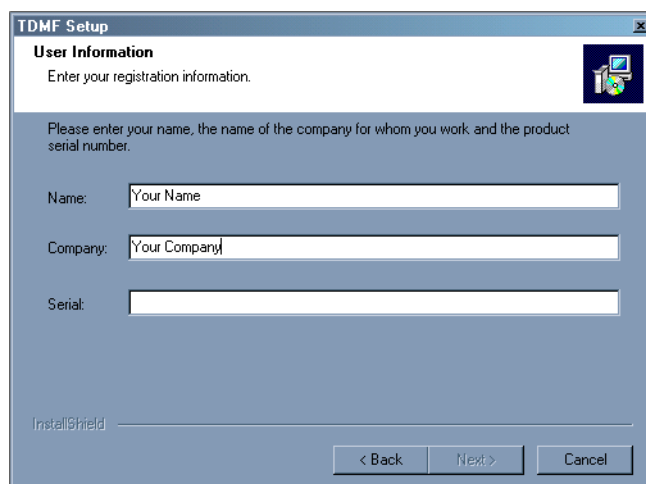
4. Click **OK**.

Installing Softek TDMF Block

Install Softek TDMF on both primary and secondary systems:

1. Insert the CD-ROM into the CD drive.
The Setup program starts automatically.
2. Follow the prompts in the InstallShield Wizard to install the program.
3. When the User Information Screen appears, enter the required information. In the **Serial** field, enter the license key provided by Fujitsu Softek.

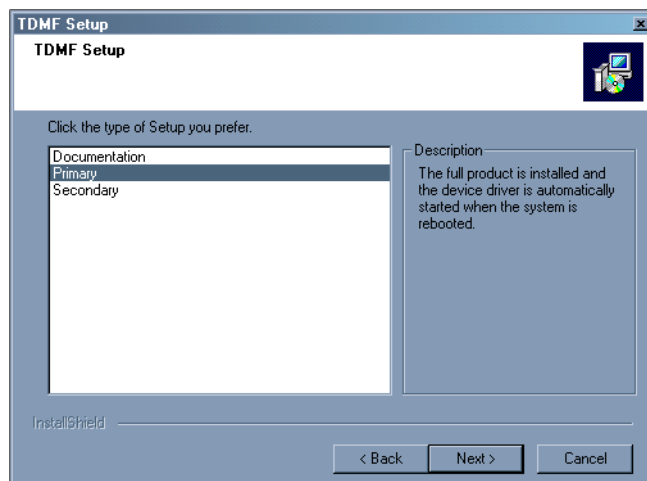
Figure 1: Softek TDMF Setup Window 1



The screenshot shows the 'TDMF Setup' window with the 'User Information' tab selected. The window title is 'TDMF Setup'. Below the title bar, it says 'User Information' and 'Enter your registration information.' There is a small icon of a computer and a CD-ROM. The main area contains the text: 'Please enter your name, the name of the company for whom you work and the product serial number.' Below this are three text input fields: 'Name:' with 'Your Name', 'Company:' with 'Your Company', and 'Serial:' which is empty. At the bottom left is the 'InstallShield' logo. At the bottom right are three buttons: '< Back', 'Next >', and 'Cancel'.

4. When you reach the Softek TDMF Setup screen, choose **Primary** if you are installing Softek TDMF on a primary system. Choose **Secondary** if you are on a secondary system. If you are not certain if the system will be used as a primary or a secondary, choose **Primary**.

Figure 2: Softek TDMF Setup Window 2



The screenshot shows the 'TDMF Setup' window with the 'TDMF Setup' tab selected. The window title is 'TDMF Setup'. Below the title bar, it says 'TDMF Setup'. There is a small icon of a computer and a CD-ROM. The main area contains the text: 'Click the type of Setup you prefer.' Below this is a list box with three options: 'Documentation', 'Primary' (which is selected), and 'Secondary'. To the right of the list box is a 'Description' area with the text: 'The full product is installed and the device driver is automatically started when the system is rebooted.' At the bottom left is the 'InstallShield' logo. At the bottom right are three buttons: '< Back', 'Next >', and 'Cancel'.

5. When the InstallShield Wizard has completed the installation, restart the system.



NOTE:

Remember that the Softek TDMF Block Server does not start automatically when a system is rebooted if the chosen setup is "Secondary". The server will have to be started using the TdmfServer.exe command in the Softek TDMF Block install directory (refer to the Administrator's Guide).

6. Repeat these steps on each system in the Softek TDMF Block enterprise.

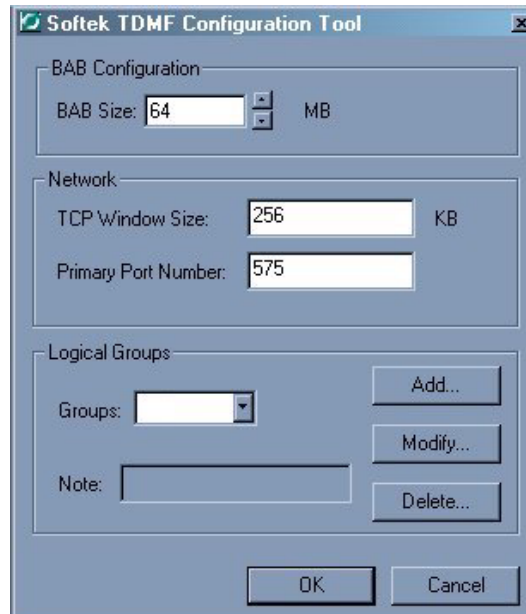
Verifying The Softek TDMF Block Installation

To quickly verify your installation, you can define a simple loopback configuration to replicate from a primary to secondary partition on the same system.

Use Configuration Tool to do this using the following steps. For details on configuring your system, see the *Administrator's Guide*.

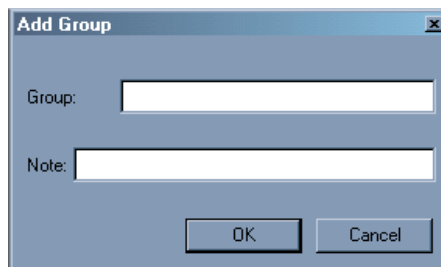
1. Start Configuration Tool. Select Start>Programs>Softek_tdmf>ConfigTool.

Figure 3: Softek TDMF Configuration Tool - Main Window



2. Under **Logical Groups**, click **Add**.
The Add Group dialog box is displayed.

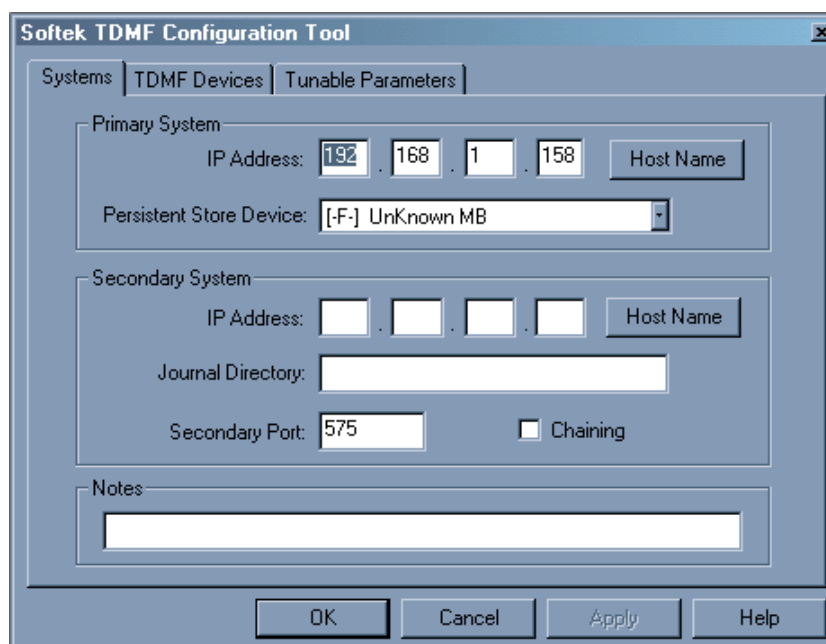
Figure 4: Add Group Window



The 'Add Group' dialog box contains two text input fields: 'Group:' and 'Note:'. Below these fields are two buttons: 'OK' and 'Cancel'.

3. In **Group**, enter 1.
 4. In **Note**, enter a description of the kind of data being replicated in the logical group; for example, **customerinfo**.
 5. Click **OK**.
- The **Systems** tab is displayed.

Figure 5: Softek TDMF Configuration Tool - Systems Tab



The 'Softek TDMF Configuration Tool' window shows the 'Systems' tab. It contains the following fields and controls:

- Primary System:**
 - IP Address: 192 . 168 . 1 . 158
 - Host Name: [button]
 - Persistent Store Device: [-F-] UnKnown MB [dropdown]
- Secondary System:**
 - IP Address: [] . [] . [] . []
 - Host Name: [button]
 - Journal Directory: [text box]
 - Secondary Port: 575
 - ☐ Chaining
- Notes:** [text box]

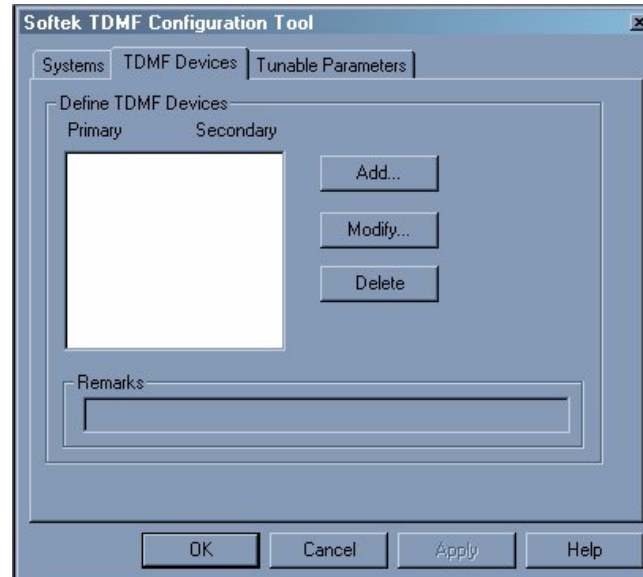
At the bottom are four buttons: OK, Cancel, Apply, and Help.

Do the following:

- a. Under both **Primary System** and **Secondary System**, specify 127.0.0.1 for **IP Address**.
- b. In **Journal Directory** enter the directory where you want the journal files to go; for example, **e:\journal1**. (This directory must already exist.)

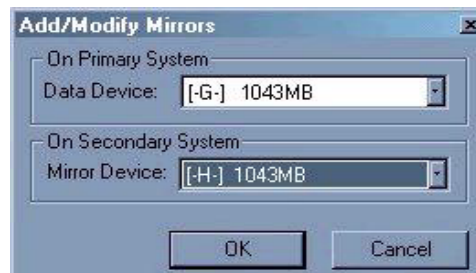
6. Select the **TDMF Devices** tab.

Figure 6: Softek TDMF Configuration Tool - TDMF Devices Tab



7. Click **Add**.
The Add/Modify Mirrors dialog box is displayed.

Figure 7: Add/Modify Mirrors Window



8. Select primary (**Data Device**) and secondary (**Mirror Device**) partitions from the pull-down lists. Make sure the secondary partition is *at least* as large as the primary partition.
9. Click **OK**.
10. Close Configuration Tool.
11. Click **Yes** in response to the message:
"Would you like to start the logical group?"
12. Open a command prompt window and change to the *Softek TDMF Block* install directory.

13. Copy the primary configuration file *p001.cfg* that you just created to *s001.cfg*.
Because this is a loopback configuration, the primary and secondary configuration files remain on the same system. If you were mirroring data to another system, you would copy the *s001.cfg* file to the Softek TDMF program directory on the secondary system.
14. Start the PMD for the logical group you just created by entering:

```
tdmflaunchpmd -g1
```
15. Create the initial mirror by entering:

```
tdmflaunchrefresh -fg1
```
16. Open Monitor Tool to verify that the configuration is replicating. Select Start>Programs>Softek_tdmf>MonitorTool.

Removing Softek TDMF Block

To remove Softek TDMF, follow these steps:

1. Make sure that no local partitions are currently in use.
2. Perform the following steps on both primary and secondary systems:
 - a. Open a command window and change to the *Softek TDMF Block* install directory.
 - b. Enter the following commands at the prompt:

```
tdmfkillpmd -a
tdmfstop -a
```
 - c. Open Control Panel, and double-click the **Add/Remove Programs** icon.
 - d. Select **Softek TDMF Block** in the list.
 - e. Click **Add/Remove**, and follow the prompts to completely remove the program.
3. On the secondary system, delete the Softek TDMF journal files from the directory where you located them.
4. On both primary and secondary systems, delete the Softek TDMF configuration files from the product installation directories.
5. Reboot the primary and secondary systems to completely uninstall Softek TDMF.



Revision History

This revision history lists all revisions of this publication and their effective dates.

Revision Level	Change Summary
ML-144XXX-001 October 2001	First release of the Softek TDMF, Open Systems Edition, Installation Guide for Windows NT™ and Windows 2000™.
	■ ■



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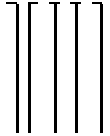
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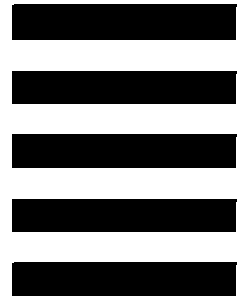
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