StorageTek Tape Analytics

Requirements Guide

Version 2.1.1

E58069-03

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This document lists the requirements for Oracle's StorageTek Tape Analytics (STA) Version 2.1.1, as of this document's publication. Review the following sections before installing and configuring STA.

Library Requirements

Library Firmware Requirements

For the best functionality and user experience, upgrade to the recommended or latest available library firmware. Firmware versions are subject to change. See the *STA Installation and Configuration Guide* for instructions on checking your library firmware version.

To upgrade your firmware, open a Service Request (SR) with your Oracle support representative.

Library Hardware Requirements

Table 2 Library Hardware Requirements

Library	Component	Requirement
SL3000 SL8500	HBT card	**High-memory drive controller (HBT) card**: Required for media validation support and reporting of richer drive data. For libraries with LTO drives, a high-memory HBT card is required to enable ADI mode. See the *STA Installation and Configuration Guide* to determine the memory level of your HBT card. **Note**: All SL3000 libraries ship with the high-memory card. Since 2006, all SL8500 libraries ship with the high-memory card.
SL8500	Complex	All SL8500 libraries in a single complex must be monitored by a single instance of the STA application.
All	Ethernet connection	**Separate connection from STA to each library**: each library must have an assigned IP address and be reachable by the STA server. **Note**: Each library in an SL8500 complex has its own SNMP agent. Therefore, STA must be able to connect to each library separately.

Tape Drive Requirements

StorageTek Drive Firmware Requirements

The quality of data provided to STA depends on the TTI level shown in Table 3. As the TTI level increases, so does the quality of the data. Oracle recommends using the

highest TTI level and corresponding firmware supported by your drive model. Firmware versions are subject to change.

To upgrade your firmware, open a Service Request (SR) with your Oracle support representative.

> **Note:** The media validation Complete Verify Plus test is not supported in FICON environments (applies to TTI 5.40 and TTI 5.5.0 only).

Table 3 StorageTek Tape Drive Firmware — Minimum Versions for STA

Drive Model	TTI 5.10	TTI 5.20	TTI 5.30	TTI 5.40	Media Validation Support TTI 5.40	Media Validation Support TTI 5.50
T10000A	1.44.108	1.46.109	1.48.112	–	–	–
T10000B	1.44.208	1.46.209	1.48.212	–	–	–
T10000C	NA	1.51.320	1.53.316	1.57.308	1.59.302	3.62.108
T10000D	–	–	–	4.07.104 (FC/ FCoE) 4.07.106 (FICON)	4.07.106 (FC/ FCoE) 4.07.106 (FICON)	Not available at time of publication; contact your Oracle support representative
9840C	1.44.510	1.45.503	–	–	–	–
9840D	1.44.710	1.45.703	–	–	–	–

ADI Requirements for LTO Drives

LTO drives that support the Automation/Drive Interface (ADI) can provide rich data (for example drive performance and utilization) to the library, depending on drive configuration and firmware level.

For a library to send rich LTO drive data to STA, ADI must be enabled on both the library and the LTO drives. If ADI is not enabled on both, the library will only send basic data about the LTO drives.

For SL3000 and SL8500 libraries, you can enable ADI only if the library has a high-memory drive controller (HBT) card. See "Library Hardware Requirements" on page 1-2 for details. Because enabling ADI requires a reboot of the library, you should enable it in advance if you are planning to install LTO drives.

See the following sections for related information:

- For instructions on enabling ADI on the library, see the *STA Installation and Configuration Guide*.
- For details about how ADI is enabled on LTO drives, see the *STA Installation and Configuration Guide*.

HP LTO Drive Firmware Requirements

Firmware versions are subject to change. To upgrade your drive firmware, open a Service Request (SR) with your Oracle support representative.

Table 4 HP LTO Tape Drive Firmware — Supported Versions for STA

HP LTO Drive	Minimum	Recommended	SL8500	SL3000	SL500	SL150
LTO 3 LVD SCSI	G69S	G69S	–	–	Yes	–
LTO 3 FC 2Gb	L6HS	L6HS	Yes	Yes	Yes	–
LTO 3 FC 4Gb	M6BS	M6BS	Yes	Yes	Yes	–
LTO 4 LVD SCSI	B57S	B63S	–	–	Yes	–
LTO 4 FC 4Gb	H58S	H67S	Yes	Yes	Yes	–
LTO 5 Full-height FC 8Gb	I3CS	I6BS	Yes	Yes	Yes	–
LTO 5 Full-height SAS 6Gb (requires an SL500 bridged Base Unit)	X3AS	X69S	–	–	Yes	–
LTO 5 Half-height FC 8Gb	Y5BS	Y68S	–	–	–	Yes
LTO 5 Half-height SAS 6Gb	Z55S	Z68S	–	–	–	Yes
LTO 6 Full-height FC 8Gb	J2DS	J3ES	Yes	Yes	Yes	–
LTO 6 Half-height FC 8Gb	22GS	23DS	–	–	–	Yes
LTO 6 Half-height SAS 6Gb	32DS	33ES	–	–	–	Yes

IBM LTO Drive Requirements

Firmware versions are subject to change. To upgrade your drive firmware and to enable ADI on IBM LTO drives, open a Service Request (SR) with your Oracle support representative.

See Table 1 for minimum required library firmware versions for each drive model.

Non-encryption Drives

For non-encryption drives, use the drive firmware shown in Table 5.

Table 5 IBM LTO Non-encryption Drive Firmware — Supported Versions for STA

IBM LTO Drive	Minimum	Recommended	SL8500	SL3000	SL500	SL150
LTO 3 FC 2Gb	93G0	93G0	Yes	Yes	Yes	–
LTO 4 FC 2/4Gb	C7QH	C7QH	Yes	Yes	Yes	–
LTO 5 FC 8Gb	E4J0	F3H4	Yes	Yes	Yes	–
LTO 6 FC 8Gb	E4J0	F3J6	Yes	Yes	–	F3J7

Encryption drives

For encryption drives, use the drive firmware versions shown in Table 6. Also, the encryption card firmware must be 4.17.18.36 or higher for ADI support.

Server Requirements

- STA Server Sizing
- Server Hardware Requirements
- Operating System Requirements
- Operationally Approved
- Network Requirements and Recommendations

> **Note:** To ensure optimal performance and functionality of the STA application, STA must be installed on a dedicated server (called the *STA server*). Also, there should be no other applications running on this server. Oracle Service can provide support only if these conditions are met.

STA Server Sizing

Before you install or upgrade to the latest version of STA, Oracle highly recommends you contact your Oracle sales representative for assistance with sizing your STA server. Your sales representative can use the STA Server Sizing Tool to provide you with best recommendations to ensure your server is sized appropriately to meet your site's current needs and expected growth.

Server sizing depends on a number of factors, including the following:

- Number of monitored libraries
- Number of media slots
- Number of drives
- Number of media
- Exchanges per hour

Sizing considerations for larger installations

If you have significant exchanges per hour rates (that is, greater than 300 EPH) with multiple libraries attached to a single STA server and a long history with STA, you should carefully consider the size and configuration of the following key areas:

- Operating system and main application area — Oracle recommends this to be on its own appropriately sized HDD. The Oracle storage home location (for example, /Oracle) needs to be at least 100 GB, but you should allocate 200 GB if /tmp is in the root partition. Allocate another 200 GB if /var/log/tbi is also in the root partition.

- STA database data (for example, /dbdata) — Oracle recommends this to be on its own appropriately sized HDD. Guidance is from 250 GB up to 500 GB.
- STA database backups (for example, /dbbackup) — Oracle recommends this to be on its own appropriately sized HDD. Guidance is from 500 GB up to 2 TB.

You may also want to consider using SSDs.

Server Hardware Requirements

Table 7 lists the minimum and recommended server hardware requirements. Oracle highly recommends that the server configuration be expandable in number of disk bays, CPU cores, and RAM slots to accommodate future database growth, additional library requirements, and STA upgrades.

Table 7 STA Server Hardware Requirements

Hardware	Configuration
Processor	Intel Xeon Series or equal AMD CPU
CPU cores	▪ Minimum: 6 ▪ Recommended: 12 to 32, or capability to expand to this configuration
Memory	▪ Minimum: 16 GB RAM ▪ Recommended: 32 GB to 128 GB RAM
Operating system disk	Dual HDD drives: ▪ 600 GB each (single library, typical) ▪ 1 TB each (multiple libraries, typical) **Note**: As the number of data exchanges increases, so does the size of the database.
Database data and local backup disks	▪ Minimum: 100 GB each ▪ Recommended: 250 GB to 2 TB each
Connection	Gigabit Ethernet
Platform	All disk storage residing on a single platform See the *STA Installation and Configuration Guide* for the recommended file system layout and allocations.

Operating System Requirements

Oracle tests, documents, and recommends Oracle Enterprise Linux.

Note: STA 2.1.x does not support Linux 7.0 or above.

Operationally Approved

The product has been successfully installed to execute in the below-ascribed operating environments. It has been demonstrated to provide its basic functionality without detriment to either the product or the associated execution environment.

- VMware vSphere Hypervisor
- Red Hat Enterprise Linux

Network Requirements and Recommendations

- The STA server must have a static IP address.
- Oracle recommends that you place the STA server on the same subnet as the library to improve SNMP UDP reliability.
- If you configure STA to support dual TCP/IP using two distinct subnets, configure the network to allow the delivery of SNMP packets on either subnet between the library and STA. Consult your network administrator and your Oracle support representative for more information.

User Interface Requirements

Table 9 STA User Interface — Minimum Requirements

Item	Minimum Requirements
Screen Resolution	1024 x 800 minimum, 1280 x 1024 (or better) recommended
Browsers	Officially supported versions (other versions are known to work with STA): ■ Internet Explorer 9 ■ Firefox 13+ ■ Safari 5 ■ Google Chrome 20+

Table 9 (Cont.) STA User Interface — Minimum Requirements

Item	Minimum Requirements
Browser Settings, Plugins, and Add-ons	■ Enable JavaScript ■ Flash 11.2 (latest version is recommended) ■ Run all browsers in Native Mode ■ Disable or remove third-party add-ons
RTL Language Support	Support for right-to-left (RTL) languages is available only with Internet Explorer 8.0 or 9.0
Screen Reader Assistive Technology	JAWS 11 is recommended See the *STA Screen Basics Guide* for accessibility information.

Media Validation Requirements

The minimum requirements for using STA for media validation are listed in the following sections.

- STA Requirements for Media Validation
- Library Requirements for Media Validation
- Drive Requirements for Media Validation
- Media Requirements for Media Validation

To configure media validation after configuring STA, see the *STA User's Guide*.

> **Note:** Use only one instance of STA to perform media validation activities. The use of multiple instances on the same library is not supported.

STA Requirements for Media Validation

- STA 2.1.0 (minimum)
- Connections to libraries using SNMP v3 protocol

> **Note:** For STA 2.0.x media validation requirements, see that version of the *STA Requirements Guide*.

Library Requirements for Media Validation

- SL8500 or SL3000 library with compatible firmware (see "Library Firmware Requirements" on page 1-1)
- High-memory drive controller (HBT) card
- SL Console 6.25 (minimum for SL8500), 6.50 (minimum for SL3000)
- Dedicated pool of media validation drives defined with SL Console

Drive Requirements for Media Validation

- StorageTek T10000C or T10000D drives using compatible firmware (see "StorageTek Drive Firmware Requirements" on page 1-2). STA does not initiate media validations on drives that do not have the minimum firmware levels.
- Drives used to validate encrypted media must be enabled for encryption and connected to an Oracle Key Manager (OKM) 2.5 (minimum).

Media Requirements for Media Validation

- T10000T1 or T10000T2 media
- Media validation is not supported for media formatted with StorageTek Automatically Linked Partitioning (ALP) done with Oracle's StorageTek Virtual Storage Manager (VSM).

IBM RACF Mainframe Requirements

If you plan to configure STA for RACF authentication, the following requirements apply. See the *STA Installation and Configuration Guide* for instructions on configuring STA for RACF.

You must install two separate packages to configure RACF for STA:

- RACF service for STA, which is part of the SMC component of ELS 7.0 and 7.1. You must install the PTF to support this RACF service on the mainframe.
- WebLogic RACF Security Service Provider (or RACF SSP) that must be installed into WebLogic.

Table 10 IBM RACF Software Required

Software/Firmware	Version
ELS PTF versions for STA/RACF **Note**: STA/RACF is *not* supported in HSC 6.2.	ELS 7.0 - L1H16DH (MVS) ELS 7.1 - L1H16DI (MVS) ELS 7.2 - in the base code (MVS)
IBM PTF versions (for APAR PK69048) for AT-TLS encryption to NCS/ELS HTTP server connection	Best performance: z/OS 1.10 - Release 1A0 : UK39417 available 08/10/07 Minimum for the Communication Server: z/OS 1.9 - Release 190 : UK39419 available 08/10/07

What's New for STA 2.1.1, June 2015

This section summarizes new and enhanced features for StorageTek Tape Analytics 2.1.1.

See the indicated manuals for details about the following new and enhanced features.

Described in the *STA Requirements Guide*

- STA server sizing considerations for larger installations

Described in the *STA Installation and Configuration Guide*

- Process for upgrading to STA 2.1.1 from any previously released STA version
- Support for Active Directory authentication providers

- For optimal SNMP security, Oracle recommends using the SNMP v3 protocol for communication between STA and the libraries. Oracle also recommends *not* using the values "public" or "private" for the community string, as these values are well known and present a security risk.
- For optimal SNMP security, SNMP v2c is disabled by default on STA. If necessary, you can enable and configure SNMP v2c mode for STA.
- New Best Practices section for pre-installation planning, providing tips for optimizing the performance and value of the STA server, database, and application

Described in the *STA Quick Start Guide*

- No changes

Described in the *STA User's Guide*

- New Best Practices sections, providing tips for login sessions, templates, alert policies, Executive Reports, logical groups, STA media validation, and investigating tape environment issues

Described in the *STA Screen Basics Guide*

- New Best Practices sections, providing tips for using the screen layout and navigation, graphs, and tables

Described in the *STA Data Reference Guide*

- Corrections to selected data attribute definitions

Described in the *STA Administration Guide*

- No changes

Related Documents

The STA documentation set consists of the following documents.

For users of the STA application

- *STA Quick Start Guide*—Use this guide to introduce yourself to the STA application and some features of the user interface.
- *STA User's Guide*—Use this guide for instructions on using all STA application features, including the Dashboard, templates, filters, alerts, Executive Reports, logical groups, and STA media validation. This guide also provides instructions for administering and managing STA usernames, email addresses, service logs, and SNMP connections with the monitored libraries.
- *STA Screen Basics Guide*—Use this guide for full details about the STA user interface. It describes the screen navigation and layout, and the use of graphs and tables.
- *STA Data Reference Guide*—Use this guide to look up definitions for all STA tape library system screens and data attributes.

For installers and administrators of the STA server and application

- *STA Release Notes*—Read this document before installing and using STA. It contains important release information, including known issues. This document is included in the STA media pack download.

- *STA Requirements Guide*—Use this guide to learn about minimum and recommended requirements for using STA. This guide includes the following requirements: library, drive, server, user interface, STA media validation, and IBM RACF access control.
- *STA Installation and Configuration Guide*—Use this guide to plan for installation of STA, install the Linux operating system, install the STA application, and then configure STA to begin monitoring the libraries. This guide also provides instructions for upgrading to a new version of STA.
- *STA Administration Guide*—Use this guide for information about STA server administration tasks, such as STA services configuration, database backup and restore, and password administration for database accounts.
- *STA Security Guide*—Read this document for important STA security information, including requirements, recommendations, and general security principles.
- *STA Licensing Information User Manual*—Read this document for information about use of third-party technology distributed with the STA product.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at
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