Sun StorageTek™ Business Analytics Backup Agents Installation Guide

Release 5.0 SP1

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English:

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Backup Agents Installation Guide

INTRODUCTION TO BACKUP AGENTS

Sun StorageTek Business Analytics provides three backup agents supporting the Semantec Veritas NetBackup, IBM Tivoli Storage Manager (TSM), and EMC Legato NetWorker backup products.

Note With the acquisition of StorageTek, Sun Microsystems has re-branded and re-named Global Storage Manager (GSM) as Sun StorageTek Analytics, a member of the Enterprise Storage Manager portfolio of software solutions. The functionality of Business Analytics is identical to GSM, only the name has changed.

While the agents share broad areas of similarity, each agent has unique attributes that are based on the differences among the product lines and interfaces. Refer to the *Sun StorageTek Business Analytics Support Matrix* to obtain the latest information on supported backup products and support prerequisites. In addition, consult the *Sun StorageTek Business Analytics Backup Reports Quick Facts Sheet* to obtain an overview of the Sun StorageTek Business Analytics reports supported by a particular Backup Agent.

Sun StorageTek Business Analytics provides three agent installation CDs: Windows Local Manager, Solaris Local Manager, and UNIX Agents (HP-UX and IBM AIX). To upgrade an installed Backup Agent, uninstall the previously installed Backup Agent before you install the current Sun StorageTek Business Analytics Backup Agent. The decision to upgrade an existing Backup Agent may be performed because:

- The Sun StorageTek Business Analytics Release Notes indicate a problem has been fixed or a new feature added.

- The upgrade is recommended by your Sun representative.

AUTOMATIC AND STATIC AGENT REGISTRATION

Automatic agent registration is a configuration option for agent data collection. In the storability.ini file, automatic agent registration is configured as follows:

- **Local Manager** – Specify the IP address or host name of the Local Manager to be contacted to activate agent registration.
- **Local Manager Registration Port** – Specifies the TCP port number used by the Local Manager for agent auto registration. The default port number is 17146.
- **Enable Auto Registration** – Turns agent auto registration on (default) or off.

To register the Backup Agent statically, proceed as follows:
- Enter false in the **Enable Auto Registration** field.
- Modify the Routing Agent static agent configuration to include an entry (port number|<agent IP address/name>)
- Restart the Routing Agent
- Restart the companion Central Manager agents

BACKUP AGENT OBJECTS

All of our backup agents publish the same objects. If a particular agent does not support a particular object, it publishes an empty object.

Table 1 lists the objects that all Sun StorageTek Business Analytics backup agents publish.

Table	Columns
alerts-3_1	sourceip, priority, alert_id, progname, alert, time, firsttime, refreshedtime, int1, text1, text2.
gsa_agent_version-2_0	ip_address, agent_name, version, compile_time, managed_entities, tz_name, tz, timestamp
gsa_cache_contro0l-2_1	ip_address, port, table_name, cache_age, last_update_request_length, update_request_pending, group_name, group_master,timestamp
gsa_ini_control-2_0	ip_address, port, domain, parameter, value, status, timestamp
gsa_parm_info	ip_address, port, object, parm_name, value_syntax, description, example
gsa_backup_calendar	ip_address, master_server, policy, schedule, backup_type, schedule_type, value_1, value_2, value_3, timestamp
gsa_backup_cat_usage-2_3	ip_address, server_name, product, cat_path, blocks_used, blocks_available, filesystemid, timestamp
gsa_backup_client_policy-2_1	ip_address, master_server, policy, active_status, effective_date, timestamp
gsa_backup_detail_new	ip_address, backup_id, copy_number, frag_number, kilobytes, remainder, media_type, density, file_number, media_id, block_sz, offset, media_date, dev_written_on, flags, timestamp
gsa_backup_device_class	ip_address, server_name, devclass_name, access_strategy, stgpool_count, devtype, format, capacity, mountlimit, mountwait, mountretention, prefix, library_name, directory, servername, retryperiod, retryinterval, shared, last_update_by, last_update, timestamp
gsa_backup_events	ip_address, job_id, class, client, schedule, schedule_type, storage_unit, volume_pool, status, error_msg, host_id, error_explanation, error_recommendation, timestamp
gsa_backup_filelist-2_2	ip_address, backup_id, job_id, client, slave, master, storage_unit, class, file_list, job_type, kilobytes, files, status, message, start_time, timestamp
gsa_backup_frequency	ip_address, master_server, policy, schedule, backup_type, retention_level, frequency, day_of_week, open_window, close_window, timestamp
gsa_backup_legato_err_msg	ip_address, backup_id, job_id, sequence_num, error_msg, timestamp
gsa_backup_libraries	ip_address, server, library_name, library_type, acs_id, private_category, scratch_category, external_mgr, shared, lanfree, obeymntretention, primary_lib_mgr, last_update_by, last_update, timestamp
gsa_backup_library_volumes	ip_address, server, library_name, volume_name, status, owner, last_use, home_element, cleanings_left, timestamp

Table	Columns
gsa_backup_master	ip_address, backup_id, client, class, class_type, proxy_client, creator, schedule, schedule_type, retention_level, start_date, elapsed_time, expiration_date, compressed, encrypted, backed_up_kb, backed_up_files, number_of_copies, number_of_frags, db_compressed, catalogue_file_name, status, timestamp
gsa_backup_status_new	ip_address, time, netbackup_version, message_type, message_severity, server, job_id, job_group_id, client, class, schedule, error_ms, timestamp
gsa_backup_storage_pools	ip_address, server, stgpool_name, pooltype, devclass, est_capacity_mb, pct_utilized, pct_migr_pct_logical, highmig, lowmig, migproess, nextstgpool, maxsize, access, description, ovflocation, collocate, reclaim, maxscratch, reusedelay, migr-running, migr_mb, migr_seconds, recl_running, recl_volume, chg_time, chg_admin, reclaimstgpool, mig_delay, migcontinue, dataformat, copystgpools, copycontinue, crcdata, timestamp
gsa_backup_volhist	ip_address, server, date_time, unique, time, backup_series, backup_operation, volume_seq, volume_name, location, command, timestamp
gsa_backup_volume_info-2_1	ip_address, media_id, media_type_desc, media_type, barcode, description, volume_pool_type, rebot_type_desc, robot_type, robot_number, robot_slot, robot_host, volume_group, creation_date, assigned_date, last_mount_date, first_mount_date, expiration_date, number_of_mounts, max_mounts_allowed, timestamp, status, status_flags
gsa_backup_volumes	ip_address, server, volume_name, stgpool, devclass_name, est_capacity_mb, pct_utilized, status, access, pct_reclaim, scratch, error_state, num_sides, times_mounted, write_pass, last_write_update, last_read_date, pending_date, write_errors, read_errors, location, chg_time, chg_admin, timestamp
gsa_media_list-2_2	ip_address,media_id, partner_id, version, density, allocated_date, last_written_date, expiration_date, last_read_date, bu_Kbytes, bu_images, bu_unex_images, retention_level, volume_pool, num_restores, status, media_type, status_flags, bu_server, timestamp
gsa_backup_drives	ip_address, server, library_name, drive_name, device_type, online, element, acs_drive_id, drive_state, allocated_to, last_update_by, clean_freq, timestamp
gsa_backup_filespaces	ip_address, server, nodename, filespace_name, filespace_id, filespace_type, capacity, pct_util, backup_start, backup_end, delete_occurred, unicode_fiilespace, filespace_hex_name, timestamp
gsa_backup_occupancy	ip_address, server, nodename, type, filespace_name, stgpool_name, num_files, physical_mb, logical_mb, filespace_id, timestamp
gsa_backup_paths	ip_address, server,source_name, destination_name, destination_type, library_name, node_name, device,

Table	Columns
	ext_manager, lun, initiator_id, directory, online, last_update_by, last_update, timestamp
gsa_backup_sched_events	ip_address, server, scheduled_start, scheduled_end, actual_start, domain_name, schedule_name, status, result, reason, timestamp
gsa_backup_summary	ip_address, server, start_time, end_time, activity, number, entity, address, schedule_name, examined, affected, failed, bytes, idle, mediaw, processes, successful, volume_name, drive_name, library_name, last_use, comm._wait, timestamp

<p align="center">**Table 1 - Backup Agent Objects**</p>

NETBACKUP AGENT

The following sections describe how to install, configure, and verify the Sun StorageTek Business Analytics NetBackup Agent.

Note: The Sun StorageTek Business Analytics NetBackup Agent must be installed on the Semantec Veritas NetBackup Master server.

NETBACKUP AGENT MATRIX

Feature	Description
Support Prerequisites	
Verify supported version of NetBackup product	See the current version of the Sun StorageTek Business Analytics Support Matrix
Verify Ethernet connectivity to Master Servers	`ping <IP Address>`
Base Package (GSMbase)	Required on Solaris server
Storability Host Agent	Required to support the Meta Database Capacity report for Semantec Veritas NetBackup.
Agent Installation	
Windows	• Windows Local Manager Installation CD (InstallShield) • Windows Administrator privileges
Solaris	• Solaris Local Manager Installation CD (package installation) • root user account privileges
HP-UX	• UNIX Agent Installation CD • root user account privileges
Job History Retention	Sun recommends retaining this information for a minimum of three (3) days, which is the Semantec Veritas NetBackup default value.

Feature	Description
Configuration Parameters	See backup agent-specific configuration parameters in the *Installation* sections that follow.
Integration with SNMP Extension for the Real Time Event report	1. Requires installation and configuration of the Semantec Veritas SNMP Extension for Semantec Veritas NetBackup (NBU). For more information about functionalities, you may email: `vxsnmp@veritas.com` 2. Requires reviewing/modifying the following NetBackup Agent configuration settings for SNMP: **Note**: The NetBackup Agent refreshes the events cache every five minutes.
NETB_SNMP_PORT Default Value: 1100	Specifies the port that will be used to listen for SNMP traps.
NETB_TRAP_VERITAS_SUCCESS Default Value : 1.3.6.1.4.1.1035.1.1.251.0.2	Specifies the trap value that indicates success.
NETB_TRAP_VERITAS_FAIL Default Value : 1.3.6.1.4.1.1035.1.1.251.0.1	Specifies the trap value that indicates failure.

Table 2 - NetBackup Agent Matrix

NETBACKUP AGENT INSTALLATION

The following sections provide instructions on installing the Sun StorageTek Business Analytics NetBackup Agent on supported platforms.

INSTALLING NETBACKUP AGENT - WINDOWS

1. Insert the Sun StorageTek Business Analytics Windows Local Manager CD into the CD-ROM drive.

2. Click **Next>** on the **Welcome** menu to continue the installation.

3. Click **Yes** to accept the terms of the software license agreement.

4. Review/modify the **User Name** and **Company Name** and click **Next**.

5. Select the **Veritas NetBackup Agent** checkbox on the screen that lists agents for installation.
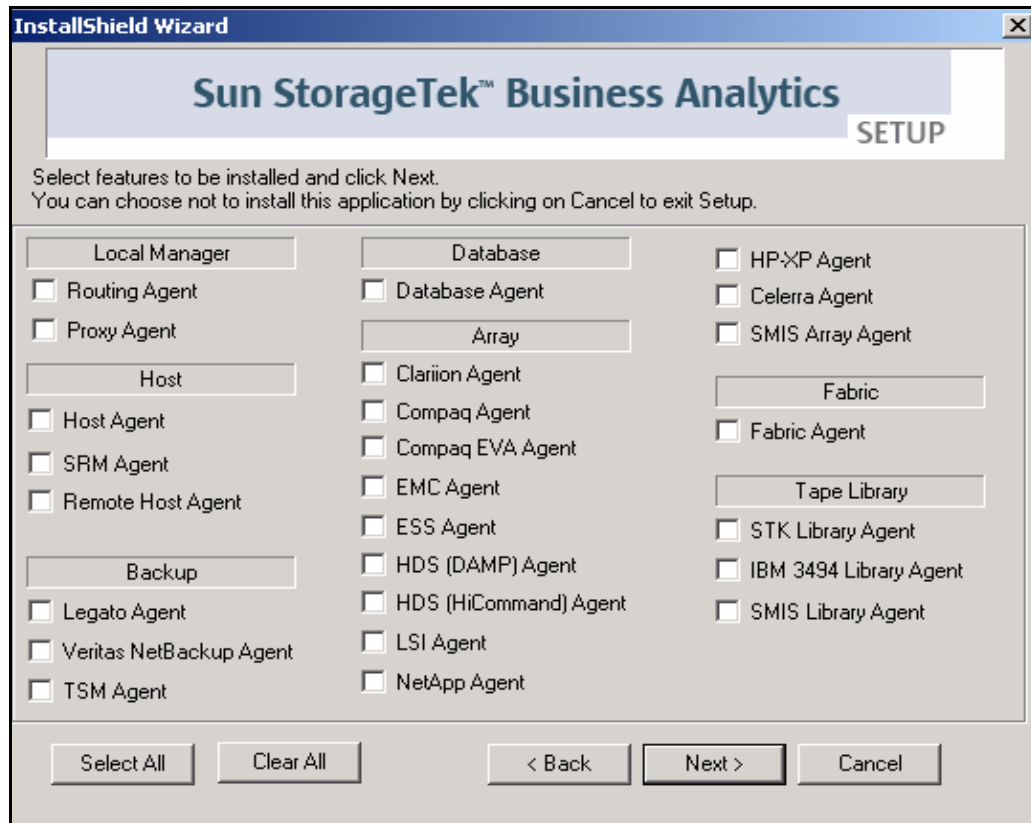
Figure 1 - Select Features To Be Installed

6. Review the settings and click **Next>** to continue.

7. Specify whether or not to install the new version of the Configuration Tool, if prompted.

8. When the Configuration Tool is automatically launched, select **File** -> **Edit** -> **Smart Agent Configuration**.

9. Click the **NetBackup Agent** tab.

Figure 2 - NetBackup Agent Configuration Window

10. Review/modify the following configuration parameters:

Note: For the parameters that require specifying a folder/directory, you can click the **Folder** icon to browse your system, or click the template-supplied value to move that value into the respective input field.

- **Local Manager** – Specify the IP address or host name for the Local Manager to be contacted for agent auto registration. The default value is localhost.

- **Local Manager Registration Port** – Specify the TCP port number the Local Manager uses for agent auto registration. The default TCP port number is 17146.

- **NetBackup Install Path** – Specify the fully qualified path to the NetBackup software.

- **NetBackup VolMgr Install Path** – Specify the fully qualified to the NetBackup Volume Manager.

- **bpimagelist output file**– Enter the full path for the output file used data returned from the bpimagelist. command.

- **bpmedialist output file**– Enter the full path for the output file to be used for the data returned from the bpmedialist. command

- **bpimmedia output file** – Enter the full path to the output file to be used for the data returned from the bpimmedia command.

- **bpdbjobs output file** – Enter the full path to the output file to be used for the data returned from bpdbjobs command.

- **bperror output file** - Enter the full path to the output file to be used for the data returned from the bperror command.

- **schedules output file** - Enter the full path to the output file to be used for the data returned from the bppllist and bpplsched commands.

- **vmquery output file** - Enter the full path to the output file to be used for the data returned from the vmquery command.

- **policies output file** - Enter the full path to the output file to be used for the data returned from the bppllist, bpplclients, and bpplinfo commands.

- **Full path to NetBackup catalog directory** - Enter the directory that will be the target of the cat_usage command.

- **min/hour: interval** - Specifies how often the dbimport job is to run. The first part (0:0) specifies the start time in minutes:hours. For example, 0:2 sets a start time of 2:00 a.m. The second field (14400) specifies the interval in seconds. In this case, every four hours. The default value is every four hours starting at midnight.

- **Default collection period (hrs)** - Enter the NetBackup Agent report period; the default value "24".

11. Click **Show Advanced Settings** to review/modify the following configuration parameter:

- **Enable Auto Registration** – Turns agent auto registration on (default) or off.

12. With "Save Configuration Settings" turned on (check mark), select **File->Save** and confirm saving changes to the storability.ini file.

13. Select **File->Exit** to close the Configuration Tool.

14. Use the Windows **Services** panel to start the Storability NetBackup Agent before you verify agent functionality.

INSTALLING NETBACKUP AGENT ON HP-UX

All currently supported HP-UX agents are provided as zipped tar archives with installation scripts. To install an agent, simply ensure that the archive (netBackupAgent-hpux.tgz) and the install script (netbackupAgent-install.sh) reside in the same location, and run the script.

```
./netbackupAgent-install.sh
```

HP-UX supports neither Rock Ridge nor Joliet extensions to the ISO 9660 filesystem specification. As a result, support for long filenames may not be available.

During the installation, the installer must specify the following information:

- The location of Perl if not detected
- The location of NetBackup if not detected
- The location of NetBackup vmquery if not detected
- The location of the NetBackup catalogs if not detected

Agent Auto Registration

To configure agent auto registration on an HP-UX server, you can add the NetBackup Agent to a Local Manager Routing Agent configuration as a SUB_AGENT entry or manually add the required entries to the agent storability.ini file. Sample storability.ini file entries appear below.

- `GSM_LM_HOST = 192.168.1.132`
- `GSM_LM_PORT = 17146`
- `GSM_ENABLE_LM_REGISTRATION = true`

INSTALLING NETBACKUP AGENT - SOLARIS

On the NetBackup Master Servers, install the following packages in the specified order:

1. GSMbase   The base package

2. GSMnbu   The NetBackup-for-Unix package

If the base package was already installed, you only need to install the Sun StorageTek Business Analytics NetBackup Agent package.

In the "software application administration settings" (admin settings), the installer can change the full path names to the data files from the master server, and the master server name. These data files are created by the **dbimport.sh** script.

These files include the ones listed below:
- Veritas imagelist file
- Veritas filelist file
- Veritas media list
- Veritas immedia list
- Veritas stat file
- Veritas schedule file
- Veritas vmquery file
- Veritas client policy file
- Veritas catalog directory

A full pathname must be specified. It should contain a unique name for the host. The default path for all of the files is: '/opt/storability/data/xfer/'. For example, the default path to the image list file is as follows:

`'/opt/storability/data/xfer/bpimagelist.cust2.out '.`

The installation procedure to install GSMbase and GSMnbu follows.

1. Open a terminal window on the desktop of the Solaris host.

2. Mount the installation CD in your CD-ROM drive.

   For example:

   `mount -o ro -F hsfs /dev/dsk/c0t6d0s0 /mnt`

   Note: The device path used for the CDROM device may vary.

3. Change to the appropriate package directory for the operating system you are installing on. For example:

```
cd /mnt/Unix/Solaris/8
```

4. Run the pkgadd command to obtain a list of available Sun StorageTek Business Analytics software packages to install

    ```
    pkgadd –d .
    ```

GSMbase

5. Select **GSMbase**.

6. Accept the default path by pressing **Enter**. The software need not be installed directly into /opt/storability. However, in order to ease administration and maintenance, a symlink will be created from /opt/storability to the real installation location if you choose a different base directory.

7. If the GSM group does not exist, you will be prompted to create the group. Agents, which do not require root privileges, will be run using a dedicated account (username gsm, group gsm). That user account need not be set up yet, but the group ownership of all the Business Analytics agent files requires that the group exist.

    Enter **y** to create then group and then enter a GID to be used for the gsm group or press **Ente**r to accept the default GID of 1090.

8. If the selected installation directory does not exist, you will be prompted to create it. Enter **y** to create the directory.

9. After checking package dependencies, the installation will prompt to allow it to execute scripts with super-user privileges. Enter **y** to allow the installation to continue. The installation of the **GSMbase** package will complete and return to the package menu.

GSMnbu

10. Select **GSMnbu** (Option 19).

11. Specify the fully qualified path to the NetBackup base directory where the bp.conf file is located and press Enter.

12. The installation script prompts you to specify the directory for the data files that dbimport creates. The default setting (/app/storability/data/netbackupAgent) does not need to be changed unless the server is part of a cluster. In this environment, the directory should be located under the shared file system (e.g., /usr/openv/storability).

    If you change the default directory, a symbolic link will be created to /opt/storability/data/netbackupAgent.

13. The installation will then prompt to modify the 'advanced' settings for the GSMnbu agent. Enter **y** *and press Enter* to review/modify the default values.

    - Local Manager – Specify the IP address or host name of the Local Manager to be contacted for agent auto registration.

    - Local Manager Registration Port – Specifies the TCP port number the Local Manager uses for auto registration; the default port number is 17146.

- Enable Auto Registration – Turns agent auto registration on (default) or off.

14. The installation will then prompt to start the agent after the installation. Enter **y** to start the agent after the installation completes.

15. After checking package dependencies, the package will prompt to allow it to execute scripts with super-user privileges. Enter **y** to allow the installation to continue.

16. The installation of the **GSMnbu** package will complete, the agent will be started, and it will then return to the Sun StorageTek Business Analytics package menu.

17. The installation is now complete; enter **q** to exit the menu.

If you decide to install the Sun StorageTek Business Analytics Host Agent on the Solaris clients of the NetBackup server, the following packages need to be installed on them in the following order:

1. GSMbase - The base package

2. GSMhost - The Host Agent package

NETBACKUP AGENT INSTALLATION IN CLUSTER ENVIRONMENT NOTES

Typically in a clustered NetBackup environment, the /usr/openv filesystem is configured on shared disk. As a result, when the node fails over, that filesystem moves to the primary node. Our installation approach is summarized as follows:

- Install the NetBackup Agent agent on both the primary and secondary nodes. When the NetBackup Agent is installed, a binary file called dbimport is installed. It contains the commands used to extract the data from NetBackup. The NetBackup CLI commands extract the data that is then put in the configured ".out" files in the "opt/storability/data/netbackupagent" directory. When a collect message is received by the NetBackup Agent, it parses those files and returns data upstream to the Routing Agent. Dbimport always checks to see if that NetBackup Agent data directory exists and will terminate if it does not.
- Create a symbolic link from the opt/storability/data/netbackupagent directory to a directory on the /usr/openv filesystem. By putting a symbolic link to the shared disk, it is certain that the dbimport on the backup node will never run (because the directory doesn't exist as it is mounted to the active node). When the failover occurs, the /usr/openv filesystem is moved along with all NBU processes at which time dbimport will now see the data directory and will execute the population of the 'out' files.

LEGATO AGENT

The following sections describe how you install and configure the Sun StorageTek Business Analytics Legato Agent on supported platforms. **Note**: The Legato Agent must be installed on the Legato NetWorker backup server.

LEGATO AGENT MATRIX

Feature	Description
Support Prerequisites	
Verify supported version of Legato NetWorker product	
Verify Ethernet connectivity to Backup Servers	`ping <IP Address>`
Storability Host Agent	Required to support the Meta Database Capacity report.
Agent Installation	
Windows	• Windows Local Manager Installation CD (InstallShield) • Windows Administrator privileges
Solaris	• Solaris Local Manager Installation CD (package installation) • root user account privileges • GSMbase
Configuration Parameters	The configuration parameters for each backup agent are specific to that agent. See the required configuration parameters in the Installation sections that follow.

Table 3 - Legato Agent Matrix

INSTALLING LEGATO AGENT - WINDOWS

1. Insert the Sun StorageTek Business Analytics Windows Local Manager CD into the CD-ROM drive.

2. Click **Next** on the Welcome menu to continue the installation.

3. Click **Yes** to accept the terms of the software license agreement.

4. Review/modify the User Name and Company Name and click **Next**.

5. Click the **Legato Agent** checkbox on the screen that lists agents for installation and click **Next**.
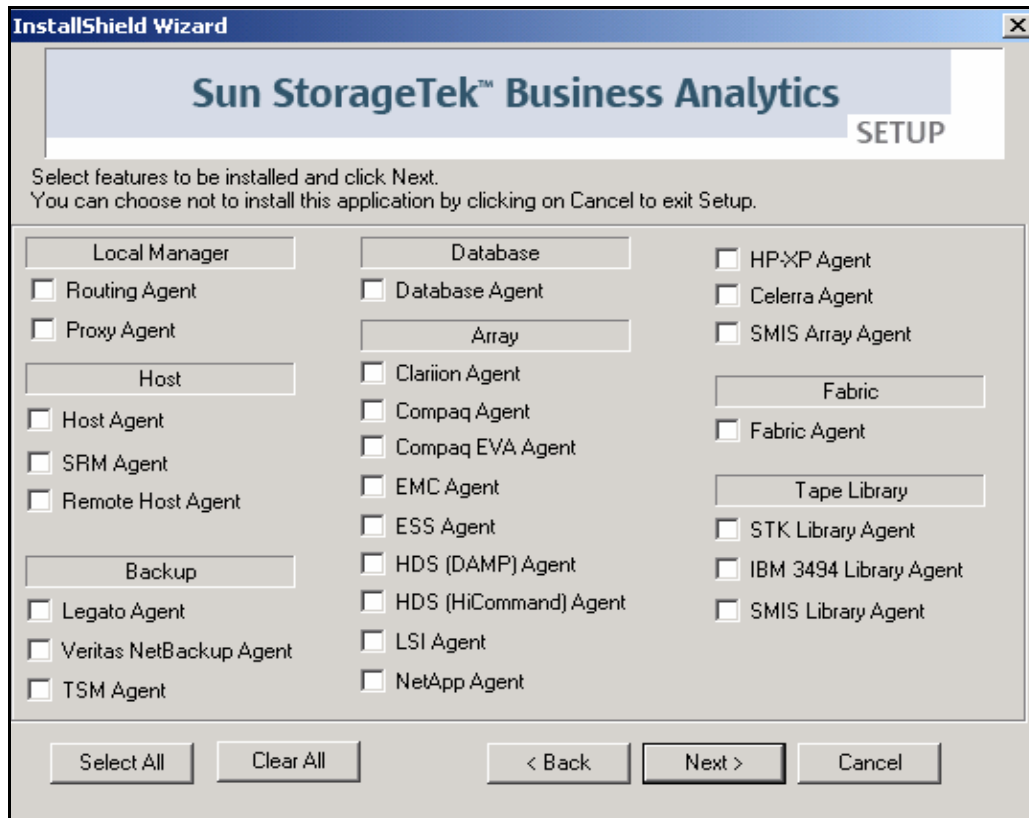
Figure 3 - Select Features To Be Installed

6. Review the settings and click **Next** to continue with the installation.

7. When the dialog box appears, specify where the required **mminfo.exe** program is located. You can click the **Browse** button to locate it.

8. Specify whether or not to install the new version of the Configuration Tool, if prompted.

9. When the Configuration Tool is automatically launched, select **File** -> **Edit** -> **Smart Agent Configuration**.

10. Click the **Legato Agent** tab and review/modify the following settings:
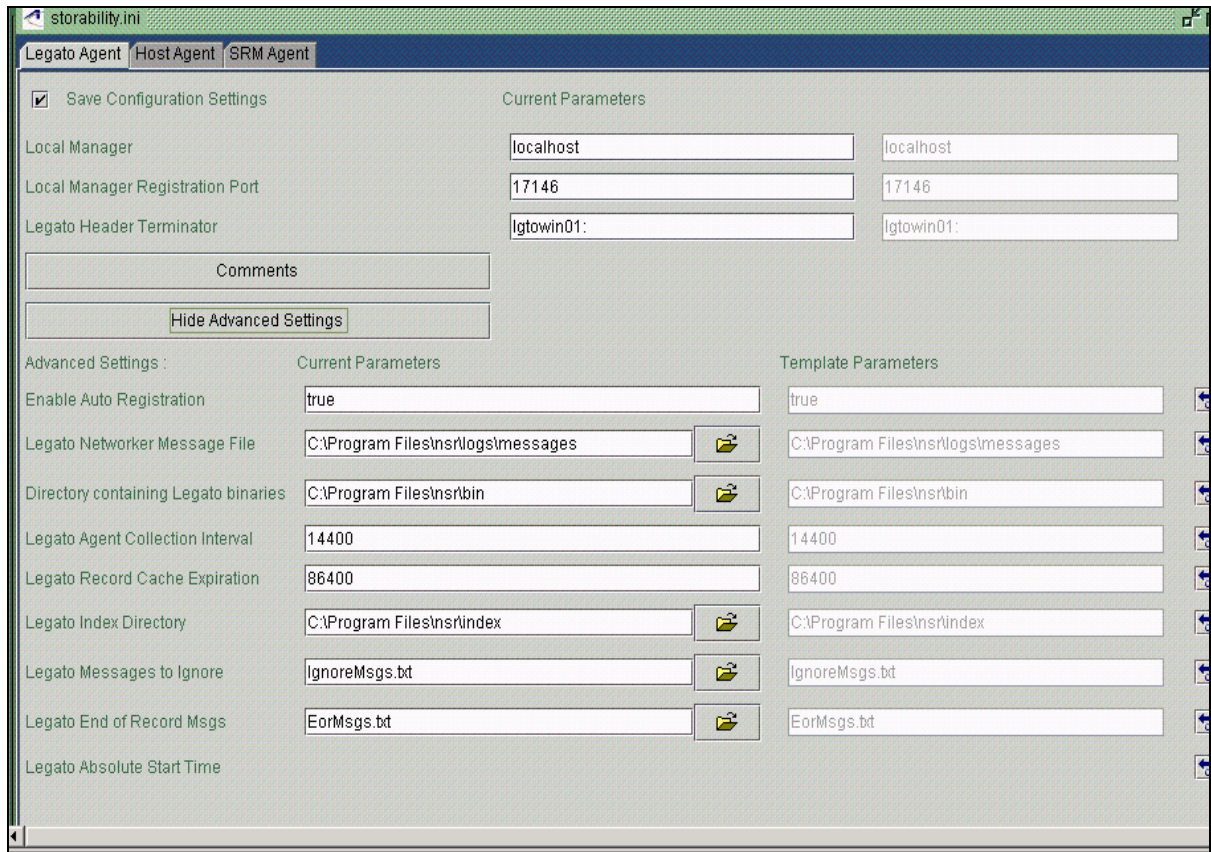
Figure 4 - Legato Agent Configuration Window

- For **Local Manager**, specify the IP address or the host name of the Local Manager to be contacted for agent auto registration.

- For **Local Manager Registration Port**, specify the TCP port number the Local Manager uses for agent auto registration. The default port number is 17146.

- For **Legato Header Terminator**, specify the text string that marks the end of the syslog stamp and the start of real data. The default value is "lgtowin01:".

11. Click **Show Advanced Settings** and review/modify the following configuration parameters:

- **Enable Auto Registration** turns agent auto registration on (default) or off.

- **Legato Networker Message File** - Enter the fully qualified file name (e.g., c:\Program Files\nsr\logs\messages) for the file that provides the list of messages contained within the Legato completion reports.

- **Directory containing Legato binaries** - Enter the full path to the folder where the Legato Networker software is installed.

- **Legato Agent Collection Interval** - Enter the polling interval in seconds to scan for new completions of server backups in the Execution Interval column. This parameter is optional. If not specified it defaults to one half hour (14400 seconds).

- **Legato Record Cache Expiration** - Enter the polling interval in seconds to scan for new completions of server backups. This parameter is optional. If not specified, the default value is one half hour (86400 seconds).

- **Legato Index Directory** – Enter the full path to the Legato index directory.

- **Legato Messages to Ignore** – Enter the full path to the file (e.g., IgnoreMsgs.txt) containing a list of completion messages to be ignored by the agent.

- **Legato End of Record Msgs** – Enter the full path to the file (e.g., EorMsgs.txt) containing additional strings treated as an End of Record delimiter in the messages log.

12. With "Save Configuration Settings" turned on (check mark), select **File->Save** and then close the storability.ini window.

13. Select File->Exit to close the Configuration Tool.

14. Use the Windows Services panel to start the Storability Legato Agent before you test agent functionality.

INSTALLING THE LEGATO AGENT - SOLARIS

1. Open a terminal window on the desktop of the Sun host.

2. Mount the installation CD in your CD-ROM drive.

3. Change to the directory for the operating system you are installing on. For example:

    ```
    cd /mnt/Unix/Solaris/8
    ```

4. Run the pkgadd command.

    ```
    pkgadd –d .
    ```

5. Select the **GSMlegato** agent from the package installation menu.
   The Storability Software License Agreement appears.

6. Specify the following required information:

- **Local Manager** - Enter the network resolvable host name or IP address of the Local Manager that the Legato Agent will contact for agent auto registration, if enabled.

- **Local Manager Port** – Specify the TCP port number the Local Manager uses for agent auto registration. The default TCP port number is 17146.

- **LEGATO_DIR** – Specify the fully qualified path to directory where the nsradmin binary is located.

- **LEGATO_CAT_DIR** – Specify the fully qualified path to the NetWorker index directory.

- **LEGATO_MESSAGE_FILE –** Specify the fully qualified path to the Legato NetWorker messages log.

- **LEGATO_HEADER_TERMINATOR** – Specify the text string that marks the end of the syslog stamp and the start of real data.

- **LEGATO_IGNORE_MSGS** – Specifies the fully qualified path to the file containing a list of completion messages to be ignored by the agent.

  Note: In addition to this file, a line on which a timestamp is immediately followed by an asterisk (*) will be ignored by the agent.

- **LEGATO_CLIENT_CMDS** – Specifies the fully qualified path to the file containing commands used to gather client data.

7. Type **y** and press Enter to review/modify the Advanced Settings:

- **Enabled Auto Registration** – Turns agent auto registration on (default) or off.

- Enter the **MAXIMUM_CACHE_AGE** (in seconds).

- Enter the **Data Collection Interval** (in seconds).

8. Enter **y** to restart the agents after installation.

9. When prompted, type **y** to allow the installation script to run with super-user permissions.

10. The installation will complete and return you to the main package installation menu.

11. Enter the number for any other package you wish to install, **q** or to quit.

TIVOLI STORAGE MANAGER (TSM) AGENT

The following sections describe the installation and configuration of the Sun StorageTek Business Analytics TSM Agent. Currently, the TSM Agent must be installed on a supported Windows 2000 server. See also the *Sun StorageTek Business Analytics Support Matrix*.

TSM AGENT MATRIX

Feature	Description
Support Prerequisites	
Verify supported version of TSM product	
Verify Ethernet connectivity to Windows 2000 server	`ping <IP Address>`
Verify supported version of TSM ODBC Driver	See the TSM ODBC System DSN Prerequisite section that follows

TSM AGENT MATRIX

Feature	Description
Verify customer-supplied login/password with query privileges or higher for each TSM database connection	
Agent Installation	
Windows 2000	• Windows Local Manager Installation CD (InstallShield) • Windows Administrator privileges
Configuration Parameters	See required configuration parameters in the Installation section that follows.

Table 4- TSM Agent Matrix

TSM ODBC SYSTEM DSN PREREQUISITE

The procedure to create the **required** System Data Source Name is outlined as follows:

1. Select Start->Settings->Control Panel -> Administrative Tools from the Windows desktop.
2. Select **ODBC Data Sources** to launch the ODBC Data Source Administrator.
3. Click the **System DSN** tab.
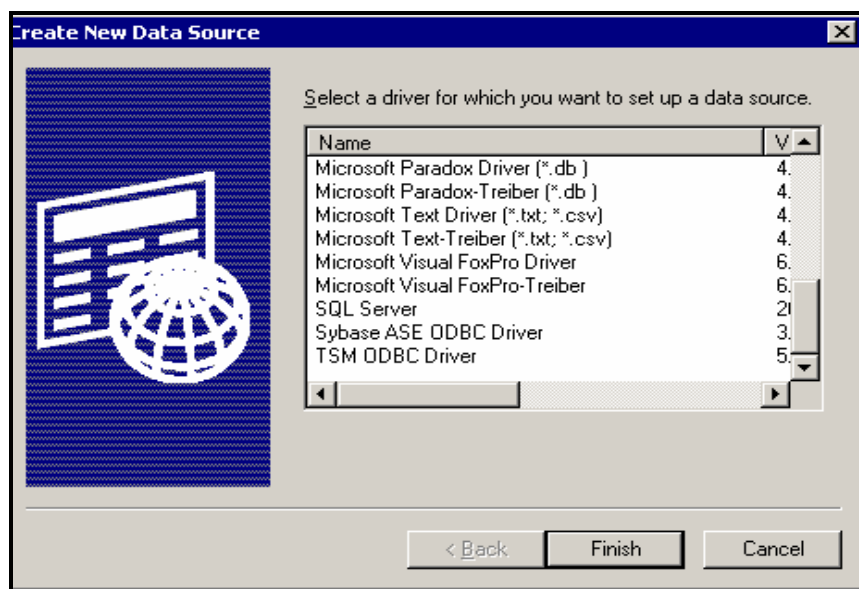4. Click **Add** and the **Create Data Source** screen appears**.**

Figure 5 - Create New Data Source for TSM ODBC Driver

5. Use the scroll bars to verify a supported version of the TSM ODBC Driver is installed, and select the TSM ODBC Driver for the data source you are creating. The Configure a Data Source screen appears.
6. Enter a descriptive name for the System DSN that will be used to connect to a TSM database server in the **Data source name** field.
7. Enter the TCP/IP address to connect to the TSM database server in the **TCP/IP address** field.

Figure 6 - Configure a TSM Data Source

Note: Sun StorageTek highly recommends that you use a third party ODBC query tool (e.g., QTADO) to verify the System DSN before you deploy it with a TSM Agent.

INSTALLING THE TSM AGENT - WINDOWS

The following section describes how to install and configure the TSM Agent on a Windows platform.

1. Insert the Local Manager CD into the CD-ROM drive.

2. Click **Next** on the Welcome menu to continue the installation.

3. Click **Yes** to accept the terms of the software license agreement.

4. Review/modify the User Name and Company Name and click **Next**.

5. Click the **TSM Agent** checkbox on the screen that allows you to select agents for installation and click **Next**.
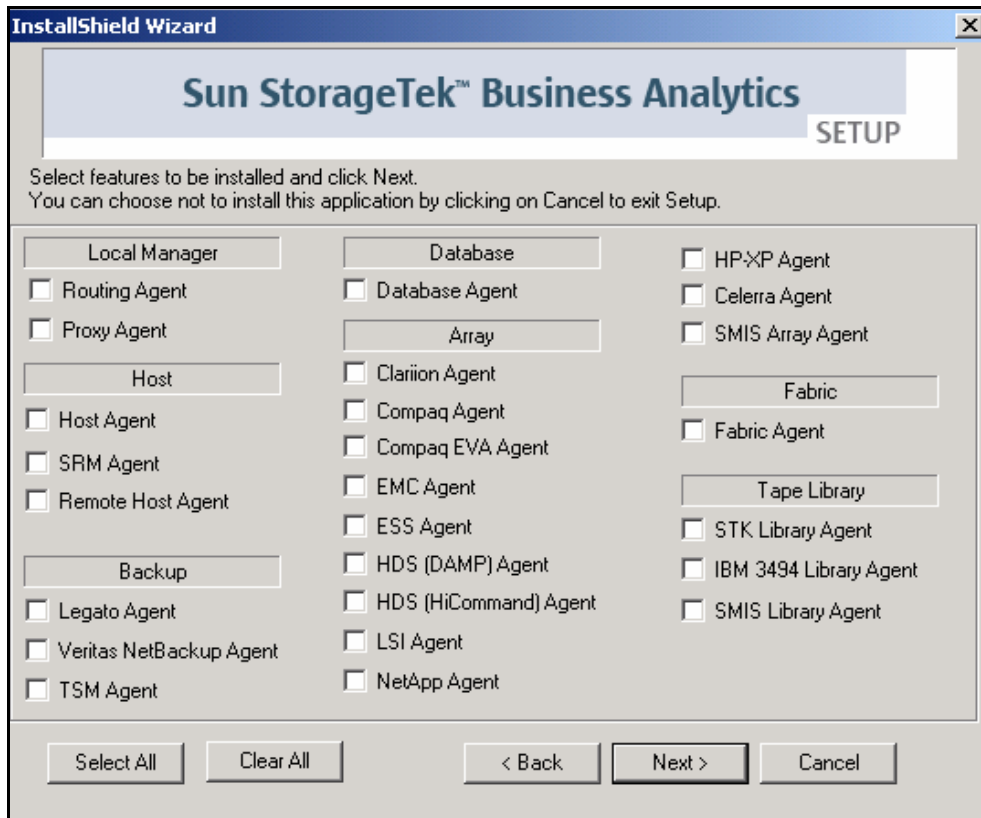
Figure 7 - Agent Selection Dialog

6. Review the settings and click **Next** to continue.

   Note: Installation checks for an instance of the TSM ODBC driver. If one is not detected, a dialog box appears that asks the installer to specify whether or not to continue the installation.

7. Specify whether or not to install the new version of the Configuration Tool, if prompted.

8. When the Configuration Tool is automatically launched, select **File** -> **Edit** -> **Smart Agent Configuration**.

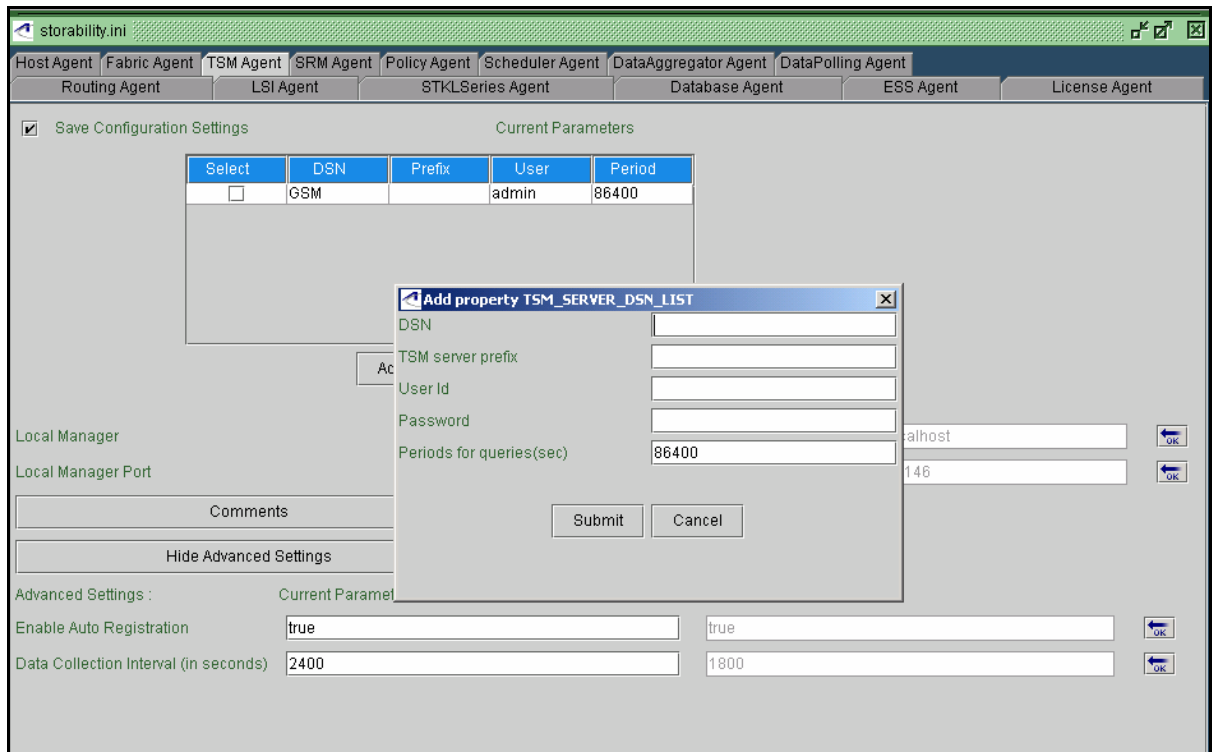9. Click the **TSM Agent** tab and click **Add**.

Figure 8 - TSM Agent Configuration Window

10. Review/modify the following variables:

- **DSN** - The data source name that you configured when you created the System DSN
- **TSM Server Prefix**- Optional string to be pre-pended to the server name TSM returns for this DSN. For example, host_name_servername.
- **User ID** - User name to log into the TSM database
- **Password** – Password for the user to log into the database
- **Period for Queries** – Time interval (in seconds) that the agent should look back for historical queries. The default value is 86400 seconds (1 day).

11. For **Local Manager**, enter the network resolvable host name or IP address of the Local Manager to be contacted for agent auto registration.

12. For **Local Manager Registration Port** – Specifies the TCP port number the Local Manager uses for agent auto registration. The default port number is 17146.

13. Click **Show Advanced Settings** to review/modify**:**

- **Enable Auto Registration** - Turns agent auto registration on (default) or off.

- **Data Collection Interval** (seconds) – Specifies how long agent data is cached; the default interval is 2400 seconds.

14. With "Save Configuration Settings" turned on (check mark), select **File->Save** and confirm saving changes to the storability.ini file.

15. Select **File-Exit** to close the Configuration Agent.

16. Use the Windows **Services** panel to start the Storability TSM Agent before you verify agent functionality.

   Starting the agent will initiate a data collection. Depending on the size of your backup environment, this can utilize a significant amount of memory.

VERIFYING BACKUP AGENT

Use the GSM Agent Diagnostic Tool to verify the Backup Agent functionality. This tool is installed as part of the Central Manager or Local Manager software installation in the Storability Local Manager Utilities folder. It represents the primary tool to verify agent functionality or troubleshoot agent problems.

Proceed as follows:

1. Wait approximately 30 seconds after the Backup Agent has started to allow it to initialize before querying it with the GSM Agent Diagnostic Tool.

    a. In the **Agent location** window, enter the IP Address or network resolvable Host Name of the server where the agent is installed in the **ip address/host name** input box.

    b. Select the backup agent (e.g., Storability NetBackup Agent) from the drop down list of service names.

    c. Click the **Get Object List** button and you should receive a list of objects published by the agent.

    d. Check the agent configuration settings in the storability.ini file; collect the **gsa_ini_control-2_0** object.

Figure 9 - Sample NetBackup Agent Configuration Settings

Figure 10 - Sample Legato Agent Configuration Settings

    e. Select the **gsa_backup_client_policy-2_2** object and verify that data is returned including IP Address, client, and policy.

    f. Proceed to verify all other objects published by the agent.

2. To verify the Backup Agent has registered successfully with its configured Local Manager:

    a. In the **Agent location** window, enter the IP Address or network resolvable Host Name of the Local Manager in the ip address/host name input box.

    b. Set the port to 17146 (or select the Storability Routing Agent from the drop down list of service names).

    c. Click the **Get Object List** button and you should receive a list of objects published by the Routing Agent.

    d. Select the **gsa_agent_register** table.

    e. Verify this collected object reports the Backup Agent in the "active_peer" field by IP address (where the agent is installed) and appropriate port number:

- Storability NetBackup Agent – TCP port number is 17133.

- Storability Legato Agent – TCP port number is 17149

- Storability TSM Agent – TCP port number is 17156

                                            Backup Agents Installation Guide

VERIFYING MANAGEMENT CONSOLE FUNCTIONALITY

The following procedure describes how the administrator verifies the Backup Agent's reports in the Management Console. Refer to the *Administration* chapter to obtain information on the administrative menus you can access from the **Tools** pull down menu, including the **Polling** and **Change Dashboard** menus.

Note: You must be assigned Backup Administrator privileges to have access to the Backup Exceptions, Meta Database Capacity, Real Time Events, Backup Exposure, and TSM Daily Administration reports. Refer to the User Administration section of the **Administration** documentation to obtain additional information.

1. Log in to the Management Console as an administrative user (e.g., gsmuser) whose view provides access to the desired assets (e.g., sites).
2. Verify that your customized Home Page includes the **Backup Status Summary** dashboard or the **TSM Summary Report** pane as appropriate (or use **Change Dashboard** to choose one).
3. Select **Tools->Polling**. In the **Data Polling Schedule** menu, locate appropriate Collection Type and Collection Metric polling schedules for the backup product.

Polling

Polling Schedules

| Refresh | Print |

Schedules are in Central Manager local time.

	Job ID	Enabled	Site	Collection Type	Collection Metric	Schedule	
☐	1	Yes	All	General	Agent Version	Every 1 hour starting 1/1/2004 0:05	Collect Now
☐	2	Yes	All	General	Alerts	Every 1 hour starting 1/1/2004 0:00	Collect Now
☐	3	Yes	All	Array	Configuration	Every 3 hour starting 1/1/2004 0:00	Collect Now
☐	4	Yes	All	Array	Allocation	Every 3 hour starting 1/1/2004 2:00	Collect Now
☐	5	Yes	All	Array	Performance	Every 1 hour starting 1/1/2004 12:45	Collect Now
☐	6	Yes	All	Backup - Common	Meta Data	Every 4 hour starting 1/1/2004 8:00	Collect Now
☐	7	Yes	All	Backup - Common	Configuration	Every 4 hour starting 1/1/2004 6:00	Collect Now
☐	8	Yes	All	Backup - TSM	Devices	Every 4 hour starting 1/1/2004 6:10	Collect Now
☐	9	Yes	All	Backup - TSM	Media	Every 4 hour starting 1/1/2004 6:50	Collect Now
☐	10	Yes	All	Backup - TSM	Optional	Every 4 hour starting 1/1/2004 9:00	Collect Now
☐	11	Yes	All	Backup - TSM	Events	Every 4 hour starting 1/1/2004 7:30	Collect Now
☐	12	Yes	All	Backup - Veritas, Legato	Jobs	Every 4 hour starting 1/1/2004 6:15	Collect Now
☐	13	Yes	All	Backup - Veritas, Legato	Media	Every 4 hour starting 1/1/2004 6:40	Collect Now
☐	14	No	All	Backup - Veritas	Real Time Events	Every 10 minute starting 1/1/2004 12:08	Collect Now
☐	15	Yes	All	Backup - Veritas	Schedule	Every 4 hour starting 1/1/2004 6:15	Collect Now
☐	16	Yes	All	Database	Configuration	Every 3 hour starting 1/1/2004 0:21	Collect Now

Figure 11 - Polling Schedules

4. Click the **Collect Now** for the first on-demand agent data request for a Collection Type and Collection Metric related to the Backup Agent.
5. Repeat the above step until you have collected all the data, including the Collection Type of Backup – Common, for the Backup Agent. Wait approximately thirty seconds between each on-demand agent data collection request.

   Note: The actual time it takes to collect backup information will vary depending on the size of the backup environment.
6. Close the **Polling Schedules** window.

7. Use the **Backup Status Summary** pane for Veritas/Legato or the **TSM Summary Report** pane to determine if collected data is visible through the Management Console. It is normal for the **Backup Status Summary** pane to not display information if no failures occurred over the past 24 hours.
8. Close the browser session with the Management Console as the above steps complete verifying basic Management Console functionality.

BACKUP AGENT TROUBLESHOOTING

1. **Verify system/agent prerequisites** – Refer to *Sun StorageTek Business Analytics Support Matrix* that is located on the Documentation CD to verify the most recent support requirements for the Backup Agent.
2. Use the Agent Diagnostic Tool to save the output for all the agent published objects if escalating a problem to Sun Technical Support.
   a. Run GSMdiag located in the Storability Local Manager Utilities folder.
   b. Enter the **IP Address** or **Hostname** of the server where the agent is installed and set the port by selecting the Backup Agent from the drop down list of service names.
   c. Click the **Get Object List** button and you should receive a list of tables published by the Backup Agent. If unsuccessful, verify the Ethernet connectivity to the server running the Backup Agent and that the agent is running.
   d. Select the **alerts-3_1** table and examine the **Description** column for each reported alert.
   e. Select **File->Save All** and the "This action will network fetch all objects published by the currently specified agent and save the data to a single file." Message appears.
   f. Click **OK** and the **Save As** dialog appears.
   g. Enter a meaningful file name and click **OK** to initiate the collection.

3. **Review the Message Log** – Review/collect the agent's Message.log file that can contain information on startup errors, configuration errors, or errors regarding accessing data or parsing output.

   Windows

   - Located by default in: <drive>:\Program Files\Storability\GSM\Agents\Storability <Backup Agent> Agent folder.
   - Can enable debug level logging by appending **LOG_SEVERITY=Debug** to the Backup Agent section of the storability.ini file (if a Support representative requests it).

   Solaris

   - The agents' common Message.log file located by default in: /opt/storability/data.
   - Can enable debug level logging by appending LOG_SEVERITY=Debug to the Backup Agent section of the storability.ini file (if Sun Support requests it).

4. **Verify Local Manager Registration -** The configured Local Manager **gsa_agent_register** table should be reviewed to verify a registration type (STATIC or AUTO_NET) is reported for the backup agent. If static registration is being used and no agent registration is reported, verify the necessary SUB_AGENT entry has been added to the Routing Agent's storability.ini file and restart the Routing Agent.

   If agent auto registration is being used and no registration is reported in gsa_agent_register, proceed as follows:

   □ Routing Agent's storability.ini file has "Activate Agent Registration" turned on.

☐ Backup Agent is configured for agent auto registration:
   - Valid Local Manager IP address/host name
   - Local Manager TCP port number is 17146 (default port number)
   - Enable auto registration is turned on (true)

5. **Review the Routing Agent Message Log** – Review/collect the configured Routing Agent's Message Log to check for errors related to Ethernet connectivity problems contacting the Backup Agent.
6. **Confirm Polling Schedules** – Using the Management Console's **Polling Schedules** window, review/modify the existing Polling Schedules for the Collection Type and Backup product. Clicking the **Job ID** link on the Polling Schedules window opens the Add a New Polling Job window where changes can be made.

Figure 12 - Add a New Polling Job

7. **Review Aggregator Message Log** – Open the Aggregator's Message Log in a text editor and validate that the Backup Tables are being requested and that rows are being inserted into the database.
   The log contains two entries, TID (Transaction ID) and SID (Session ID), which can help you locate (e.g., Find) and view relevant logged entries. For scheduled polling requests, the TID will be equal to the Job ID in the Polling menu. Each SID is a unique identifier for a particular agent data collection session. For on-demand polling requests, the TID is a uniquely generated TID (not the Job ID) and SID, and the TID and SID will be equal to the same integer value.
8. **Check the assurent database** – The assurent database is the data repository for your Business Analytics application. For the Backup Agent, use any MS SQL Query interface, such as isql, to verify rows have been inserted into the Backup-related tables for the particular backup product. Refer also to Table 2 - Populated Tables Matrix.

9. **Verify Management Console Functionality** – As a final step in the agent troubleshooting procedure, minimally verify that the **Backup Status Summary** or **TSM Summary Report** dashboard pane works properly.

UPGRADE BACKUP AGENT

To upgrade a Sun StorageTek Business Analytics Backup Agent, you perform the following procedure:

1. Uninstall the previously installed Backup Agent.
2. Upgrade by installing the latest Backup Agent supplied with your Sun StorageTek Business Analytics software.

UNINSTALL BACKUP AGENT - INSTALLSHIELD

1. Select **Start->Program Files->Storability->Uninstall->Uninstall Local Manager**
   Or:
   Start->Program Files->Storability->Uninstall->Uninstall <Backup Agent Name>. The Storability Uninstall dialog appears.
2. Click the checkbox for the particular agent (e.g., NetBackup Agent).
3. Click **Next>**. The **Question** dialog appears.
4. Click **Yes** to confirm the uninstalling the agent. An uninstalling agent splash box appears as each selected agent is uninstalled.
5. When the InstallShield Wizard Complete dialog box appears, click **Finish**.

UNINSTALL BACKUP AGENT – SOLARIS

1. Create a backup copy of the existing storability.ini file.

2. Type:

```
pkgrm GSM<backup agent name> e.g., GSMnbu
```

3. At the "do you want to remove this package" prompt, enter **y** and press **Enter**.

4. At the "do you want to continue the removal of the package?" prompt, type **y** and press **Enter**. The "Removal of GSM<agent name>" agent was successful" message should appear to indicate the package was removed successfully.

REINSTALL BACKUP AGENT – NON-SOLARIS UNIX HOST

The reinstallation procedure for all Storability agents supported on non-Solaris UNIX hosts, such as the NetBackup Agent on a HP-UX server, requires that the installer perform the following steps **before** running the agent's installation script:

1. Make a backup copy of the existing agent configuration file (storability.ini).

2. Make a backup copy of the contents of /opt/storability/etc/agents.

3. Open the existing agent configuration file (storability.ini) in a system text editor.

4. Locate the configuration section for the agent to be reinstalled.

5. Delete all existing configuration settings for that Storability agent.

6. Save the modified agent configuration file.

7. Remove the existing /opt/storability/etc/agents directory.

At this point, you may reinstall the agent using the agent's installation script.