Sun StorageTek™ Backup Manager Administration Guide

Version 1.0

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Preface

The *Sun StorageTek Backup Manager Administration Guide* provides overview, administration, and troubleshooting information for the Sun StorageTek Backup Manager software.

Before You Read This Book

This guides assumes you have already:

- Installed the software, as described in the *Sun StorageTek Backup Manager Installation Guide*
- Reviewed the information provided in the *Sun StorageTek Backup Manager Release Notes*

Typographic Conventions

Typeface*	Meaning	Examples
`AaBbCc123`	The names of commands, files, and directories; on-screen computer output.	Edit your `.login` file. Use `ls -a` to list all files. `% You have mail.`
AaBbCc123	Book titles, new words or terms, words to be emphasized. Replace command-line variables with real names or values.	Read Chapter 6 in the *User's Guide*. These are called *class* options. You *must* be superuser to do this. To delete a file, type `rm` *filename*.

* The settings on your browser might differ from these settings.

Related Documentation

Application	Title	Part Number
Late-breaking information not included in the information set	*Sun StorageTek Backup Manager Release Notes*	820-2331-*nn*
Tasks for installing the software	*Sun StorageTek Backup Manager Installation Guide*	820-2327-*nn*

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CHAPTER 1

Overview

This chapter provides an overview of the Sun StorageTek Backup Manager (SBM). It contains the following sections:

Product Overview

Sun StorageTek Backup Manager (SBM) provides software that helps you visualize and monitor storage backup environments from a central location. SBM provides valuable information by integrating backup reporting from vendor applications into asset reporting from Sun StorageTek tape libraries.

As the backup administrator, you can increase the reliability of your backup and tape environments by reviewing the data in SBM reports.

- Backup Environment — SBM reports on the success or failure of backup jobs, where those backup jobs reside, and error code distribution.
- Tape Environment — SBM reports specific information collected from Sun StorageTek tape libraries such as online/offline status of library components, mount and dismount activity, and media retrieval and insertion rates.

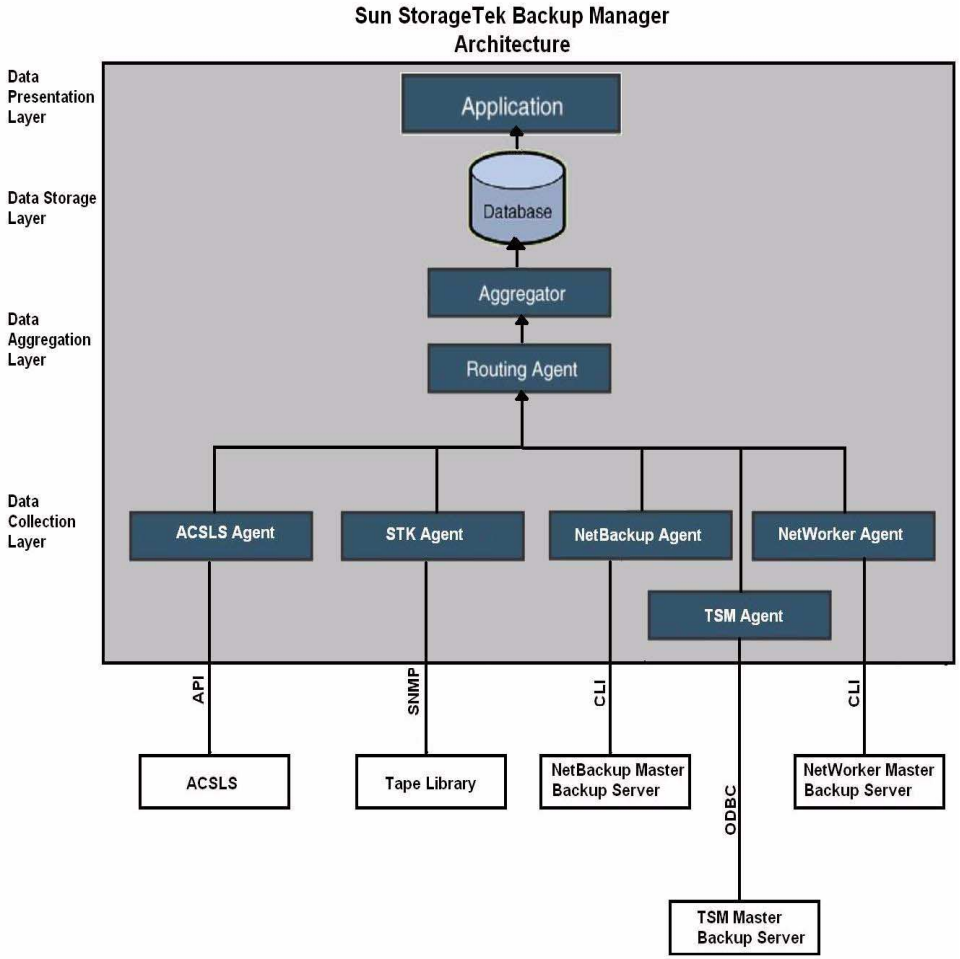
SBM is flexible and easy to use, both in smaller environments as well as large scale data centers.

Product Architecture

The SBM product is an N-tiered, distributed, scalable architecture. There are four layers in the Sun StorageTek Backup Manager architecture:

- Data Presentation
- Data Storage
- Data Aggregation
- Data Collection

FIGURE 1-1 Sun StorageTek Backup Manager Architecture



Data Collection

The data collection layer contains the SBM agents deployed in your backup environment. The agents collect and cache event, configuration, consumption, and performance information from the hardware devices in your storage environment.

There are two types of agents: tape library agents and backup agents.

Tape Library Agents

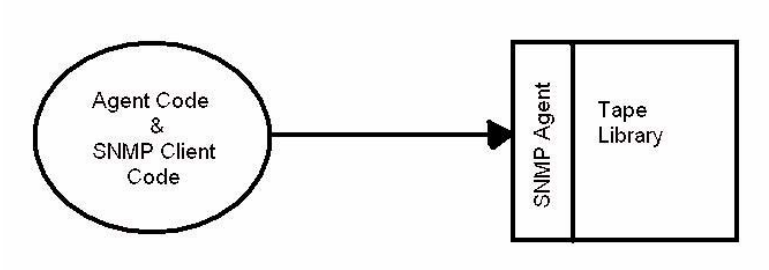
SBM supports two tape library agents:

- Sun StorageTek (STK) Library Agent
- Sun Automated Cartridge System Library Software (ACSLS) Library Agent

Sun StorageTek (STK) Library Agent

The Sun STK library agent collects data from any tape library which has an embedded SNMP agent that supports the L-Series Tape Library MIB version 2.0.

FIGURE 1-2 Sun StorageTek (STK) Library Agent



The agent requires the following configuration information:

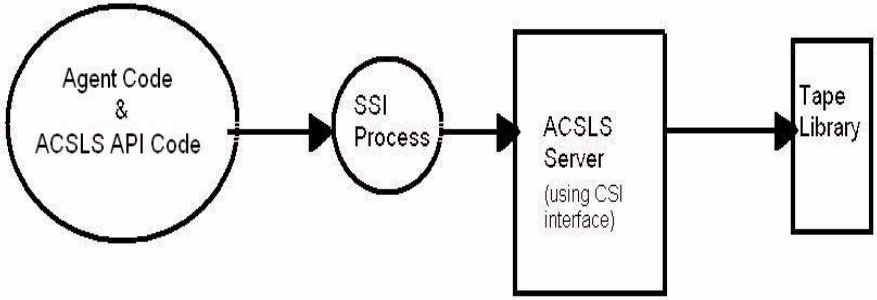
- IP Address of the tape library
- SNMP Community string
- Port number (161)

The Sun STK library agent communicates with the SNMP agent embedded in the tape library using this configuration information.

Sun ACSLS Library Agent

The ACSLS agent collects data from an ACSLS tape library through the ACSLS API.

FIGURE 1-3 Sun ACSLS Library Agent



The agent requires the IP Address of the ACSLS server.

Note – The ACSLS agent cannot be installed on the backup master server or any server running the SSI process.

The ACSLS agent initiates a SSI session through the ACSLS API. The SSI session creates a communication channel between the agent process and the SSI process. The SSI process communicates with the ACSLS server, which in turn talks to the specific tape library through the CSI interface.

Backup Agents

Backup agents collect configuration and transaction (job success or failure) data for each backup job. SBM supports three backup agents:

- Veritas NetBackup by Symantec — The NetBackup agent is installed and runs on the SBM server.
- EMC NetWorker (formerly Legato NetWorker) — The Legato agent is installed and runs on the SBM server.
- Tivoli Storage Manager (TSM) — The TSM agent is installed and runs on a Windows server with a network connection to each of the TSM servers it collects data from. It connects to a list of TSM servers through the TSM ODBC client and a list of ODBC data sources configured on the Windows server the agent is installed on.

The backup agents collect the data from the devices using the vendor interfaces (CLI or ODBC). The agent retrieves the data, processes the data into the SBM data structures, and populates the agent cache with the data.

Data Aggregation

The data aggregation layer enables data collection from the data acquisition agents and passes the data to the data storage layer. There are two key components in this layer:

- Aggregator agent — The aggregator agent executes data collection tasks.
- Routing agent — The routing agent keeps track of the agents in the backup environment.

Note – These infrastructure agents are controlled by SBM and no user input is required.

All SBM agents publish a set of table objects that pass data up the layers of the SBM architecture. The agents only need to know where the routing agent is located. All messages are forwarded through the routing agent. The routing agent keeps track of what agents exist in the SBM environment, including the aggregator agent.

When the aggregator agent requests one or more tables, it contacts the routing agent to determine which devices to contact on which ports. The data is then routed through the routing agent back to the aggregator agent and passed up to the SBM database for insertion.

Data Storage

The data storage layer consists of the SBM (PostgreSQL) database and various data collection and management processes running on a single management server. The SBM database serves as the central repository for all persistent data contained within SBM. The primary functions of the database are to:

- Function as a database server to the SBM web application, storing all data gathered by the SBM agents.
- Coordinate data object collections from the data collection layer
- Ensure data integrity in the SBM database

The database stores three sets of tables: load tables, history tables, and report tables. It contains:

- Tables used for data collection
- Tables used for SBM configuration, administration, and security
- Tables used by the data presentation layer for reporting
- Stored procedures used for data insertion and reporting
- Indexes used by the database for performance

Data Presentation

The data presentation layer consists of a web server which serves a web browser with a collection of reports. The SBM web application provides a graphical user interface that makes SBM easy to use.

The SBM browser interface:

- Presents information about backup applications and tape libraries
- Presents configuration and statistical information about each configured device
- Provides an interface from which you can configure your backup environment

Next Steps

You are now ready to learn more about the daily operations and common tasks.

CHAPTER 2

Daily Operations

This chapter provides information about daily operations you can perform using the Sun StorageTek Backup Manager software. It contains the following sections:

Daily Activity Checklist

As the administrator for your backup environment, your daily routine will include reviewing the SBM reports to answer the following questions.

TABLE 2-1 Daily Activity Checklist

	Question to Answer...	Where to find data...
❑	Did my backups run successfully last night?	Backup Job Status page
❑	Were there any backup job failures last night?	
❑	On which clients did the backup jobs fail?	Backup Job Details: Jobs page
❑	Are the failures on a critical server?	Investigate the servers in your backup environment
❑	Do any jobs have a low throughput?	Client Jobs Details page
❑	How long did the backup job take?	
❑	What time did the backup job start?	
❑	What time did the backup job end?	
❑	Why did my jobs fail? (What is the error code?)	Backup Job Details: Errors page
❑	What is the distribution of the error types?	
❑	What is the status of all my tape libraries and drives?	Tape Library Status page
❑	Are there any drives offline?	
❑	Are there any CAPs offline?	
❑	If drives are offline, what is the drive ID of the drive?	Tape Library Details: Status page
❑	How do I check serial numbers and firmware revision levels for the components in my library?	Tape Library Details: Configuration page
❑	How do I check if my library is fully utilized?	
❑	What type of activity has been going on over the last week?	Tape Library Details: Statistics page

As you work your way through the checklist, you may find it necessary to investigate your backup environment. You will need to react to the SBM reports according to:

- Policies for your backup environment
- Configuration for your tape libraries
- Status of your hardware devices

Example Scenarios

The following pages provide sample scenarios using the "Daily Activity Checklist" on page 10. There are four examples:

- "Example 1: Reviewing Backup Job Status" on page 12
- "Example 2: Reviewing Tape Library Status" on page 18
- "Example 3: Reviewing Tape Library Configuration Details" on page 20
- "Example 4: Reviewing Tape Library Statistics" on page 23

Example 1: Reviewing Backup Job Status

This sample scenario shows the backup job status for Master Server “SERVER1” and backup product “TSM.”

Launch the SBM application, click the Backup tab, and then review the status of the backup jobs on Master Server “SERVER1” (See FIGURE 2-1).

You ask the following questions:

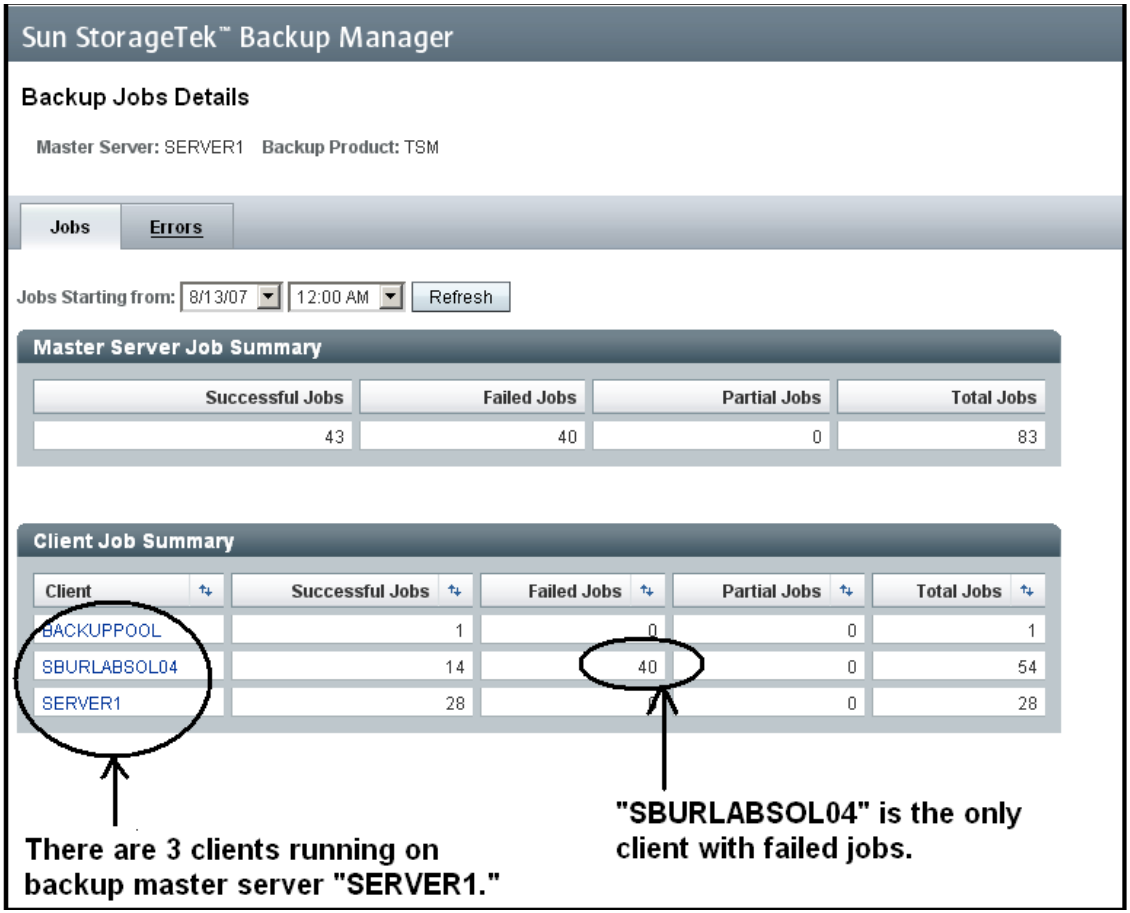
- Did my backups run successfully last night?
- Were there any backup job failures last night?

FIGURE 2-1 Backup Job Status for Backup Master Server “SERVER1”

You see that there are 40 failed jobs and you want to drill down to see on which clients the backup jobs failed.

Click the name of the Master Server (“SERVER1) to display the Backup Jobs Details report (FIGURE 2-2).

FIGURE 2-2 Client with Failed Jobs

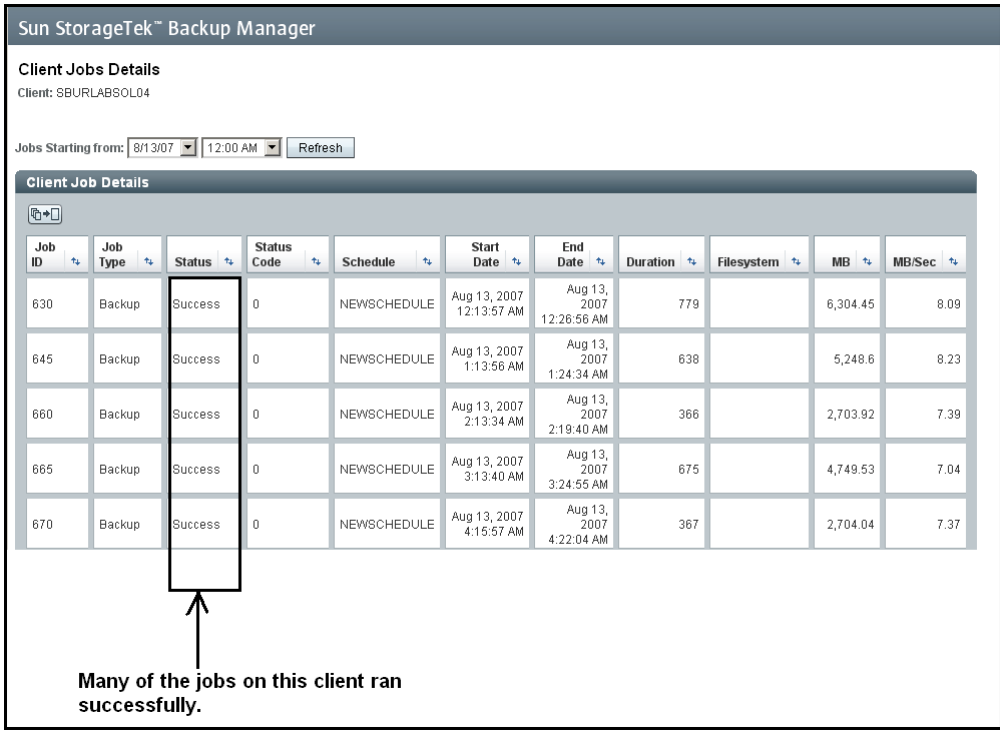


Based on the information on the Backup Job Details report, you now know which client has the failed jobs. You need to determine if this client, “SBURLABSOL04,” is a critical server.

After investigating your backup environment, you decide you want to learn more details about the jobs that ran on “SBURLABSOL04.”

Click the name of the client (SBURLABSOL04) to display the Client Jobs Details page (FIGURE 2-3).

FIGURE 2-3 Details for Successful Jobs

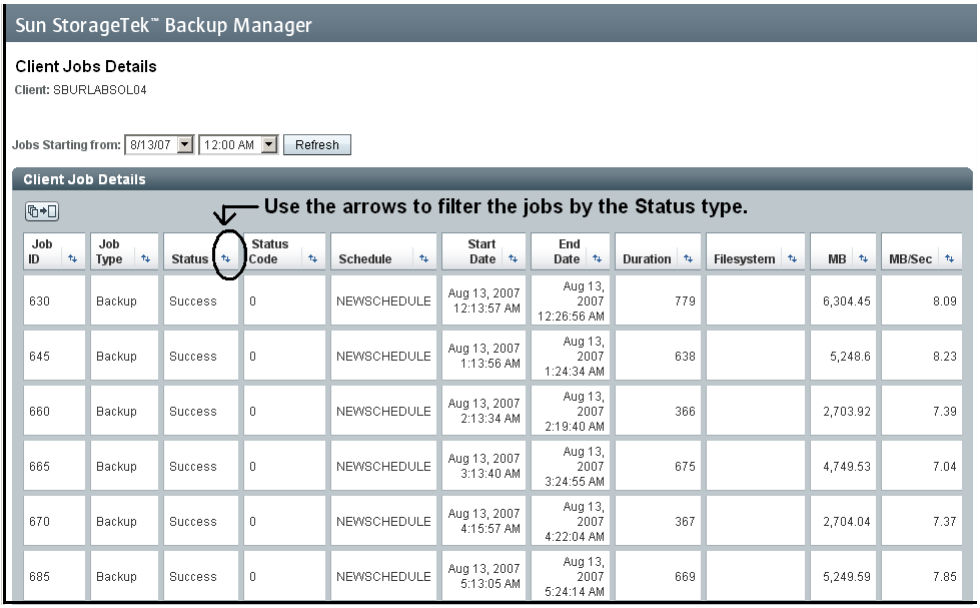


Job ID	Job Type	Status	Status Code	Schedule	Start Date	End Date	Duration	Filesystem	MB	MB/Sec
630	Backup	Success	0	NEWSCHEDULE	Aug 13, 2007 12:13:57 AM	Aug 13, 2007 12:26:56 AM	779		6,304.45	8.09
645	Backup	Success	0	NEWSCHEDULE	Aug 13, 2007 1:13:56 AM	Aug 13, 2007 1:24:34 AM	638		5,248.6	8.23
660	Backup	Success	0	NEWSCHEDULE	Aug 13, 2007 2:13:34 AM	Aug 13, 2007 2:19:40 AM	366		2,703.92	7.39
665	Backup	Success	0	NEWSCHEDULE	Aug 13, 2007 3:13:40 AM	Aug 13, 2007 3:24:55 AM	675		4,749.53	7.04
670	Backup	Success	0	NEWSCHEDULE	Aug 13, 2007 4:15:57 AM	Aug 13, 2007 4:22:04 AM	367		2,704.04	7.37

The information on the Client Jobs Details report shows both successful and failed jobs.

To see details about the failed jobs, use the arrows on the Status column to sort on the "Failed" status (FIGURE 2-4).

FIGURE 2-4 Sort Jobs

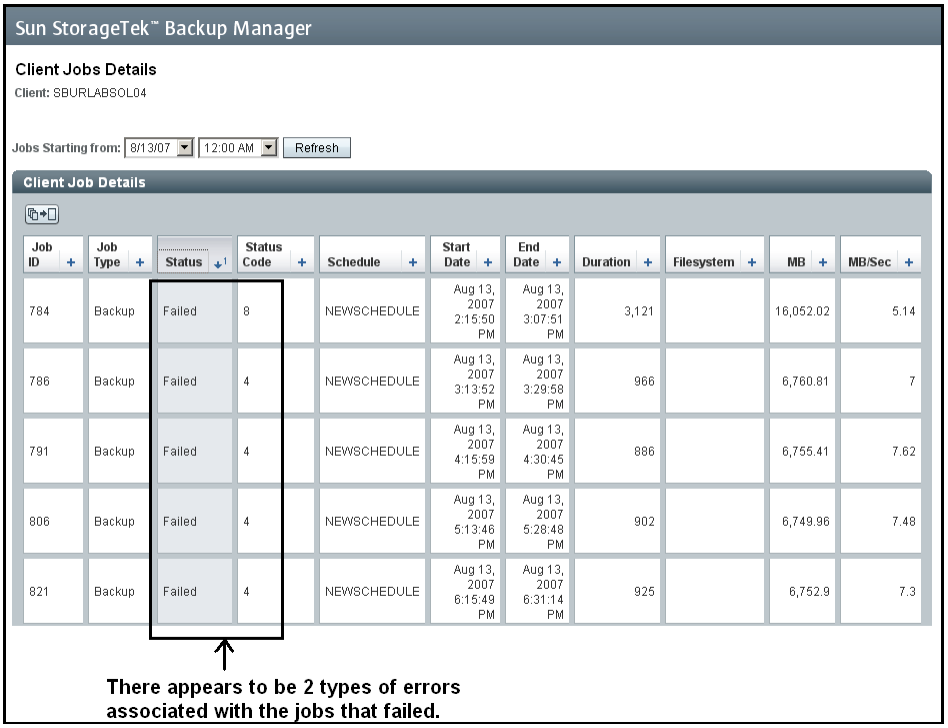


Job ID	Job Type	Status	Status Code	Schedule	Start Date	End Date	Duration	Filesystem	MB	MB/Sec
630	Backup	Success	0	NEWSCHEDULE	Aug 13, 2007 12:13:57 AM	Aug 13, 2007 12:26:56 AM	779		6,304.45	8.09
645	Backup	Success	0	NEWSCHEDULE	Aug 13, 2007 1:13:56 AM	Aug 13, 2007 1:24:34 AM	638		5,248.6	8.23
660	Backup	Success	0	NEWSCHEDULE	Aug 13, 2007 2:13:34 AM	Aug 13, 2007 2:19:40 AM	366		2,703.92	7.39
665	Backup	Success	0	NEWSCHEDULE	Aug 13, 2007 3:13:40 AM	Aug 13, 2007 3:24:55 AM	675		4,749.53	7.04
670	Backup	Success	0	NEWSCHEDULE	Aug 13, 2007 4:15:57 AM	Aug 13, 2007 4:22:04 AM	367		2,704.04	7.37
685	Backup	Success	0	NEWSCHEDULE	Aug 13, 2007 5:13:05 AM	Aug 13, 2007 5:24:14 AM	669		5,249.59	7.85

After you sort the list of jobs (FIGURE 2-5), you can further review the information for each failed job and answer the following questions:

- How long did the backup job take?
- What time did the backup job start?
- What time did the backup job end?
- Do any of the jobs have low throughput?

FIGURE 2-5 Details for Failed Jobs



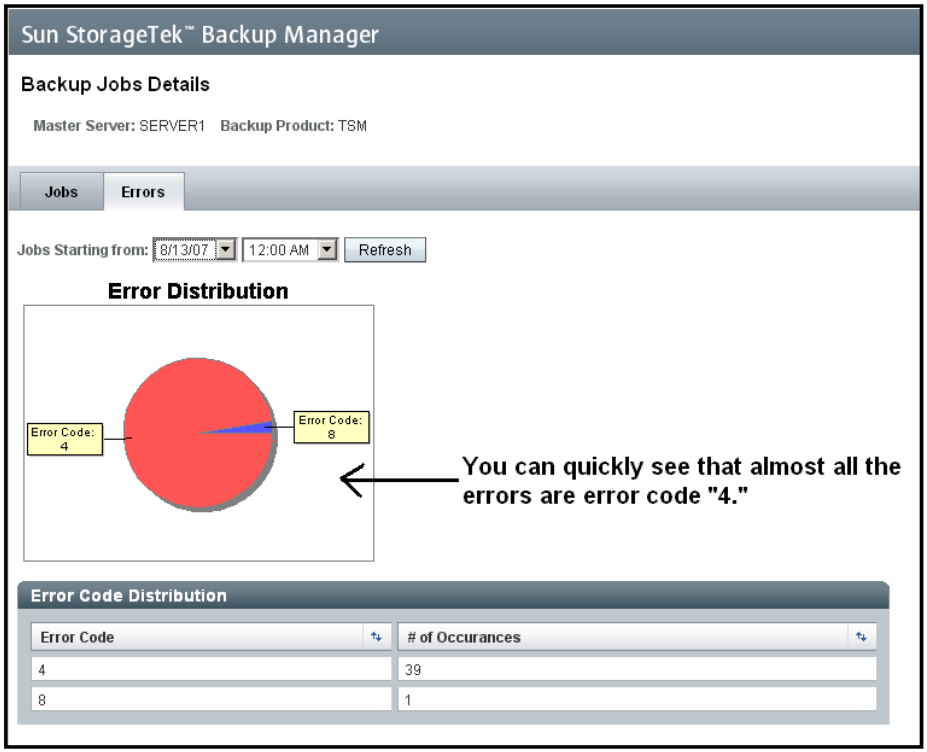
Job ID	Job Type	Status	Status Code	Schedule	Start Date	End Date	Duration	Filesystem	MB	MB/Sec
784	Backup	Failed	8	NEWSCHEDULE	Aug 13, 2007 2:15:50 PM	Aug 13, 2007 3:07:51 PM	3,121		16,052.02	5.14
786	Backup	Failed	4	NEWSCHEDULE	Aug 13, 2007 3:13:52 PM	Aug 13, 2007 3:29:58 PM	966		6,760.81	7
791	Backup	Failed	4	NEWSCHEDULE	Aug 13, 2007 4:15:59 PM	Aug 13, 2007 4:30:45 PM	886		6,755.41	7.62
806	Backup	Failed	4	NEWSCHEDULE	Aug 13, 2007 5:13:46 PM	Aug 13, 2007 5:28:48 PM	902		6,749.96	7.48
821	Backup	Failed	4	NEWSCHEDULE	Aug 13, 2007 6:15:49 PM	Aug 13, 2007 6:31:14 PM	925		6,752.9	7.3

During your review of the failed jobs, you see that there are two types of errors on this client, represented by the status codes 4 and 8. TSM code 4 indicates some files were not processed as part of the backup job. TSM code 8 indicates at least one warning message was issued during the backup job.

You decide to take a closer look at the distribution of these two errors.

Close the Client Jobs Details report, and then click on the Errors tab to display the error information for the Master Server. (FIGURE 2-6).

FIGURE 2-6 Error Code Distribution



By reviewing the error distribution, you learn that nearly all of the errors are status code “4.”

You can review the error code definition to find out more information about the type of errors you are seeing. (Refer to your backup product documentation for a description of error codes.)

In this example, some files were not processed as part of the job. This is most likely due to files being used by another application, in which case, they cannot be accessed by the backup client. So, you would start investigating by reviewing the TSM error logs to see which files were skipped.

Example 2: Reviewing Tape Library Status

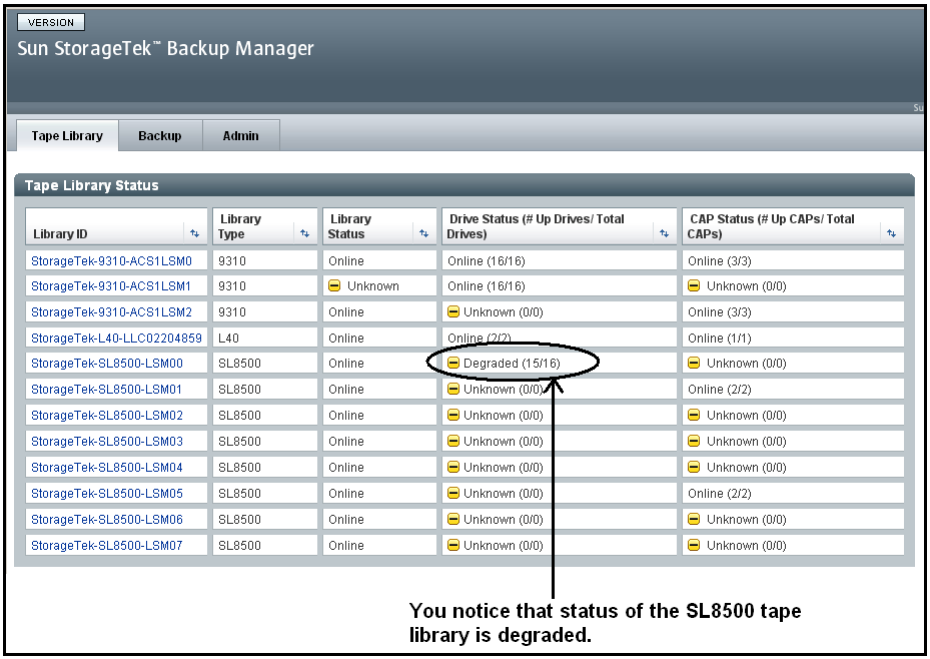
This sample scenario shows the tape library status for Sun StorageTek SL8500 tape library.

Launch the SBM application, click the Tape Library tab, and then review the status of the tape libraries in your backup environment (FIGURE 2-7).

You ask the following questions:

- What is the status of all my tape libraries and drives?
- Are there any drives offline?
- Are there any CAPs offline?

FIGURE 2-7 Tape Library Status

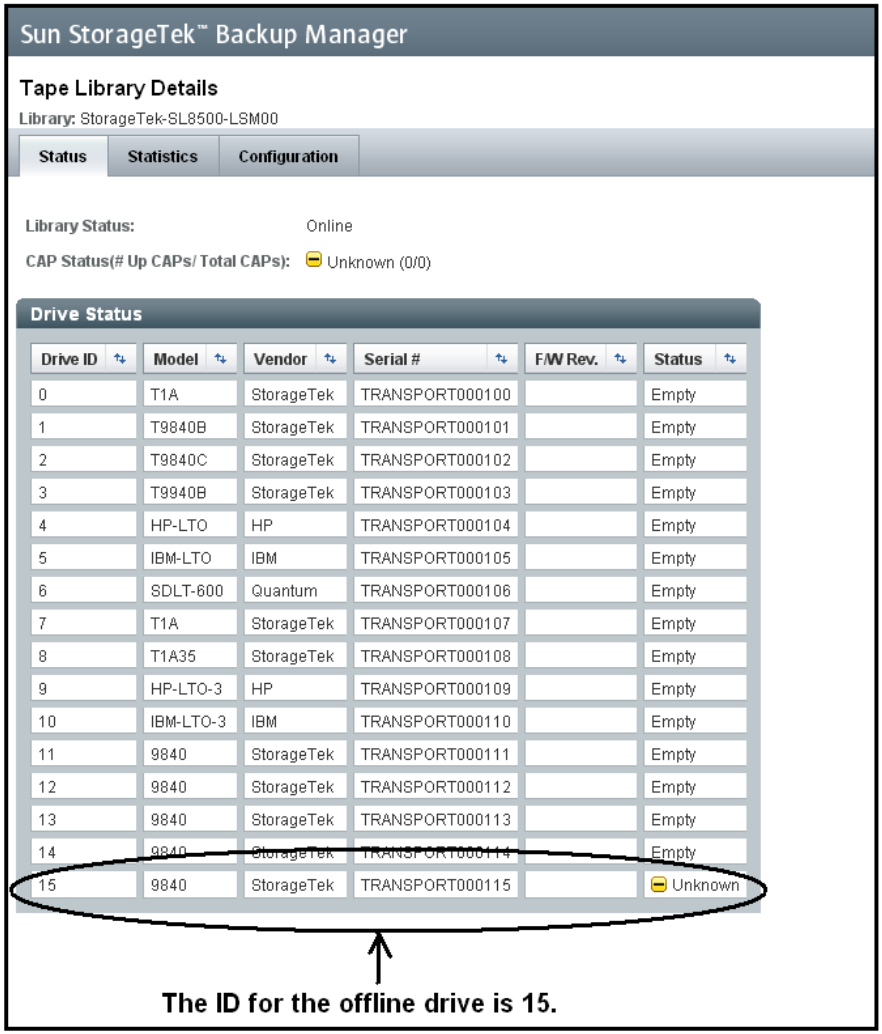


Library ID	Library Type	Library Status	Drive Status (# Up Drives/ Total Drives)	CAP Status (# Up CAPs/ Total CAPs)
StorageTek-9310-ACS1LSM0	9310	Online	Online (16/16)	Online (3/3)
StorageTek-9310-ACS1LSM1	9310	Unknown	Online (16/16)	Unknown (0/0)
StorageTek-9310-ACS1LSM2	9310	Online	Unknown (0/0)	Online (3/3)
StorageTek-L40-LLC02204859	L40	Online	Online (2/2)	Online (1/1)
StorageTek-SL8500-LSM00	SL8500	Online	Degraded (15/16)	Unknown (0/0)
StorageTek-SL8500-LSM01	SL8500	Online	Unknown (0/0)	Online (2/2)
StorageTek-SL8500-LSM02	SL8500	Online	Unknown (0/0)	Unknown (0/0)
StorageTek-SL8500-LSM03	SL8500	Online	Unknown (0/0)	Unknown (0/0)
StorageTek-SL8500-LSM04	SL8500	Online	Unknown (0/0)	Unknown (0/0)
StorageTek-SL8500-LSM05	SL8500	Online	Unknown (0/0)	Online (2/2)
StorageTek-SL8500-LSM06	SL8500	Online	Unknown (0/0)	Unknown (0/0)
StorageTek-SL8500-LSM07	SL8500	Online	Unknown (0/0)	Unknown (0/0)

While reviewing the tape library status, you see that one of the drives in the SL8500-LSM00 tape library is offline. You decide to drill down and find out the drive ID for the offline drive.

Click the name of the tape library (SL8500-LSM00) to display the Tape Library Details report (FIGURE 2-8).

FIGURE 2-8 Details for Tape Library Drives



Drive ID	Model	Vendor	Serial #	F/W Rev.	Status
0	T1A	StorageTek	TRANSPORT000100		Empty
1	T9840B	StorageTek	TRANSPORT000101		Empty
2	T9840C	StorageTek	TRANSPORT000102		Empty
3	T9940B	StorageTek	TRANSPORT000103		Empty
4	HP-LTO	HP	TRANSPORT000104		Empty
5	IBM-LTO	IBM	TRANSPORT000105		Empty
6	SDLT-600	Quantum	TRANSPORT000106		Empty
7	T1A	StorageTek	TRANSPORT000107		Empty
8	T1A35	StorageTek	TRANSPORT000108		Empty
9	HP-LTO-3	HP	TRANSPORT000109		Empty
10	IBM-LTO-3	IBM	TRANSPORT000110		Empty
11	9840	StorageTek	TRANSPORT000111		Empty
12	9840	StorageTek	TRANSPORT000112		Empty
13	9840	StorageTek	TRANSPORT000113		Empty
14	9840	StorageTek	TRANSPORT000114		Empty
15	9840	StorageTek	TRANSPORT000115		Unknown

By reviewing the Drive Status report, you see that the ID for the offline drive is 15.

Tip – Refer to your library documentation for more information.

Example 3: Reviewing Tape Library Configuration Details

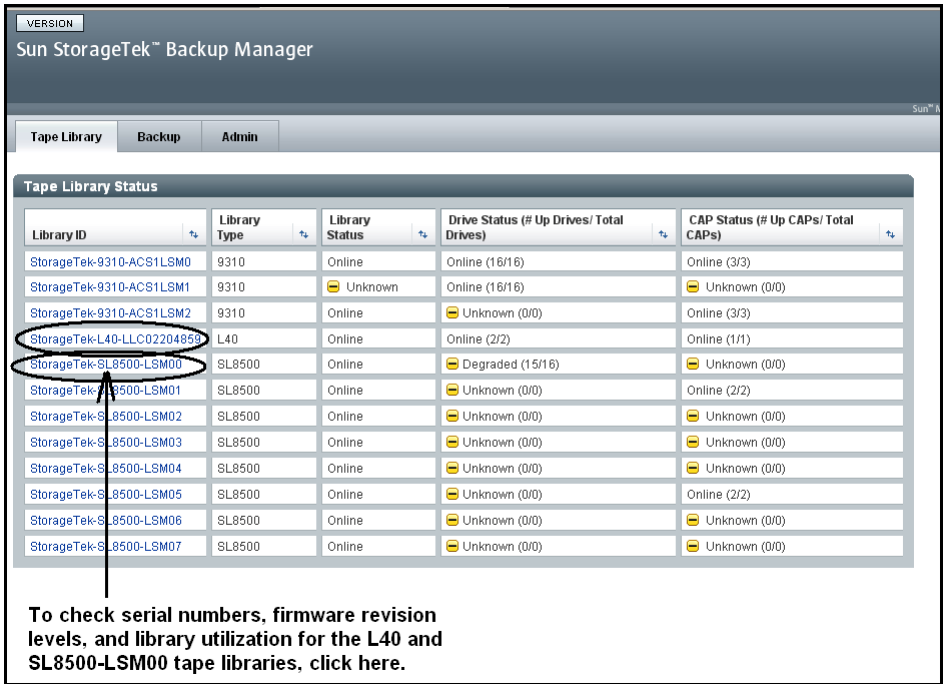
This sample scenario shows tape library configuration information.

Launch the SBM application, click the Tape Library tab, and then select the tape library you want to gather configuration data for from the Tape Library Status report (FIGURE 2-9).

You ask the following questions:

- How do I check serial numbers and firmware levels for the components in my library?
- How do I check if my library is fully utilized?

FIGURE 2-9 Collecting Tape Library Configuration Information



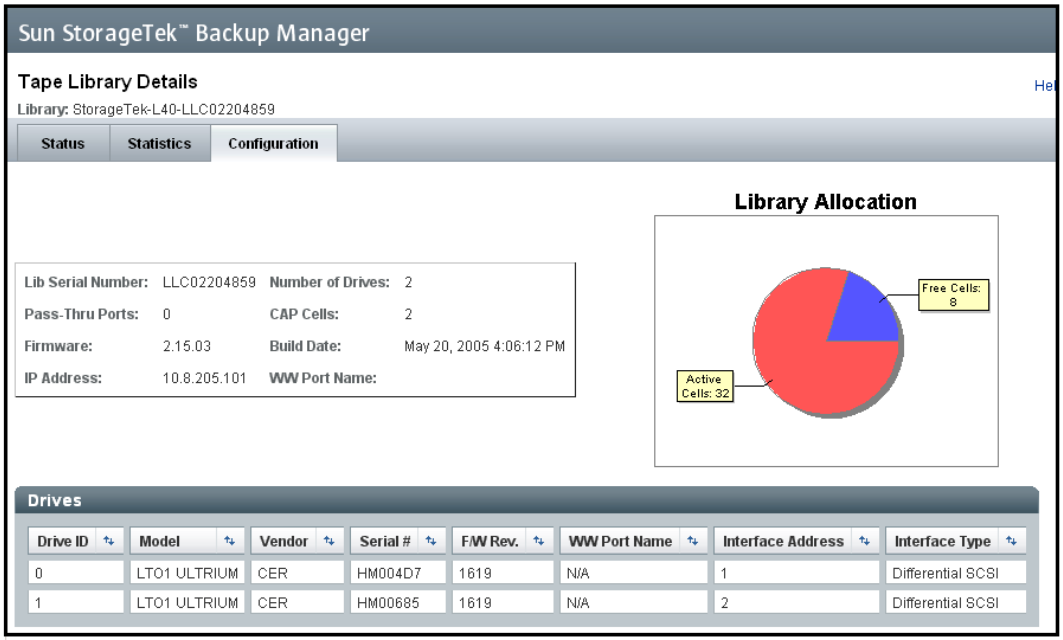
Library ID	Library Type	Library Status	Drive Status (# Up Drives/ Total Drives)	CAP Status (# Up CAPs/ Total CAPs)
StorageTek-9310-ACS1LSM0	9310	Online	Online (16/16)	Online (3/3)
StorageTek-9310-ACS1LSM1	9310	Unknown	Online (16/16)	Unknown (0/0)
StorageTek-9310-ACS1LSM2	9310	Online	Unknown (0/0)	Online (3/3)
StorageTek-L40-LLC02204859	L40	Online	Online (2/2)	Online (1/1)
StorageTek-SL8500-LSM00	SL8500	Online	Degraded (15/16)	Unknown (0/0)
StorageTek-SL8500-LSM01	SL8500	Online	Unknown (0/0)	Online (2/2)
StorageTek-SL8500-LSM02	SL8500	Online	Unknown (0/0)	Unknown (0/0)
StorageTek-SL8500-LSM03	SL8500	Online	Unknown (0/0)	Unknown (0/0)
StorageTek-SL8500-LSM04	SL8500	Online	Unknown (0/0)	Unknown (0/0)
StorageTek-SL8500-LSM05	SL8500	Online	Unknown (0/0)	Online (2/2)
StorageTek-SL8500-LSM06	SL8500	Online	Unknown (0/0)	Unknown (0/0)
StorageTek-SL8500-LSM07	SL8500	Online	Unknown (0/0)	Unknown (0/0)

There are two different agents you can use with Sun StorageTek tape libraries: STK agent and ACSLS agent. The STK agent collects information using the SNMP agent; the ACSLS agent collects information using the ACSLS API.

Note – Sun recommends using the STK agent for tape libraries that support SNMP because more information is provided.

First, you review a tape library using the STK agent. Click the name of the tape library (StorageTek-L40-LLC02204859) and then click the Configuration tab to display the Configuration report (FIGURE 2-10).

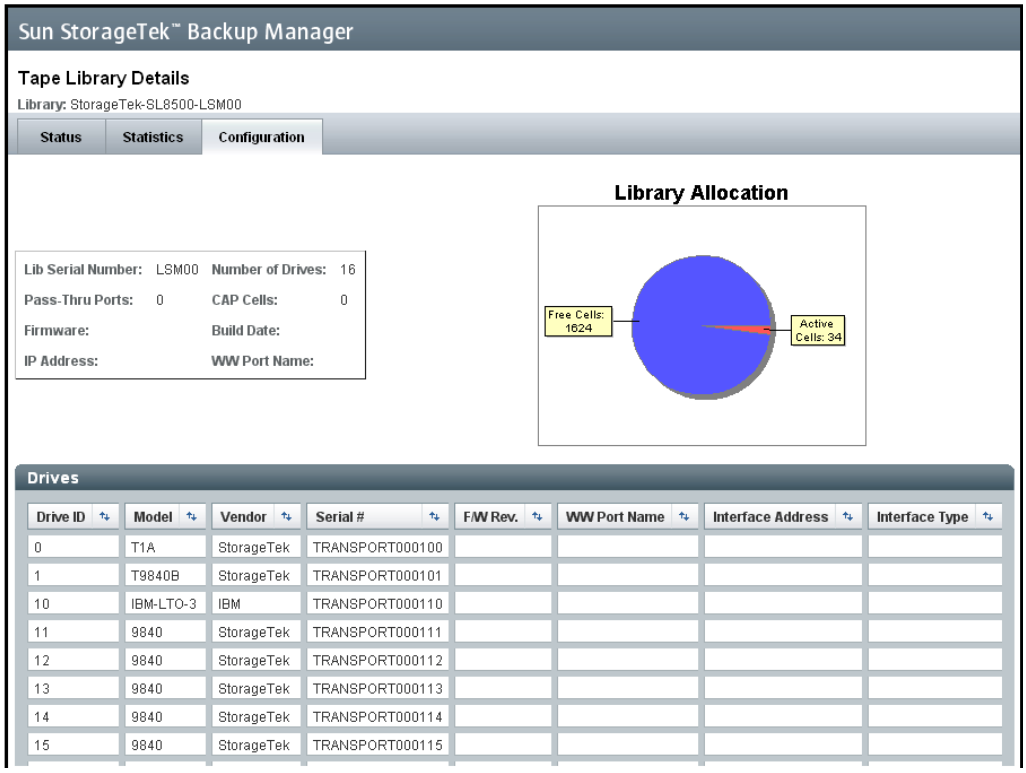
FIGURE 2-10 Sun StorageTek Tape Library Using the STK Agent



Because this data is coming from the STK agent, information is provided for all the fields.

In comparison, you review the configuration information for a tape library using the ACSLS agent. Click the name of the tape library (StorageTek-SL8500-LSM00) and then click the Configuration tab to display the Configuration report (FIGURE 2-11).

FIGURE 2-11 Sun StorageTek Tape Library Using the ACSLS Agent



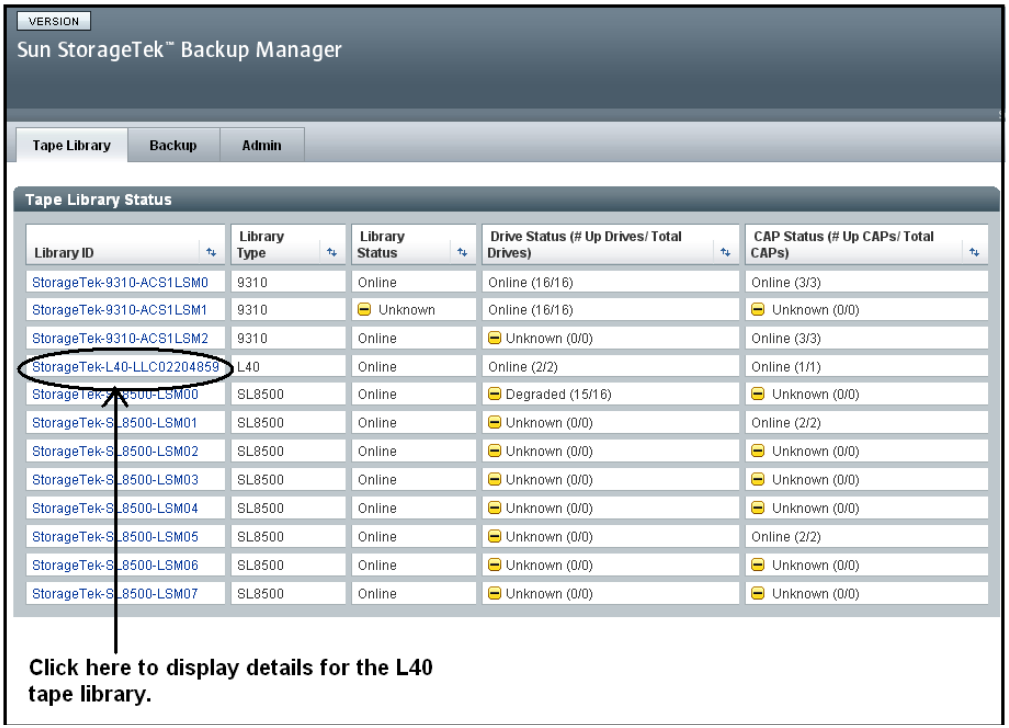
Because this data is coming from the ACSLS agent, information is not provided for all the fields.

Example 4: Reviewing Tape Library Statistics

This sample scenario shows statistics and tape library activity for the Sun StorageTek L40.

Launch the SBM application, click the Tape Library tab, and then select the tape library you want to see activity details for from the Tape Library Status report (FIGURE 2-12).

FIGURE 2-12 Tape Library Status for L40



Next, click the name of the tape library (StorageTek-SL40-LLC02204859) and then the Statistics tab to display the Statistics report (FIGURE 2-13).

FIGURE 2-13 Tape Library Activity

You can review the tape activity that occurred over the last week.

Next Steps

You are now ready to perform additional configuration tasks.

CHAPTER 3

Administration Tasks

This chapter provides information about administration tasks for the Sun StorageTek Backup Manager you will need after you have installed the data acquisition agents. See the *Sun StorageTek Backup Manager Installation Guide* for information about how to install agents. This chapter contains the following sections:

Logging into the Admin Page

To access and configure the Sun StorageTek Backup Manager application, log in to the Admin page.

1. Open a supported web browser.

Note – For information about supported web browsers, see the *Sun StorageTek Backup Manager Release Notes*.

---

2. Enter the IP address of the SBM management server using this format:

   `http://`*sbm-management-server*`:8080/sbm`

   where

   sbm-management-server is the IP address of the machine where you installed the Sun StorageTek Backup Manager software.

3. Click the Admin tab.
4. Type your password and click Login.

   The default password is `storage`. You should change the default password the first time you log in. See "Changing the Administrator Password" on page 31.

Data Acquisition Agents

The Sun StorageTek Backup Manager (SBM) uses data acquisition agents to report on backups and tape library status. The Sun StorageTek Backup Manager provides the following data acquisition agents:

- ACSLS agent for ACSLS tape library monitoring
- NetBackup agent for Veritas NetBackup by Symantec monitoring
- Legato agent for EMC NetWorker (previously known as Legato NetWorker) monitoring
- STK agent for STK tape library monitoring
- TSM agent for IBM Tivoli Storage Manager (TSM) monitoring

You must configure the agent before you can begin using the reporting and monitoring functions of the SBM application.

Configuring an Agent

You must configure the data acquisition agent before you can begin using the reporting and monitoring functions of the Sun StorageTek Backup Manager application. See the *Sun StorageTek Backup Manager Installation Guide* for agent installation details.

For each agent there are standard buttons and fields you can interact with on the page. You'll notice specific device-level settings, global settings for all servers or libraries, and advanced settings.

An asterisk (*) indicates a required field. The pound sign (#) indicates an advanced field.

The advanced settings are reserved for field personnel who are troubleshooting problems.

1. Go to Admin > Data Acquisition Agents.

2. In the Agent Status table, click the Change Configuration link for the agent you want to configure.

3. To configure an agent to monitor a backup master server or library, click the appropriate button.

To configure...	Click this...
Sun NetBackup Agent	Add a NetBackup Server
Sun STK Library Agent	Add a STK Library
Sun ACSLS Library Agent	skip to step 4
Sun Legato Agent for NetWorker	Add a Legato server
Sun TSM Agent	Add a TSM server

4. Enter the appropriate data for each required field, as indicated by an asterisk (*). For detailed information about each field, see "Agent Configuration page" on page 61.

Note – The pound sign (#) indicates an advanced field. Advanced field settings are used by Sun support personnel to troubleshoot agent problems. You can click the Show Advanced Settings button to display the advanced fields, and toggle the advanced settings off, by clicking the Hide Advanced Settings button.

---

5. (Optional) To add another backup master server or library, repeat Step 3 and Step 4.

6. Verify the agent configuration and click Save.

   The following message is displayed:

   ```
   Configuration changes have been applied to the agent. The agent will
   be shut down and re-started. Please refresh homepage to check the
   agent configuration status.
   ```

7. Click Close.

8. Click the browser Refresh button on the Configure Agents page to verify the new configuration.

Note – After the agent is online and configured, refresh the database (see "Refreshing Report Data" on page 30) so that the changes are reflected in your reports.

Adding a Backup Master Server or Tape Library

Anytime you add a backup master server or tape library to your environment or change its configuration, you must modify the agent settings to monitor the device. You can modify an agent's settings from the Agent Configuration page.

1. Go to Admin > Data Acquisition Agents > Agent Status table.
2. Click the Change Configuration link for the agent you want to configure.
3. From the Agent Configuration page, review and modify the settings as needed. For detailed information about each field, see "Agent Configuration page" on page 61.
4. You can perform the following tasks:
   - Configuring an Agent
   - Removing a Backup Master Server or Tape Library
   - Refreshing Report Data
5. Click Save.
6. Click Close.

   The application returns you to the Configure Agents page.

Deactivating an Agent

Deactivating an agent stops the data collection for the selected agent.

1. Go to Admin > Data Acquisition Agents.
2. From the Agent Status table, click the check box for the agent you want to deactivate.
3. Click Deactivate.

Result: The agent is no longer collecting data for any of the backup master servers or tape libraries for which it was configured.

Activating an Agent

1. To reactivate an agent, go to Admin > Data Acquisition Agents.
2. Click the Change Configuration link for the agent you want to activate.
3. Follow the steps for Adding a Backup Master Server or Tape Library.

Result: The agent is activated and starts collecting data for the backup master servers or tape libraries for which it is configured.

Removing a Backup Master Server or Tape Library

When a backup master server or library is removed from your environment, you need to tell the agent to stop collecting data.

1. Go to Admin > Data Acquisition Agents.
2. From the Agent Status table, click the Change Configuration link for the agent you want to remove.
3. Select the server or library you want to remove.
4. Click Remove.
5. If you want to remove additional servers or libraries, repeat Step 3 and Step 4.
6. Click Save.
7. Click Close.

Viewing Agent Events Reports

Agent event reports let you see alerts that are coming from an agent.

1. Go to Admin > Data Acquisition Agents.
2. From the Configure Agents page, click the Agents Events Report link.
3. From the drop down box, select the agent for which you want to view events.
4. Click Refresh.

   The list of events displays in the table. For detailed information about the events, see "Agent Events Report page" on page 68.
5. Close the browser window.

Refreshing Report Data

You can periodically refresh the database with the latest information available.

For example, it is a good practice to refresh the data after configuring an agent for the first time or after modifying agent settings. In both cases, you want to verify the agent is collecting data.

1. Go to Admin > Data Acquisition Agents.
2. From the Configure Agents page, review the "Configuration Status" of the agents.

Note – Agents must be in a "Configured" state before you can proceed to the next step.

---

3. Click Refresh Report Data.
4. Click Refresh Data.

Result: The Sun StorageTek Backup Manager application displays a message indicating the refresh was initiated. All report data is marked for immediate collection.

Note – This process can take some time depending on the number of devices managed by the various agents.

---

5. Close the browser window.
6. To verify the refresh process was initiated, review the Agent Events Report page.
7. To verify the job completed successfully, review the data on the Sun StorageTek Backup Manager reports.

Configuring the Backup Cycle

You can change the time you want the reporting period to start. The default start time is 12:00 a.m. This setting affects backup reports only.

1. Go to Admin > Configure Backup Cycle.

2. From the Cycle Start at drop-down box, select the time you want the report to start. The default start time is 12:00 a.m. local to the time zone set on the Sun StorageTek Backup Manager server.
3. Click Save.

   Sun StorageTek Backup Manager saves the new start time.

Changing the Administrator Password

The default password is `storage`. You should change the default password the first time you log in.

1. Go to Admin > Change Password.
2. Enter the password information.

   The password can consist of a maximum of 26 alphanumeric and special characters.

Note – You must enter text in these fields correctly. If the New Password and Confirm New Password fields do not match, a message displays when you click the Change button and you must start again.

---

3. Click Change.

Result: A message displays confirming the change.

Selecting the Start Date and Time for Backup Reports

When you are viewing backup job reports, you can specify the start date and time for the Jobs report. The start date and time you specify will be used for the remainder of the current browser session.

Note – When you first launch the Sun StorageTek Backup Manager application, the data in the report table is based on the default start date set by the backup administrator.

---

1. From the Backup page, select the start date for the report from the Date drop-down box.
2. From the Time drop-down box, select the time you want the report to start. The time defaults to 12:00 a.m. local to the time zone set on the Sun StorageTek Backup Manager server.
3. Click Refresh.

   Sun StorageTek Backup Manager displays the job or error information based on the date and time you selected.

CHAPTER 4

Troubleshooting

This chapter provides information to assist you in resolving problems with the Sun StorageTek Backup Manager. It contains the following sections:

Troubleshooting Agents

If you suspect problems with any agent, follow the procedures in this section to isolate the problem.

If you need assistance with resolving the problem, contact Sun technical support `http://www.sun.com/service/contacting`.

Reviewing the Agent Events Report

The Agent Events Report contains warning and critical level error messages for each agent configured in the Sun StorageTek Backup Manager environment. The report, by default, displays events for all agents generated during the last 24-hour period. You can also view events for a single agent by selecting the agent from the Show Events for: drop-down menu and clicking Refresh.

Agent Events Report Help

Show Events for: ALL Refresh

Agent Events (Last 24 hours)

Agent Name	Event Time	Status Code	Event Description
netbackupAgent	Aug 6, 2007 12:43:47 PM	3	NetbackupAgent.cc|2686|Connection to host '10.8.205.46' could not be esablished. Bypassing jobs collection for this device.
netbackupAgent	Aug 6, 2007 12:43:46 PM	2	NbuCmd.cc|326|Error! Executing the 'bpdbjobs' command on host '10.8.205.46' returned "c:\program' is not recognized as an internal or external command,'. Check your configuration settings.
netbackupAgent	Aug 6, 2007 12:43:46 PM	2	NbuCmd.cc|338|The path to the command is probably incorrect. Verify that 'c:\program files\veritas\foo\netbackup\bin\admincmd\bpdbjobs' is a valid command path on host '10.8.205.46'.
legatoAgent	Aug 6, 2007 11:45:00 AM	2	CLegatoAgent.cc|609|No Client Data information collected from host '172.20.105.74'. Possible configuration problem. Stopping Jobs data collection for this host.
netbackupAgent	Aug 6, 2007 8:43:45 AM	3	NetbackupAgent.cc|2686|Connection to host '10.8.205.46' could not be esablished. Bypassing jobs collection for this device.
netbackupAgent	Aug 6, 2007 8:43:43 AM	2	NbuCmd.cc|326|Error! Executing the 'bpdbjobs' command on host '10.8.205.46' returned "c:\program' is not recognized as an internal or external command,'. Check your configuration settings.

You can also check the `Messages.log` file for events that occurred prior to the last 24-hour period. Each agent's log file is located at:

`/opt/sbm/agents/`*agent_name*`/log`

where *agent_name* is the name of the agent.

Determining the Status of an Agent

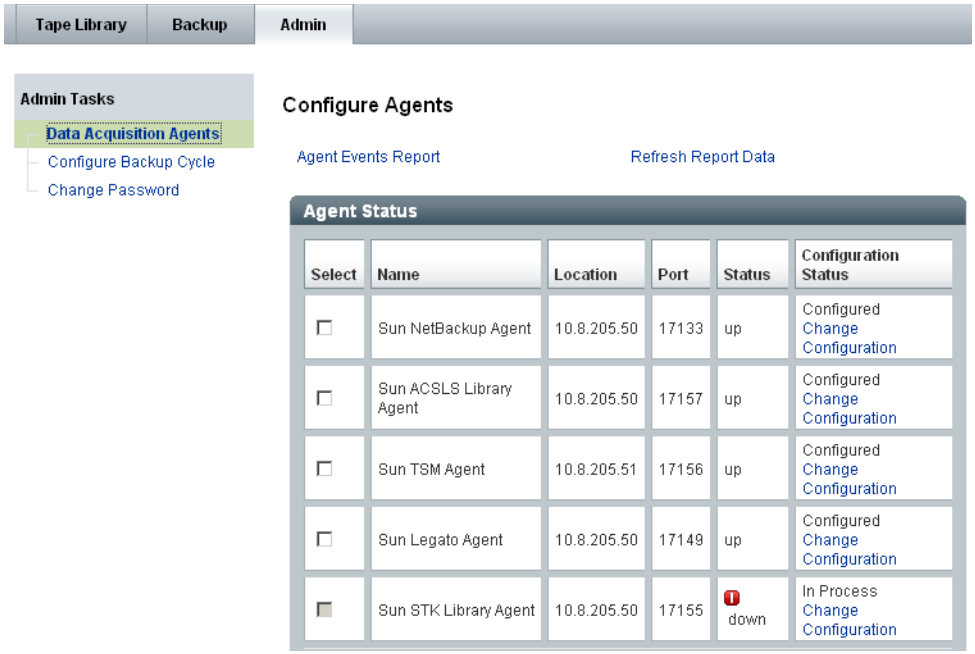
In addition to your daily routine of monitoring the previous night's backups and current tape library status, you also need to verify the status of the data acquisition agents.

Each agent has two status values associated with it:

- Agent Status — provides the running state of an agent
- Configuration Status — provides the configured state of an agent

1. **Go to Admin > Data Acquisition Agents and enter the Admin password.**

   The Agent Status is displayed as shown in the following example.



2. **Verify the status of each data acquisition agent.**

   An agent status of `up` indicates the agent is running and no problems currently exist with the agent.

   An agent status of `down` or `unknown` indicates the following:

Agent Status	Description
Down	Agent is not running.
Unknown	Indicates a communication error between the specific device agent and the database.

   a. **If an agent's status is Down or Unknown, open the Agent Event Report to determine the cause of the error.**

      The events collected during the last 24-hour period for the selected agent are displayed, as shown in the following example.

Show Events for: Sun NetBackup Agent Refresh

Agent Events (Last 24 hours)

Agent Name	Event Time	Status Code	Event Description
netbackupAgent	Aug 6, 2007 12:43:47 PM	3	NetbackupAgent.cc|2686|Connection to host '10.8.205.46' could not be esablished. Bypassing jobs collection for this device.
netbackupAgent	Aug 6, 2007 12:43:46 PM	2	NbuCmd.cc|326|Error! Executing the 'bpdbjobs' command on host '10.8.205.46' returned "c:\program' is not recognized as an internal or external command,'. Check your configuration settings.
netbackupAgent	Aug 6, 2007 12:43:46 PM	2	NbuCmd.cc|338|The path to the command is probably incorrect. Verify that 'c:\program files\veritas\foo\netbackup\bin\admincmd\bpdbjobs' is a valid command path on host '10.8.205.46'.
netbackupAgent	Aug 6, 2007 8:43:45 AM	3	NetbackupAgent.cc|2686|Connection to host '10.8.205.46' could not be esablished. Bypassing jobs collection for this device.
netbackupAgent	Aug 6, 2007 8:43:43 AM	2	NbuCmd.cc|326|Error! Executing the 'bpdbjobs' command on host '10.8.205.46' returned "c:\program' is not recognized as an internal or external command,'. Check your configuration settings.
netbackupAgent	Aug 6, 2007 8:43:43 AM	2	NbuCmd.cc|338|The path to the command is probably incorrect. Verify that 'c:\program files\veritas\foo\netbackup\bin\admincmd\bpdbjobs' is a valid command path on host '10.8.205.46'.
netbackupAgent	Aug 6, 2007 4:43:41 AM	3	NetbackupAgent.cc|2686|Connection to host '10.8.205.46' could not be esablished. Bypassing jobs collection for this device.

b. **Determine the source of the problem from the event description, and take the necessary action.**

   If you cannot determine the source of the problem from this report, gather the information specified in "Gathering Data" on page 37 and contact Sun technical support for assistance.

3. **Verify the configuration status of each agent.**

   If an agent's configuration status is any value other than `Configured`, take the following action depending on its configuration status:

Configuration Status	Description
Not Configured	Indicates the agent is not configured. Configure the agent as described in "Configuring an Agent" on page 26.
In-Progress	Agent has been installed and configuration is in progress.
Error	Indicates a communication error between the device agent and the database. Gather the information specified in "Gathering Data" on page 37 and contact Sun support.

Gathering Data

Before you contact Sun technical support, gather the following information for the agent in question:

- Configure Agents page showing the status values for all agents
- Agent Event Report showing messages relating to the agent under investigation
- Detailed description that clearly describes the current problem
- Depending on the problem further environmental information might be required including:
  - Operating system version agent running
  - Communication method to libraries and backup master servers
  - Number of devices the agent is communicating with
  - Any other information related to the problem

Diagnosing Communications Problems

If a problem suggests a communications problem between the SBM agent and the backup master server and libraries, check to be sure you have configured connectivity properly. See Appendix B of the *Sun StorageTek Backup Manager Installation Guide* for detailed procedures.

Troubleshooting Agent Advanced Settings

The Sun StorageTek Backup Manager has built-in debugging messages to assist Sun support personnel when troubleshooting agent problems. If you experience problems with any of the agents that you cannot resolve, contact Sun technical support for assistance.

Running the Agent as the `root` User

By default, Sun StorageTek Backup Manager installs and runs the agents using the SBM user account. You can also run the agent as `root` if necessary.

Connecting the Agent Using SSH

Prerequisite: You have already installed the agents as described in the *Sun StorageTek Backup Manager Installation Guide*.

1. **Log in as `root` user to the SBM server.**
2. **Change directory to `~/.ssh`.**

   ```
   cd ~/.ssh
   ```

Note – If the `.ssh` directory does not exist, run the SSH key generation command to create the directory and accept all default values. This will create two files in the `~/.ssh` directory: `id_dsa` and `id_dsa.pub`. The file, `id_d.pub`, has the shared key in it.

```
ssh-keygen -t dsa
```

3. **Open another session and log in to backup master server as `root`.**

4. **Change to the directory: `~/.ssh`.**

   ```
   cd ~/.ssh
   ```

   If the directory does not exist, create it.

   ```
   run mkdir ~/.ssh
   ```

5. **Copy the public key from the SBM server to the backup master server:**

```
scp -p id_dsa.pub backup_masterserver_hostname:~/.ssh/id_dsa.pub.sbm
```

6. **On the backup master server, create the file: `authorized_keys2`:**

   ```
   cd ~/.ssh
   cat id_dsa.pub.sbm >> authorized_keys2
   cat authorized_keys2
   ```

7. **From the SBM server, check the connectivity:**

   `ssh` *backup_server_hostname*

   `ssh` *backup_server_IP*

   `ssh` *backup_server_fully_qualified_domain_name*

8. **When prompted to add each host to the known hosts file, type `y`.**

   Result: This will allow the `root` user to log in from the SBM server to the backup master server without prompting for a password.

Connecting the Agent Using RSH to a UNIX Backup Master Server as `root`

1. **Open the file `~/.rhosts` on the backup master server.**

2. **Edit the `~/.rhosts` file to add an entry for the SBM server:**

   sbmserver_hostname `root`

3. **From the SBM server, check the connectivity:**

   `rsh` *backup_server_hostname* `set`

Connecting the Agent Using RSH to a Windows Backup Master Server as `root`

1. **Download SFU 3.5 located at:**

   http://www.microsoft.com/windowsserversystem/sfu/downloads/default.mspx

2. **Set up RSH as described in the following instructions:**

   http://www.microsoft.com/technet/interopmigration/unix/sfu/sfu35rsh.mspx

3. **Create a `root` account on the Windows master server to enable RSH as `root` from the SBM server.**

   Follow the steps in the section Installing and Setting Up RSH for Windows of the *Sun StorageTek Backup Manager Installation Guide*. However, when you edit the `.rhosts` file (as described in step 5.c.) add an entry for the SBM server using the `root` user as follows:

   sbmserver_hostname `root`

Running the Agent as `root` User

1. **Check the status of the agent:**

   `svcs` *agent name*

   Example:

   ```
   svcs netbackupAgent
   STATE            STIME     FMRI
   online           10:31:25
   svc:/application/sbm/agents/netbackupAgent:default
   ```

2. **If the agent is online, stop the process:**

   `svcadm disable` *agent_name*

3. **Verify that the agent is down.**

   `svcs netbackupAgent`

   `ps -ef|grep netbackupAgent`

   Example:

   `svcs netbackupAgent`

   ```
   STATE            STIME     FMRI
   disabled        10:26:36
   svc:/application/sbm/agents/netbackupAgent:default
   ```

   `ps -ef|grep netbackupAgent`

   ```
   root 18865 18637   0 10:31:13 pts/3 0:00 grep netbackupAgent
   ```

4. **Go to the directory where the agent is installed.**

Note – By default the agents are installed in the `/opt/sbm` directory.

---

5. **Open the script file for the agent you want to modify:**

   `/opt/sbm/agents/`*agent name*`/etc/`*agent name*

   Example:

   `vi /opt/sbm/agents/netbackupAgent/etc/netbackupAgent`

6. **Go to this line in the script file:**

   ```
   DMN_OPTS="-w ${DAEMON_WD} -msgdir ${DAEMON_LOG} -ini
   ${DAEMON_INI}/bb.bco -user ${SBM_USER} -group ${SBM_GRP}"
   ```

7. **Remove the options for sbm user and group. The line will look like this:**

   ```
   DMN_OPTS="-w ${DAEMON_WD} -msgdir ${DAEMON_LOG} -ini
   ${DAEMON_INI}/bb.bco"
   ```

8. **Save and close the file.**

9. **Start the agent.**

   `svcadm enable` *agent_name*

10. **Check the agent process to verify that it is running as root.**

    `ps -ef|grep netbackupAgent`

    Example:

    `ps -ef|grep netbackupAgent`

    ```
    root 19121 18637   0 10:55:46 pts/3 0:00 grep netbackupAgent
    root 18952      1   0 10:32:58 ? 0:03
    /opt/sbm/agents/netbackupAgent/bin/netbackupAgent -w
    /opt/sbm/agents/netbackupAgent
    ```

Starting and Stopping the Application Server

You can manually stop and restart the application server if necessary. The situations in which you might have to restart the server include:

- If the SBM server is rebooted or goes down, the application server must be restarted manually.
- If the SBM database is reinstalled while the application server is running, the application becomes unresponsive and must be restarted manually.
- If a GlassFish server instance is already running in your environment, you can uninstall the existing instance or configure the new instance to run on a different port.

Starting the Application Server

1. **Log in as** `root` **to the SBM server.**
2. **Log in as** `sbmapp` **user:**

   ```
   su - sbmapp
   ```

3. **Change to the following directory:**

   ```
   cd /opt/sbm/sbmapp/glassfish/bin
   ```

4. **To start the application server enter the following command:**

   ```
   ./asadmin start-domain domain1
   ```

Result: A message informs you that the application server has started. If the application server fails to start, contact Sun technical support.

Stopping the Application Server

1. **Log in as** `root` **to the SBM server.**
2. **Log in as** `sbmapp` **user:**

   ```
   su - sbmapp
   ```

3. **Change to the following directory:**

   ```
   cd /opt/sbm/sbmapp/glassfish/bin
   ```

4. **To stop the application server, enter the following command:**

   `./asadmin stop-domain domain1`

Result: A message informs you that the application server has stopped.

Changing the GlassFish Server Port

You can configure the GlassFish server to run on a port other than the default port. The following procedure assumes the Web server is running on the default port 4848.

1. **Log in to the admin console of the web server.**

   `http://`*SBM management server*`:4848`

Note – The default login provided by GlassFish are user name: `admin` and password: `adminadmin`.

---

2. **Click Application Server from the left menu tree.**
3. **Click Stop Instance to stop the GlassFish server.**
4. **Log in as** `sbmapp` **user to the SBM server.**
5. **Go to the GlassFish server installation root directory located at:**

   `/opt/sbm/sbmapp/glassfish`

6. **Edit the configuration file.**

   a. **Open the file** `domain.xml`**, located in the GlassFish server installation root directory:**

glassfish_ install_root_directory`/domains/domain1/domains/domain1/config/`

   b. **Search for the word** `port`**.**

   c. **Specify a new port number.**

   d. **Review all port settings to make sure that all port values contain non-conflicting numbers.**

   e. **Save and close the** `domain.xml` **file.**

7. **Restart the GlassFish server by entering the following command:**

   glassfish_ install_root_directory`/bin/asadmin start-domain`

8. **To verify the SBM application is running on the new port, log into the web server using the new HTTP listening port:**

   `http://`*SBM_management_server*:*new_listening_port*

For more information about the GlassFish server, see Chapter 1 (page 25) of the following document:
https://glassfish.dev.java.net/nonav/javaee5/docs/SJSASEEIG.pdf

Removing SBM User Accounts

Prerequisite: Stop the GlassFish server as described in Step 1 through Step 3 in "Changing the GlassFish Server Port" on page 43.

1. **Log in as `root` to the SBM server.**

2. **Run the `userdel` command for each SBM user account.**

```
# userdel -r sbm
# userdel -r sbmdb
# userdel -r sbmapp
```

Result:

- The entries are removed from the `/etc/passwd` file.
- The corresponding user home directory is removed.

3. **Run the `groupdel` command for each SBM user account.**

```
# groupdel sbm
# groupdel sbmapp
# groupdel sbmdb
```

Result:

- The entries for `sbm`, `sbmapp`, and `sbmdb` users are removed from the `/etc/passwd` file.
- The entries for `sbm`, `sbmapp`, and `sbmdb` users are removed from the `/etc/group` file.

SBM Agent Control Commands

TABLE 4-1 SBM Agent Control Commands

Task	Command
Start (enable) an SBM agent	`svcadm enable` *agent_name*
Stop (disable) an SBM agent	`svcadm disable` *agent_name*
Find the status of an agent	`svcs` *agent_name*
Find the state of an agent and its log file location	`svcs -l` *agent_name*

SBM Database (PostGres) Control Commands

TABLE 4-2 SBM Database (PostGres) Control Commands

Task	SMF Command
Start (enable) the SBM database instance	`svcadm enable postgresql:sbm`
Stop (disable) the SBM database instance	`svcadm disable postgresql:sbm`
Find the status of the SBM database instance	`svcs postgresql:sbm`
Find the state the SBM database instance and its log file location	`svcs -l postgresql:sbm`

CHAPTER A

Agent Quick Facts

This appendix provides reference information about Sun StorageTek Backup Manager (SBM) agents. The following information is provided:

Agent Listening Ports

TABLE A-1 lists the SBM agent listing ports.

TABLE A-1 Agent Listening Ports

Agent Name	Agent Port
Sun NetBackup Agent	17133
Sun Routing Agent	17146
Sun Data Aggregator	17147
Sun Legato Agent	17149
Sun STK Library Agent	17155
Sun TSM Agent	17156
Sun ACSLS Library Agent	17157

Backup Agent Features

TABLE A-2 lists the features supported by backup agents.

TABLE A-2 Backup Agent Features

Backup Agent Software	Jobs / Events
IBM Tivoli Storage Manager (TSM)	Yes
EMC NetWorker (formerly Legato NetWorker)	Yes
Veritas NetBackup by Symantec	Yes

Tape Library Agent Features

TABLE A-3 lists the features supported by tape library agents.

TABLE A-3 Tape Library Agent Features

Device Model	Configuration	Drive Info	Drive Allocation	Statistics
Sun StorageTek (SNMP)	Yes	Yes	Yes	Yes
Sun StorageTek (ACSLS)	See TABLE A-4 and TABLE A-5	No	Yes	No

Tape Library Agent Support

There are two different agents you can use with Sun StorageTek tape libraries: SNMP agent and ACSLS agent. The SNMP agent collects information using the L-series tape library MIB; the ACSLS agent collects information using the ACSLS API.

Note – Sun recommends using the SNMP agent for tape libraries that support SNMP.

TABLE A-4 lists the tape library agent support for each supported library class.

TABLE A-4 Tape Library Agent Support

Library Class	SNMP Agent	ACSLS Agent
9310, L5500, SL500, SL8500 (with ACSLS)	No	Yes
L20, L40, L80, L180, L700, L1400 (with ACSLS)	Yes	Yes
L20, L40, L80, L180, L700, L1400 (standalone)	Yes	No

Tape Library Agent Details

Use TABLE A-5 to compare the different level of configuration details provided by tape library agents using SNMP versus those using ACSLS.

TABLE A-5 Tape Library Agent Details

Parameter	SNMP Agent	ACSLS Agent
Library Vendor	Yes	Yes
Library Model	Yes	Yes
Library Serial Number	Yes	No
Library Alias	Yes	No
Library Firmware Version	Yes	No
Library Interface Address	Yes	No
Number of Library Slots	Yes	Yes
Number of Drives	Yes	Yes
Drive Vendor	Yes	Yes
Drive Model	Yes	Yes
Drive Interface	Yes	No
Drive Firmware Version	Yes	No
Drive Hardware Address	Yes	No
Drive Serial Number	Yes	No
Drive WWPN	Yes	No
Library and Drive Status	Yes	Yes
Library Slot Utilization	Yes	Yes
Library statistics (Resets, Door Open, Gets, Puts, etc.)	Yes	No

CHAPTER B

Reference Pages

This appendix provides reference topics for each page in the Sun StorageTek Backup Manager user interface. It contains the following sections:

Tape Library page

From this page, you can review a list of all the global tape libraries managed by Sun StorageTek Backup Manager.

The following table describes the buttons and fields on the Tape Library Status page.

Field	Indicates
Library ID	ID number for the library. For example, StorageTek-SL500-52200000065
Library Type	The supported library model. See the Release Notes for the latest listing of supported libraries.

Field	Indicates
Library Status	There are three possible library states: • Online—tape library is active • Offline—tape library is not currently active • Unknown—the status is not known at this time
Drive Status (# Up Drives / Total Drives)	Provides status of the tape library drives and the total number of drives in the library. There are four possible drive status states: • Online —all drives in the library are up. For example, Online 5/5. • Degraded—one or more drives in the library are down. For example, Degraded 2/5 means two of the five drives are down. • Offline—all drives in the library are down. For example, Offline 5/5. • Unknown—the status is not known at this time
CAP Status (# Up Drives / Total CAPs)	Provides status of the Cartridge Access Ports (CAPs) and the total number of CAPs in the library. There are four possible CAP states: • Online—all ports in the library are up. For example, Online 5/5. • Degraded—one or more ports in the library are down. For example, Degraded 2/5. • Offline—all ports in the library are down. For example, Offline 5/5. • Unknown—the status is not known at this time

Displaying Tape Library Details

1. Click the Library ID link for the tape library you want to learn more about.

   The Tape Library Details page displays. The Status tab displays by default.

2. Click the appropriate tab to display details about the selected tape library.

Click this tab...	To display this...
Status tab	Status for each drive in the selected library
Statistics tab	Statistics over the course of one week for the selected library
Configuration tab	Utilization and configuration information for the selected library

3. To review details of another tape library, close the window and repeat steps 1 and 2.

Tape Library Details page

From this page, you can review status, statistics, and configuration information for each drive in the selected tape library.

To review details about a specific tape library, click the appropriate tab.

Click this tab...	To display this...
Status tab	Status for each drive in the selected library
Statistics tab	Statistics over the course of one week for the selected library
Configuration tab	Utilization and configuration information for the selected library

Tape Library Details: Status page

From this page, you can review individual drive status for each drive in the selected library.

The following table describes the buttons and fields on the Tape Library Details: Status page.

Field	Indicates
Global Status	
Library Status	There are three possible library states: • Online—tape library is active • Offline—tape library is not currently active • Unknown—the status is not known at this time
CAP Status (# Up Drives / Total CAPs)	Provides status of the Cartridge Access Ports (CAPs) and the total number of CAPs in the library. There are four possible CAP states: • Online—all ports in the library are up. For example, Online 5/5. • Degraded—one or more ports in the library are down. For example, Degraded 2/5. • Offline—all ports in the library are down. For example, Offline 5/5. • Unknown—the status is not known at this time
Drive Status	
Drive ID	Device number. For example, “1” indicates one row per interface.
Model	Drive model number for the library extracted from the vendor code. For example, HP-LTO-2.

Field	Indicates
Vendor	Name of the drive vendor. For example, HP.
Serial #	Drive serial number. For example, HUPFK00C78.
F/W Rev.	Drive firmware revision number. This is vendor-specific and not always available. Note: This field is not populated for the ACSLS.
Status	Individual drive status (vendor-specific). For more information, refer to the vendor documentation.

Tape Library Details: Statistics page

From this page, you can review bar charts for library operations over a predefined 1-week time frame.

Note – The graphs are empty if the device is monitored by the ACSLS agent.

The following chart types are available:

Chart Type	Indicates
Library Activity	There are three types of statistics collected: • Resets—Initialization of a library • Moves—Successful tape put/get to and from a standard slot • Empty Reads—Attempt to read tape was unsuccessful
Mounts and Dismounts	There are two types of statistics collected: • Mounts—Loading a tape into a drive • Dismounts—Unloading a tape from a drive
Label Reads	There are three types of statistics collected: • Retries • Failures • Reads

Chart Type	Indicates
Target Reads	There are three types of statistics collected: • Retries • Failures • Reads
Media Retrieval Activity	There are three types of statistics collected: • Retries • Failures • Retrieval—removal of a tape from any slot
Media Insertion Activity	There are three types of statistics collected: • Retries • Failures • Insertions—insertion of a tape from any slot

Tape Library Details: Configuration page

From this page, you can review utilization and configuration information for the selected library.

The Library Allocation pie chart displays the number of active cells (or slots) and free cells.

- Active cells contain media such as a tape.
- Free cells do not contain media and are not being used.

The key for the Library Allocation chart provides library and drive configuration information.

The following table describes fields on the Tape Library Details: Configuration page.

Field	Indicates
Drive ID	Drive identification number within the library. For example, “1” indicates one row per interface.
Model	Drive model number for the library extracted from the vendor code. For example, HP-LTO-2.
Vendor	Name of the drive vendor. For example, HP.
Serial #	Drive serial number. For example, HUPFK00C78.
F/W Rev.	Drive firmware revision number. This is vendor-specific and not always available. Note: This field is not populated for the ACSLS.

Field	Indicates
WW Port Name	World Wide Port Number (if available). For example, 50060B0002E6D2C The port name is only valid for Fibre connection. Note: This field is not populated for the ACSLS.
Interface Address	Interface Address as reported by the device. Note: This field is not populated for the ACSLS.
Interface Type	Interface type of the device: Fibre or SCSI. Note: This field is not populated for the ACSLS.

Backup page

From this page, you can review job information for each backup master server that Sun StorageTek Backup Manager supports.

You can specify the start date for the Backup Jobs and Error information. See "Selecting the Start Date and Time for Backup Reports" on page 31.

The following table describes the fields on the Backup Jobs Status page.

Field	Indicates
Master Server	Backup master server
Backup Product	The supported backup products are: • NBU—Veritas NetBackup • TSM—IBM Tivoli Storage Manager (TSM) • LEG—EMC NetWorker (also known as Legato NetWorker)
Successful Jobs	Jobs reported as successful by the backup agent.
Failed Jobs	Jobs reported as failed by the backup agent.
Partial Jobs	(Only applies to NetBackup) Jobs reported as partially finished by the NetBackup agent. (Status code is 1.)
Total Jobs	Total number of jobs reported by the backup agent.

Displaying Backup Jobs Details

After you review the job information for the all master servers managed by Sun StorageTek Backup Manager, you can review additional details about the jobs on a specific master server.

1. Click the Master Server link.
2. Click the appropriate tab to display details about the backup jobs.
   - To review job information for the selected master server, click the Jobs tab.
   - To review error distribution for the selected master server, click the Errors tab.
3. To review details of another master server, close the window and repeat steps 1 and 2.

Backup Job Details page

From this page, you can review Backup details, using the following tabs:

- Jobs tab — takes you to the Backup Job Details: Jobs page where you can review a job summary for the master server's backup clients.
- Errors tab — takes you to the Backup Job Details: Errors page where you can review the distribution of errors for a specific master server.

Backup Job Details: Jobs page

From this page, you can review job information for each backup master server and client.

You can specify the start date for the Backup Jobs and Error information. See "Selecting the Start Date and Time for Backup Reports" on page 31.

The following table describes the buttons and fields on the Jobs page.

Field	Indicates
Jobs Starting from:	Select the date and time of the reports you want to display and click Refresh.
Successful Jobs	Jobs reported as successful by the backup agent.
Failed Jobs	Jobs reported as failed by the backup agent.
Partial Jobs	(Only applies to NetBackup) Jobs reported as partially finished by the NetBackup agent. (Status code is 1.)
Total Jobs	Total number of jobs reported by the backup agent.
Client Job Summary	
Client	Name of the backup client. Click on a client name to go to the Client Jobs Details page.
Successful Jobs	Jobs reported as successful by the backup agent.

Field	Indicates
Failed Jobs	Jobs reported as failed by the backup agent.
Partial Jobs	(Only applies to NetBackup) Jobs reported as partially finished by the NetBackup backup agent. (Status code is 1.)
Total Jobs	Total number of jobs reported by the backup agent.

Displaying Backup Client Jobs Details

After you review the summary job information for the master server, you can review additional details about the jobs on a specific Backup client.

1. Click the Client link.
2. To review details of another backup client, close the window and click another Client link.

Client Jobs Details page

From this page, you can review job-specific information for each job on the selected backup client. You can change the sort order by clicking the arrows in column heading.

You can specify the start date for the Backup Jobs and Error information. See "Selecting the Start Date and Time for Backup Reports" on page 31.

The following table describes the buttons and fields on the Client Jobs Details page.

Field	Indicates
Job ID	ID for each job supplied by the vendor. For example, 27660.
Job Type	The job type: Backup.
Status	The status of the backup job. Success, failed, or partial (reported for NetBackup only).
Status Code	Vendor-supplied status code for jobs that are started, for example: 219. Refer to the vendor documentation for more information.
Schedule	Backup schedule defined in the vendor's backup software by the Backup Administrator.
Start Date	Job start date.
End Date	Job end date.
Duration	Duration of the job, reported in seconds.

Field	Indicates
File System	The file system or directory where information is being backed up for this backup job.
MB	Number of megabytes transferred by this job.
MB/Sec	Transfer speed or throughput of the backup job.

Backup Job Details: Errors page

From this page, you can review the distribution of errors for the selected master server.

The Error Distribution pie chart displays the number of occurrences for each type of error.

You can specify the start date for the Backup Jobs and Error information. See "Selecting the Start Date and Time for Backup Reports" on page 31.

The following table describes the fields on the Backup Job Details: Errors page.

Field	Indicates
Jobs Starting from:	Select the date and time of the errors you want to view and click Refresh.

Error Code	Error codes reported by the application. You can use this information to troubleshoot the types of problems you are experiencing on a given backup master server.
	The Sun StorageTek Backup Manager application standardizes the Job Status numerical values for the following states: success, failure, and partial.
	• 0 = Success
	• 1 = Partial
	• > 1 = Failure (general error message)
	Each backup product provides specific error information.
	• Legato
	  • 9100 = Failed
	  • 9200 = Never Started
	• NBU and TSM
	  • Sun StorageTek Backup Manager reports the status code and error message exactly as it is supplied by the backup product. For more information, see the vendor documentation.

# of Occurrences	Number of times the error occurs.

Admin Login page

This page enables you to provide an administrator password and log in securely to the Admin tab.

The default password is `storage`.

Admin page

Once you provide your password and login, the Data Acquisition page displays by default.

Note – The Admin pages are password protected. You must log in to use these pages.

The tasks the backup administrator can perform include:

- Configuring Agents
- Configuring the Backup Cycle
- Changing the Administrator Password
- Refresh report data

Admin Tasks: Configure Agents page

From this page, you can configure agent settings.

There are two types of agents: Infrastructure agents and Data Acquisition agents.

There are five data acquisition agents:

- Sun ACSLS Library Agent
- Sun NetBackup Agent
- Sun Legato Agent
- Sun STK Library Agent
- Sun TSM Agent

The following table describes the buttons and fields on the Admin Tasks: Configure Agents page.

Field	Indicates
Name	Name of the agent.
Location	IP address for the agent. For example, 10.8.205.52.
Port	Physical port the Sun StorageTek Backup Manager agent is listening on. The range for ports is in the 17000.
Status	The status of the agent. There are three states: • Up—The agent is active and running. • Unknown—The application is having difficulty connecting to the agent, it may be down or restarting. • Down—The agent is not active and not running. At this time the application cannot contact the agent. If Sun StorageTek Backup Manager is in the process of restarting the agent infrastructure, it will appear as though it is down.
Configuration Status	The configuration status of the agent. There are three states: • Configured—The agent is configured. • Not configured—The agent is not yet configured. • In process—The agent is in the process of being configured You can review agent configuration details. See "Removing a Backup Master Server or Tape Library" on page 29.

Agent Configuration page

From this page you can review and configure the data acquisition agents.

You must configure the agent before you can begin using the reporting and monitoring functions of the Sun StorageTek Backup Manager application.

For each agent there are standard buttons and fields you can interact with on the page. You'll notice specific device-level settings, global settings for all servers or libraries, and advanced settings.

An asterisk (*) indicates a required field. The pound sign (#) indicates an advanced field.

Note – The advanced settings are reserved for Sun support personnel who are troubleshooting problems.

The following table describes the buttons on the Agent Configuration page.

Button	Action
Show Advanced Settings	Displays the advanced settings for the agent. You can toggle between showing and hiding this information.
Save	Saves the current values to the database.
Reset	Reverts any changes you made back to the previously saved configuration values.
Close	Exits the page without saving the changes to the database.

The following tables describe the fields on the Agent Configuration page.

- Advanced Field Descriptions (Common to All Agents)
- ACSLS Agent Field Descriptions
- STK Agent Field Descriptions
- Legato NetWorker Agent Field Descriptions
- NetBackup Agent Field Descriptions
- TSM Agent Field Descriptions

TABLE 4-3 Advanced Field Descriptions (Common to All Agents)

Field	Optional	Advanced	Description	Default Value
Log Severity	N	Y	Lowest severity level for error messages that will be logged to the message log.	Info
Maximum Size of Log	N	Y	In Megabytes, maximize size for log file.	12
Size of Trimmed Log	N	Y	In Megabytes, size of log file after it is trimmed.	8
Enable Local Manager Registration	N	Y	Select True to enable; False to disable.	true
Local Manager Host	N	Y	Host name or IP address for local manager.	127.0.0.1
Local Manager Port	N	Y	Port for local manager.	17146
Masquerade As IP	Y	Y	IP address to use on a machine with multiple IP addresses.	

TABLE 4-4 ACSLS Agent Field Descriptions

Field	Optional	Advanced	Description	Default Value
Cache Refresh Interval For Configuration Data	N	Y	In minutes, how often to refresh the agent's configuration data.	240
Cache Refresh Interval For Status Data	N	Y	In minutes, how often to refresh the agent's status data.	30
Statistics and Events Collection Interval	N	Y	In seconds, how often to refresh the agents statistics and event data.	1800
Statistics Retention Period	N	Y	In seconds, how long a single statistical reading should be kept by the agent.	21600
ACSLS Connection	N	N	Indicate whether you want to configure an ACSLS server.	ACSLS Server
ACSLS Server	N	N	Host name or IP address of the ACSLS server.	
ACSAPI Packet Version	N	Y	Version of packet.	4
ACSLS Response Timeout	N	Y	In seconds, allowable time for the completion of an ACSAPI request.	120
SSI Executable Path	N	Y	Fully qualified path for the SSI executable.	/opt/sbm/agents/acslsAgent/bin/ssi
SSI Process Timeout	N	Y	In seconds, allowable time for the SSI helper process to start.	60
Agent Port	N	Y	TCP port the agent listens on.	17157

TABLE 4-5 STK Agent Field Descriptions

Field	Optional	Advanced	Description	Default Value
Cache Refresh Interval For Configuration Data	N	Y	In minutes, how often to refresh the agent's configuration data.	240
Cache Refresh Interval For Status Data	N	Y	In minutes, how often to refresh the agent's status data.	30
Statistics and Events Collection Interval	N	Y	In seconds, how often to refresh the agents statistics and event data.	1800

TABLE 4-5 STK Agent Field Descriptions *(Continued)*

Field	Optional	Advanced	Description	Default Value
Statistics Retention Period	N	Y	In seconds, how long a single statistical reading should be kept by the agent.	21600
Report CAP statistics	N	Y	Select True to enable; False to disable.	
Ignore Out-Of-Range CAP Statistics	N	Y	Select True to enable; False to disable.	
Tape Library Address	N	N	Host name or IP address of the tape library	
SNMP Port	N	N	SNMP port number of the tape library.	161
SNMP Community String	N	N	SNMP community string of the tape library	public
Agent Port	N	Y	TCP port the agent listens on.	17155

TABLE 4-6 Legato NetWorker Agent Field Descriptions

Field	Optional	Advanced	Description	Default Value
Cache Refresh Interval	N	Y	In minutes, how often to refresh the agent's data.	240
Command Execution Timeout	N	Y	In seconds, how long an agent will wait for the successful execution of a CLI command and the retrieval of the resulting data.	600
Agent Port	N	Y	TCP port the agent listens on.	17149
Remote Connection	N	N	Type of connection, local or remote, used to connect to this device.	True
Remote Host	N	N	Host name or IP address of the remote machine.	
Remote Operating System	N	N	Operating system installed on the remote machine e.g. unix, win.	unix
Remote Shell Command Path On Sun StorageTek Backup Manager Server	N	N	Fully qualified path to the remote shell command on Sun StorageTek Backup Manager server used to connect to the remote machine.	/usr/bin/ssh
Remote User Name	Y	N	User name to be used when logging onto the remote machine.	

TABLE 4-6 Legato NetWorker Agent Field Descriptions *(Continued)*

Field	Optional	Advanced	Description	Default Value
Remote User Password	Y	Y	User password to use when logging onto the remote machine. Depending on the connection setup, this value maybe optional.	
Remote Login Port	Y	Y	Port number to use when logging onto the remote machine. If no value is supplied, the standard port is used.	
Networkers Messages Log File Name	N	N	Name of NetWorker's messages log file including the fully qualified path location.	
Networker's CLI Executable Path	N	N	Fully qualified path to NetWorker's CLI commands.	/usr/sbin
Look Back Search Time Interval	Y	Y	In hours, the look back period used when searching the messages log file	24
Stopped Collection Table Groups	Y	Y	Comma separated list of table group(s) indicating that data collection is stopped indefinitely for all tables in the specified group(s). Possible groups are: jobs, media, schedule, tsmoptional.	tsmoptional, media, schedule
Suspended Collection	Y	Y	Select True to enable; False to disable.	
Suspended Collection Table Groups	N	Y	Comma separated list of table group(s) indicating that data collection is stopped indefinitely for all tables in the specified group(s). Possible groups are: jobs, media, schedule, tsmoptional.	ALL
Suspension Start Time	N	Y	Start time of the non-collection window using a 24-hour format hh:mm:ss.	22:00:00
Suspension End Time	N	Y	End time of the non-collection window using a 24-hour format hh:mm:ss.	5:00:00

TABLE 4-7 NetBackup Agent Field Descriptions

Field	Optional	Advanced	Description	Default Value
Cache Refresh Interval	N	Y	In minutes, how often to refresh the agent's data.	240
Command Execution Timeout	N	Y	In seconds, how long an agent will wait for the successful execution of a CLI command and the retrieval of the resulting data.	600
Agent Port	N	Y	TCP port the agent listens on.	17133
Remote Connection	N	N	Type of connection, local or remote, used to connect to this device.	True
Remote Host	N	N	Host name or IP address of the remote machine.	
Remote Operating System	N	N	Operating system installed on the remote machine e.g. unix, win.	unix
Remote Shell Command Path On Sun StorageTek Backup Manager Server	N	N	Fully qualified path to the remote shell command on Sun StorageTek Backup Manager server used to connect to a remote machine.	/usr/bin/ssh
Remote User Name	Y	N	User name to be used when logging onto the remote machine.	
Remote User Password	Y	Y	User password when logging onto the remote machine. This parameter maybe optional depending on connection setup.	
Remote Login Port	Y	Y	Port number to be use when logging onto the remote machine.	
NetBackup Command Path	N	N	Fully qualified path to NetBackup's CLI commands.	/usr/openv/NetBackup
Volume Manager Command Path	N	N	Fully qualified path to NetBackup's Volume Manager.	/usr/openv/volmgr
Report Activity Period	N	N	Number of hours of NetBackup activity to report on.	72
Stopped Collection Table Groups	Y	Y	Comma separated list of table group(s) indicating that data collection is stopped indefinitely for all tables in the specified group(s). Possible groups are: jobs, media, schedule, tsmoptional.	tsmoptional, media, schedule

TABLE 4-7 NetBackup Agent Field Descriptions *(Continued)*

Field	Optional	Advanced	Description	Default Value
Suspended Collection Period	Y	Y	Select True to enable; False to disable.	
Suspended Collection Table Groups	N	Y	Comma separated list of table group(s) indicating that data collection is stopped indefinitely for all tables in the specified group(s). Possible groups are: jobs, media, schedule, tsmoptional.	ALL
Suspension Start Time	N	Y	Start time of the non-collection window using a 24-hour format hh:mm:ss.	22:00:00
Suspension End Time	N	Y	End time of the non-collection window using a 24-hour format hh:mm:ss	5:00:00
Device Date Format	Y	Y	Date format used on the device. This field uses the same formatting sequences as the UNIX `date` command. For example, "%a %b %d %T %Y" is a valid date format string.	

TABLE 4-8 TSM Agent Field Descriptions

Field	Optional	Advanced	Description	Default Value
Serialize Cache Updates	N	Y	Select True to enable; False to disable.	
Cache Refresh Interval	N	Y	In minutes, how often to refresh the agent's data.	240
Command Execution Timeout	N	Y	In seconds, how long an agent will wait for the successful execution of a CLI command and the retrieval of the resulting data.	600
Agent Port	N	Y	TCP port the agent listens on.	17156
TSM ODBC DSN	N	N	ODBC data source name.	
TSM Server Name Prefix	Y	N	Prefix to be added to the TSM server name to guarantee server name uniqueness.	

TABLE 4-8 TSM Agent Field Descriptions *(Continued)*

Field	Optional	Advanced	Description	Default Value
TSM Server User Name	N	N	Name of the TSM user account when logging onto the TSM server.	
TSM Server User Password	N	N	TSM user password when logging onto the TSM server.	
TSM Server Look Back Period	N	N	In hours, the look back period when performing historical queries on the TSM server.	24
Stopped Collection Table Groups	Y	Y	Comma separated list of table group(s) indicating that data collection is stopped indefinitely for all tables in the specified group(s). Possible groups are: jobs, media, schedule, tsmoptional.	tsmoptional, media, schedule
Suspended Collection	Y	Y	Select True to enable; False to disable.	
Suspended Collection Table Groups	N	Y	Comma separated list of table group(s) indicating that data collection is stopped indefinitely for all tables in the specified group(s). Possible groups are: jobs, media, schedule, tsmoptional.	ALL
Suspension Start Time	N	Y	Start time of the non-collection window using a 24-hour format hh:mm:ss.	22:00:00
Suspension End Time	N	Y	End time of the non-collection window using a 24-hour format hh:mm:ss	5:00:00

Agent Events Report page

From this page, you can review a list of events for the last 24 hours.

Note – The Agent event reports are used by Sun support personnel for troubleshooting purposes.

The following table describes the fields on the Agents Events Report page.

Field	Indicates
Agent Name	Name of the agent you are viewing events for.
Event Time	Date and time the event occurred.
Status Code	Numeric code for the event: 0 = unknown 1 = critical 2 = error 3 = warning 4 = informational 5 = debug
Event Description	Describes the event.

Refresh Report Data page

Because the system collects data automatically, you will use this tool only for special cases. For example, refresh report data during initial installation or any time you change the configuration.

When you need to refresh report data, click the button only once and wait for new report data to be displayed. Clicking the button multiple times affects system performance.

See also "Refreshing Report Data" on page 30.

Admin Tasks: Configure Backup Cycle page

This page displays the currently configured time of day when the backup report starts. The default time is midnight.

You can modify the backup cycle start time. Sun StorageTek Backup Manager uses the backup time you specify as the default time frame for backup reports.

See also "Configuring the Backup Cycle" on page 30.

Admin Tasks: Change Password page

This page enables you to change the current Backup Administrator password.

The default password is `storage`.

You must enter text in these fields correctly. If the New Password and Confirm New Password fields do not match, a message displays when you click the Change button and you must start again.

When you correctly enter text in all fields and click the Change button, a message displays confirming the change.

Glossary

Agents Agents collect and cache event, configuration, consumption, and performance information from the hardware devices in your storage environment. There are two types of agents: tape library agents and backup agents.

Aggregator Agent The aggregator agent executes data collection tasks.

Backup Agents Backup agents collect configuration, transaction (job success or failure), and media information (tape IDs and tape type) for each backup job in the Sun StorageTek Backup Manager environment. SBM supports three backup agents: Veritas NetBackup by Symantec, EMC NetWorker (formerly Legato NetWorker), Tivoli Storage Manager (TSM).

Backup Cycle The backup cycle is a window of time composed of a start time and end time. SBM uses the backup time you specify as the default time frame for starting backup reports. By default the cycle starts at 12:00 a.m.

Backup Master Server The backup server where the backup application is installed.

EMC NetWorker The backup application (formerly Legato NetWorker) that runs on the NetWorker backup master server.

Legato Agent The Legato agent is installed on the SBM server and collects data from the NetWorker backup master server.

Routing Agent The routing agent keeps track of the agents in the backup environment.

Sun StorageTek (STK) Library Agent The Sun STK agent collects data from any tape library that has an embedded SNMP agent which supports the L-Series Tape Library MIB version 2.0.

Sun ACSLS Library Agent The ACSLS agent collects data from an ACSLS tape library through the ACSLS API.

Tape Library Agents Tape library agents collect configuration, status, and activity information for each tape library in the Sun StorageTek Backup Manager environment. SBM supports two tape library agents: Sun StorageTek (STK) Library Agent and Sun ACSLS Library Agent.

Tivoli Storage Manager (TSM) Agent

The TSM agent is installed and runs on a Windows server with a network connection to each of the TSM servers it collects data from. It connects to a list of TSM servers through the TSM ODBC client and a list of ODBC data sources configured on the Windows server the agent is installed on.

Veritas NetBackup Agent

The NetBackup agent is installed on the SBM server and collects data from the NetBackup master server.

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