Sun StorageTek™ Business Analytics Getting Started Guide

Release 5.0 SP1

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INTRODUCTION

Getting Started is designed for the Sun StorageTek Business Analytics administrator who:

- Is familiar with the Sun StorageTek Business Analytics software components and tools.
- Does not require detailed instructions to install, configure, and verify these software components.

Notes:

- 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.
- If you want to obtain more detailed, step-by-step procedures to install, configure and verify a first time installation of the infrastructure software components (or an upgrade installation), refer to the *Installation* manual.
- Always refer to the *Sun StorageTek Business Analytics Release Note* to obtain the latest information on Sun StorageTek Business Analytics.

DEPLOYMENT TYPES

There are several types of deployments:

- First time deployment of Sun StorageTek Business Analytics 5.0 SP1 software components
- Upgrade deployment of Sun StorageTek Business Analytics (e.g., upgrading GSM Release 4.0 SP4 to Sun StorageTek Business Analytics Release 5.0 SP1).

The *Installation* chapter has separate instructions for each type of Sun StorageTek Business Analytics deployment. This chapter summarizes the procedure for a **first time** installation.

IMPLEMENTATION SUMMARY

This implementation process may be divided into the following steps:

1. Verify/install the Sun StorageTek Business Analytics Central Manager prerequisites.
2. Verify/install the Sun StorageTek Business Analytics Management Console prerequisites.
3. Install Sun StorageTek Business Analytics Central Manager on your Windows 2000/2003 server.
4. Install the software license file on the Central Manager.
5. Configure and start the Central Manager agents.
6. Install the Management Console on your Windows 2000/2003 server.
7. Configure the Sun StorageTek Business Analytics application using the Management Console.
8. Verify the basic functionality of the Management Console components.
9. Install and configure Sun StorageTek Business Analytics Local Managers.
10. Install and configure Sun StorageTek Business Analytics Smart Agents.

The following sections describe the high-level tasks to deploy and verify a Sun StorageTek Business Analytics Release 5.0 SP1 first-time implementation.

Implementation Steps

Step 1: Verify/Install Central Manager Prerequisites

1a. Verify/install MSL SQL Server Database software.
1b. Install and configure Database Client Software.

Step 1: Checklist

- ☐ If not installed, install Microsoft SQL Server using the instructions that the *Installation* chapter provides.
- ☐ Install Microsoft SQL Server Service Pack 3 (or higher) after you install Microsoft SQL Server.
- ☐ Install Microsoft data access client (this should be installed as part of SQL Server 2000).
- ☐ Ensure the database client software can access the database server prior to installing the Central Manager software.

Step 2: Verify/Install Management Console Prerequisites

☐ 2a. Verify/ install Microsoft IIS 5.0 or IIS 6.0. If you are using IIS 6.0, enable Active Server Pages.

Verify Microsoft IIS is installed on the Management Console

To verify the Microsoft IIS 5.0 or 6.0 requirements, proceed as follows:

1. Open Internet Explorer on the Management Console server and enter a URL of http://127.0.0.1. If the default page is not returned, IIS is not running, or more likely is not installed. If IIS is not installed, install it from the Windows 2000/2003 installation CD.

Install Microsoft IIS 5.0

The installation procedure for IIS 5.0 is summarized as follows:

2. Install and enable Microsoft IIS.

3. Using the Windows **Services** panel, confirm the service is configured to auto-start and is running before proceeding to the next step.

Install Microsoft IIS 6.0 for Management Console

The installation procedure for IIS 6.0 is summarized as follows:

1. From the **Start** menu, click **Control Panel**.
2. Double-click **Add or Remove Programs**.
3. Click **Add/Remove Windows Components**.
4. In the Components list box, click **Application Server**.
5. Click **Details**.
6. Click **Internet Information Services Manager**.
7. Click **Details** to view the list of IIS optional components.
8. Select all the optional components you wish to install. The World Wide Web Publishing Service optional component includes important subcomponents like

the Active Server Pages component and Remote Administration (HTML). To view and select these subcomponents, click World Wide Web Publishing Service and then click Details.

9. Click **OK** until you are returned to the **Windows Component Wizard**.
10. Click **Next** and complete the Windows Component Wizard.
11. Click **Start -> Administrative Tools -> IIS Manager** (or load the Control Panel, enter the Administrative Tools folder, and double click IIS Manager).
12. Go to the **Web Service Extensions** tab.
13. Click **Active Server Pages**, and then press the "Allow" button on the left. Active Server Pages should now work.
14. To prevent IIS from timing out before the Management Console, perform the following procedure:
    a. Open **Properties** on the Default Web Site.
    b. On the first tab (Web Site), change the Connection Timeout to 900 seconds, which is the setting used in IIS 5.0.

Note: It is recommended that you set the resolution to greater than 256 colors on the Microsoft IIS Web server on which you install the Sun StorageTek Business Analytics Management Console.

Step 3: Install Central Manager

- 3a. Install Sun StorageTek Business Analytics Central Manager.
- 3b. Perform post-installation tasks.

Step 3a: Installation

The Sun StorageTek Business Analytics Central Manager is an Install Shield-based installation. The **Typical** setup option installs the Data Aggregator, Routing Agent, License Agent, the Policy Agent, the Scheduler Agent, the Data Polling Agent, the Remote Host Agent, and the Host Agent as well as initializes the assurent and portal databases. It also creates the Scheduled Jobs in the Windows Scheduler.

The SRM Agent and Proxy Agent can be optionally installed on the Sun StorageTek Business Analytics Central Manager by selecting the **Custom** installation option.

Note: The Host Agent for Windows requires the Microsoft Disk Manager Diagnostics (dmdiag.exe) utility to report physical and logical volume information for dynamic disks. This can be downloaded for Windows 2000 servers from Microsoft at the following URL:

http://www.microsoft.com/windows2000/techinfo/reskit/tools/existing/dmdiag-o.asp

In addition, you need to verify the installation directory of the EMC PowerPath software, if applicable, to enable end-to-end storage mapping in the reports.

- Is EMC PowerPath software installed?
- If installed, what is the location of the powermt executable program?

Step 3b: Post-Installation Tasks

1. Close the **Configuration Tool** that auto-launches after the installation is completed. You will configure the agents after you verify the Central Manager Database Setup completed successfully.
2. If errors were encountered during the installation, review the installation log file:

- Check <install drive>:\Program Files\Storability\GSM\CminstallLog.txt for any warnings or error messages.

Notes: The most common installation problem is the inability of the Central Manager Database Setup to install the databases. This is typically because the database client software is not installed or configured, or the wrong username/password has been supplied to the installation program.

Step 4: Install Software License

1. Copy the Sun StorageTek Business Analytics license file (supplied separately by your Sun representative) to the Central Manager Routing Agent's directory/folder on the Central Manager. The default installation path is: **<install path>**\ Program Files\Storability\GSM\Agents\Storability Routing Agent.
2. Paste the license file in the above specified folder and save the file as **license.txt**.

Note: You can verify that the Central Manager Routing Agent located a valid software license at startup by either checking the agent's Message log for a logged message or by viewing the Management Console's **License Report** (see the *Administration* chapter).

Step 5: Configure and Start the Central Manager Agents

- 5a. Use the **Configuration Tool** to configure the agent-specific configuration settings.
- 5b. Start the agents installed on the Sun StorageTek Business Analytics Central Manager.
- 5c. Verify the Central Manager Agents' functionality.

Step 5a: Central Manager Agent Configuration

The Configuration Tool is used to configure the Sun StorageTek Business Analytics agents that you have installed on the Central Manager. These agents must be installed, configured, and running before you set up agent data collection using the Management Console's **Polling Schedules** menu.

Notes: The GSM_LM_HOST, GSM_LM_PORT, and GSM_ENABLE_LM_REGISTRATION settings in the storability.ini file are used to control agent auto registration of Sun StorageTek Business Analytics agents. All agents installed on the Sun StorageTek Business Analytics Central Manager require "GSM Upstream Messaging" to be enabled with the exception of the Routing Agent.

Launch the Configuration Tool

1. Select **Start->Programs->Storability->Launch Configuration Tool** on the Sun StorageTek Business Analytics Central Manager to launch the Configuration Tool.

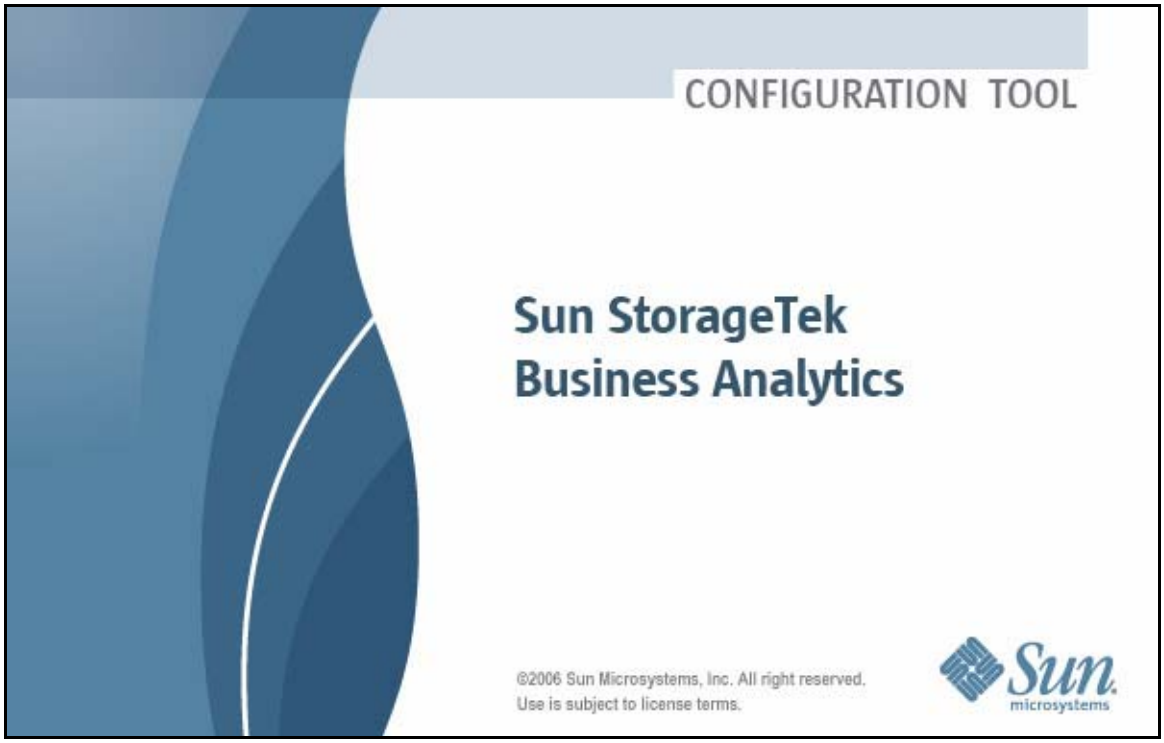

Figure 1 - Configuration Tool Splash Screen

2. Select **File->Edit->Smart Agent Configuration**. The Smart Agent configuration main window is displayed, similar to the one shown below that has the License Agent tab enabled.

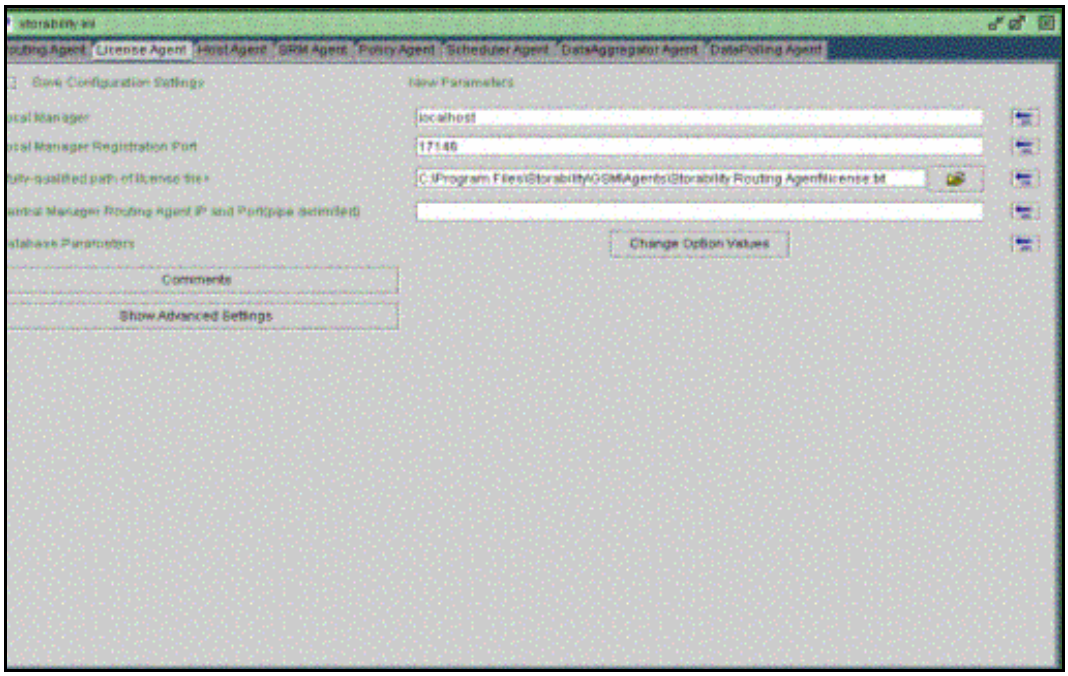

Figure 2 - Storability License Manager Configuration Window

CONFIGURE ROUTING AGENT

A Sun StorageTek Business Analytics Central Manager (or Local Manager) runs a Routing Agent, whose primary responsibility is to perform agent data collection within the messaging infrastructure.

Note: Because the Sun StorageTek Business Analytics Central Manager runs the Routing Agent, it is by definition also a Local Manager. However, the Central Manager Routing Agent serves as the top-level Routing Agent in the messaging infrastructure.

Proceed as follows to configure this agent:

1. Launch the Configuration Tool.
2. Select **File->Edit->Smart Agent Configuration**.
3. Click the **Routing Agent** tab. The Routing Agent Configuration Window, with **Show Advanced Settings** turned on, is shown below.

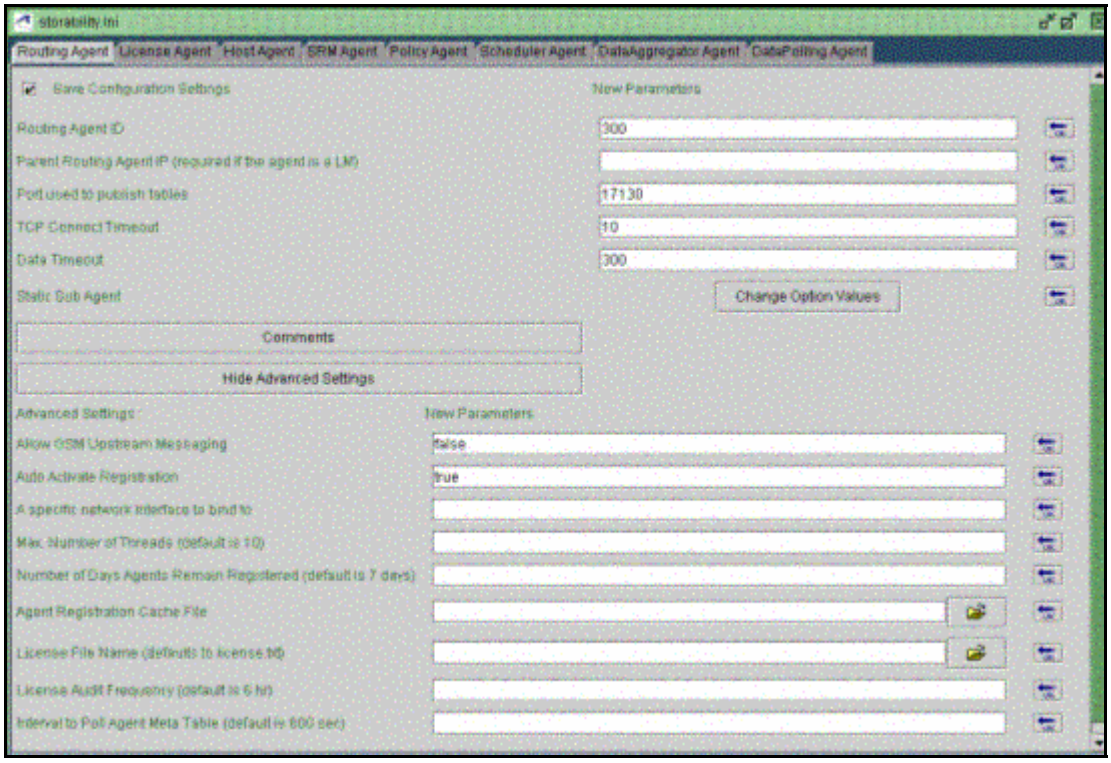

Figure 3 - Routing Agent Configuration Window

4. In the **Routing Agent ID** input box, enter the unique integer value to identify the Central Manager Routing Agent. The default Local Manager ID that the installation creates for the Default Local Manager is 300. Refer to the *Administration* chapter for additional information on **Site/Local Manager Administration** as well as the Default Local Manager and Default Site.
   Notes: If you leave the RID parameter field blank, a default RID of 1 is assigned when the Routing Agent is started. This RID will not match any Local Manager ID that is generated using the **Management Console's Site/Local Manager Administration** menus. This condition will cause collected agent data to be written to the Sun StorageTek Business Analytics database, but it will not appear in the Management Console application!

5. Leave the **Parent Routing Agent IP** input box empty (blank); this parameter only has meaning for Local Manager Routing Agents.
6. For the **Port used to publish tables** parameter, specify the TCP port on which the Central Manager publishes its objects. The default port number is 17130.
7. For **TCP Connect Timeout**, accept the default time interval (10 seconds) to connect to an agent, which should be fine for most TCP environments.
8. For **Data Timeout**, this parameter is generally ignored because the value is over-ridden by a system parameter passed to the Routing Agent by clients. The default value is 300 seconds.
9. If your Central Manager Routing Agent will collect agent data from agents that are not configured to use auto registration, proceed as follows:

    a. Click **Change Option Values** button next to the **Static Sub Agent** heading. The **Enter Static Sub Agent Registrations** dialog box appears.
    b. Type the port number and IP address pair or the port number and server name pair to define each SUB_AGENT entry in the storability.ini file.
    c. Click **Submit** after you have completed all the static agent registrations.

10. Click **Show Advanced Settings** to review/modify the following configuration parameters: (Note: You do not have to make entries in this section unless you want to change from using the agent defaults.)

- **Allow GSM Upstream Messaging** – Turns on (true) or off (false) having this agent publish the **gsa_message** object. For the Storability Routing Agent, this value should be turned off (false), which is the default value.
- **Auto Activate Registration** – Allows the Central Manager by default to automatically activate incoming agent registrations.
- **Specific Network Interface to Bind to** - The value may be an IP address, specified in standard Internet dot ("x.x.x.x ") notation, or a name service resolvable hostname. This option allows you to bind the Routing Agent to a specific network interface in a dual-homed computer, for example. If you do not bind the Routing Agent to a specific network interface, the Routing Agent will bind to all available local interfaces.
- **Max Number of Threads** – Sets the number of threads the agent will spawn. A rule of thumb is to set this value to one half the number of immediate sub-agents (number of rows in the Routing Agent's **gsa_agent_register** object, where rid = RID). This should be set no lower than five (5) and no higher than fifty (50). The default value is ten (10).
- **Number of Days Agents Remain Registered -** Specifies the maximum number of days an agent can be down and remain registered. Its purpose is to provide a simple mechanism for removing records of agents that are no longer installed. When expired, the sub-agent registration is removed. However, the agent can always re-register if it ever comes back online.
- **Agent Registration Cache File –** Is <drive>:\Program Files\Storability\Agents\Storability Routing Agent\ardb.dat by default. The agent registration cache file (e.g., ardb.dat) file will be created after the Routing Agent has been started.
- **License File Name –** Use the **Folder** icon to specify the fully qualified name of the software license file; is <drive>:\Program Files\Storability\Agents\Storability Routing Agent\license.txt by default.
- **License Audit Frequency** – Specifies how often to perform license audit; default value is 6 hours. The maximum value is 46 hours.
- **Frequency to Poll Agent Meta Table** - Specifies how often in seconds to gather object schemas from sub agents.

11. With the "Save Configuration Settings" check box enabled, select **File->Save** and confirm your changes to the storability.ini file.
12. Select another agent tab to review/modify its configuration settings or click **File->Exit** to close the Configuration Tool.

CONFIGURE LICENSE AGENT

The Sun StorageTek Business Analytics License Agent supports the new Management Console **Licensing** report.

Proceed as follows to configure this agent:

1. Click the **LicenseAgent** tab within the main configuration window.
2. For **Local Manager**, enter the network resolvable host name or IP address of the Local Manager to be contacted for agent auto registration. The default value is localhost.
3. For **Local Manager Registration Port**, specify the TCP port number the Local Manager uses for agent auto registration. The default port number is 17146.
4. To specify the fully qualified path for the license file, click the **Folder** icon. The fully qualified path is <drive>:\Program Files\Storability\Agents\Storability Routing Agent\license.txt by default.
5. In the **Central Manager IP and Port** input box, identify the Central Manager Routing Agent by IP address or host name and the port number on which it publishes its objects. The pipe delimiter must separate these configuration parameters. For example: 127.0.0.1|17130.
   Click the **Change Option Values** button next to the **Database Settings** heading and the **Enter Database Parameters** Options dialog box appears.

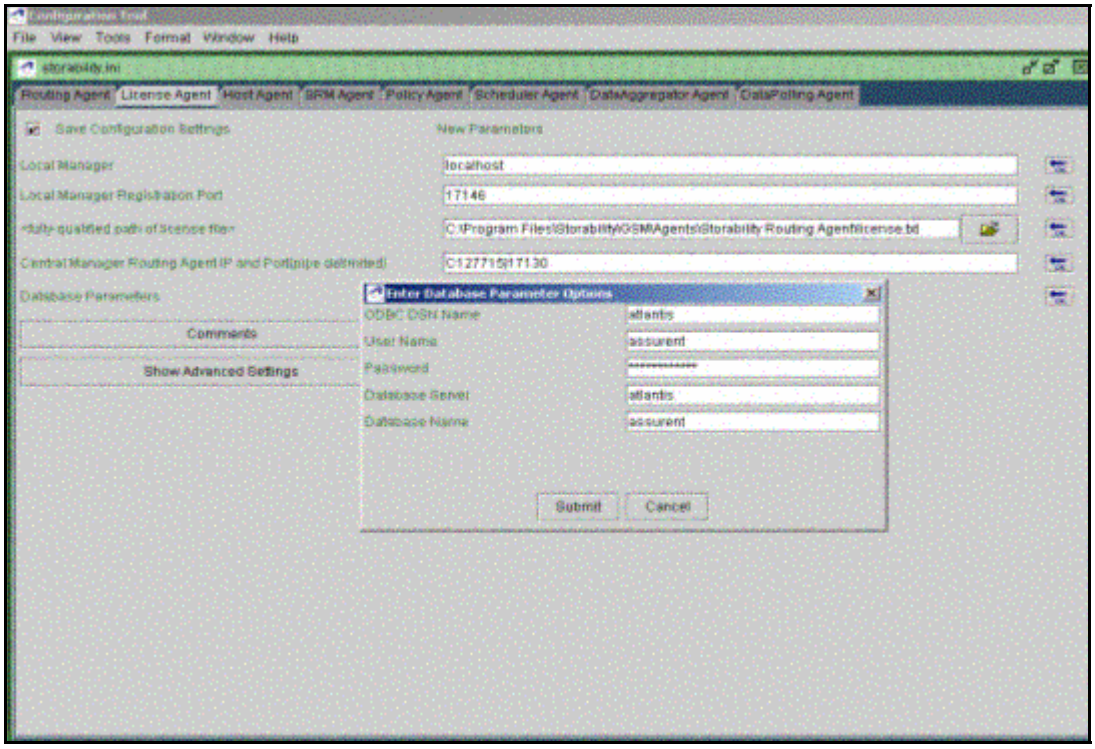

Figure 4 - License Manager Database Parameter Options

Note: Although default ODBC settings are displayed, you must click **Submit** to have these settings saved to the storability.ini file.

6. Review the ODBC connection parameters that the License Agent will use to connect to the assurent database. By default, the Storability License Agent uses the "atlantis" ODBC System Data Source (DSN) that may have been automatically created and verified during software installation.

   Notes: Your Windows administrator can use the Windows ODBC Configuration menus to verify and test the "atlantis" ODBC System DSN or to set up a separate ODBC System DSN for use by the License Agent. The assurent database user's default password is "st0rage".

7. Click **Show Advanced Settings** to review/modify the following configuration parameters:

   - **Enable Auto Registration** – Is used to turn auto registration on (true) or off (false).
   - **Collection Timeout –** Sets how long the License Agent waits to complete data collection; default value is 30 seconds.
   - **Frequency to collect config data –** Sets the frequency for collecting the software license-related configuration data; the default value is 3600 seconds (1 hour).

8. With the "Save Configuration Settings" check box enabled (check mark), select **File->Save** and confirm your changes to the storability.ini file.
9. Select another agent tab to review/modify its configuration settings or click **File->Exit** to close the Configuration Tool.

CONFIGURE STORABILITY DATA AGGREGATOR AGENT

The Storability Data Aggregator requests agent data collection and is responsible for inserting collected agent data into the Sun StorageTek Business Analytics database. Proceed as follows to configure this agent:

1. Launch the Configuration Tool.
2. Select **File->Edit->Smart Agent Configuration**.
3. Click the **Data Aggregator** tab. The Data Aggregator Agent Configuration window, with Show Advanced Settings turned on, appears below.

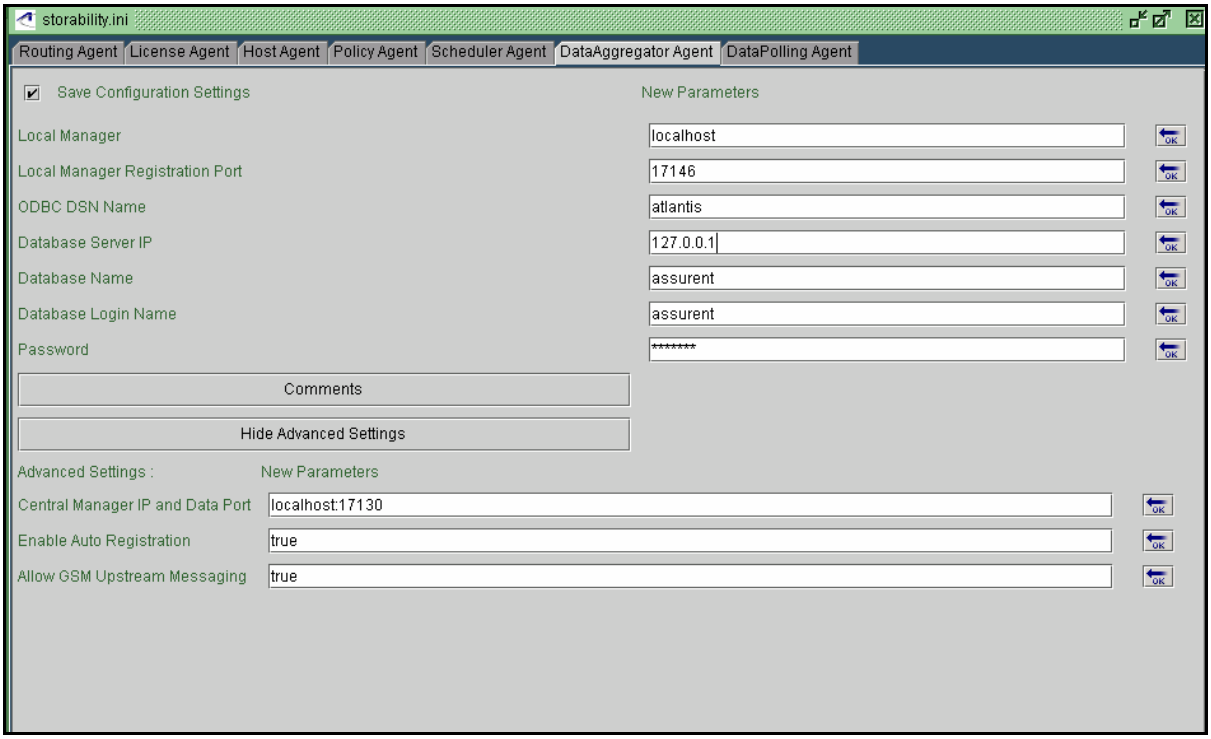

Figure 5 - Data Aggregator Configuration Window

4. For **Local Manager**, identify the Local Manager by IP address or host name that will be contacted for agent auto registration. The default value is the local host.
5. For **Local Manager Registration Port**, specify the Local Manager port used for agent auto registration. The default port number for agent auto registration is 17146.
6. In the **ODBC DSN Name** input box, identify the ODBC System Data Source Name the Aggregator will use to update the database. The default value is "atlantis".
7. In **the Database Server IP** input box, specify the IP address of the Central Manager database server.
8. The **Database Name** is "assurent" (default value).
9. The default **Database User** is "assurent".
10. Accept the default **Password** for the assurent database user.
11. Click **Show Advanced Settings** to review/modify:

    - **Central Manager IP and Data Port** – Specify the IP address of the Central Manager and its data port number. The Central Manager default data port number is 17130.
    - **Enable Auto Registration** – Turns auto registration on (true) or off (false) for this agent.
    - **Allow GSM Upstream Messaging** – Turns on (true) or off (false) having this agent publish the **gsa_message** object, used for communication between Storability agents on the Central Manager. This value must be true (enabled) for the Storability Data Aggregator.
12. With the "Save Configuration Settings" check box enabled, select **File->Save** and confirm saving your changes to the storability.ini file.
13. Select another agent tab to review/modify its configuration settings or click **File->Exit** to close the Configuration Tool.

CONFIGURE STORABILITY DATA POLLING AGENT

In conjunction with the Storability Scheduler Agent, the Data Polling Agent is used to control the scheduling of agent data collection and policy management.

Proceed as follows to configure this agent:

1. Launch the Configuration Tool.
2. Select **File->Edit->Smart Agent Configuration**. The Data Polling Agent Configuration window, with Show Advanced Settings turned on, appears below.

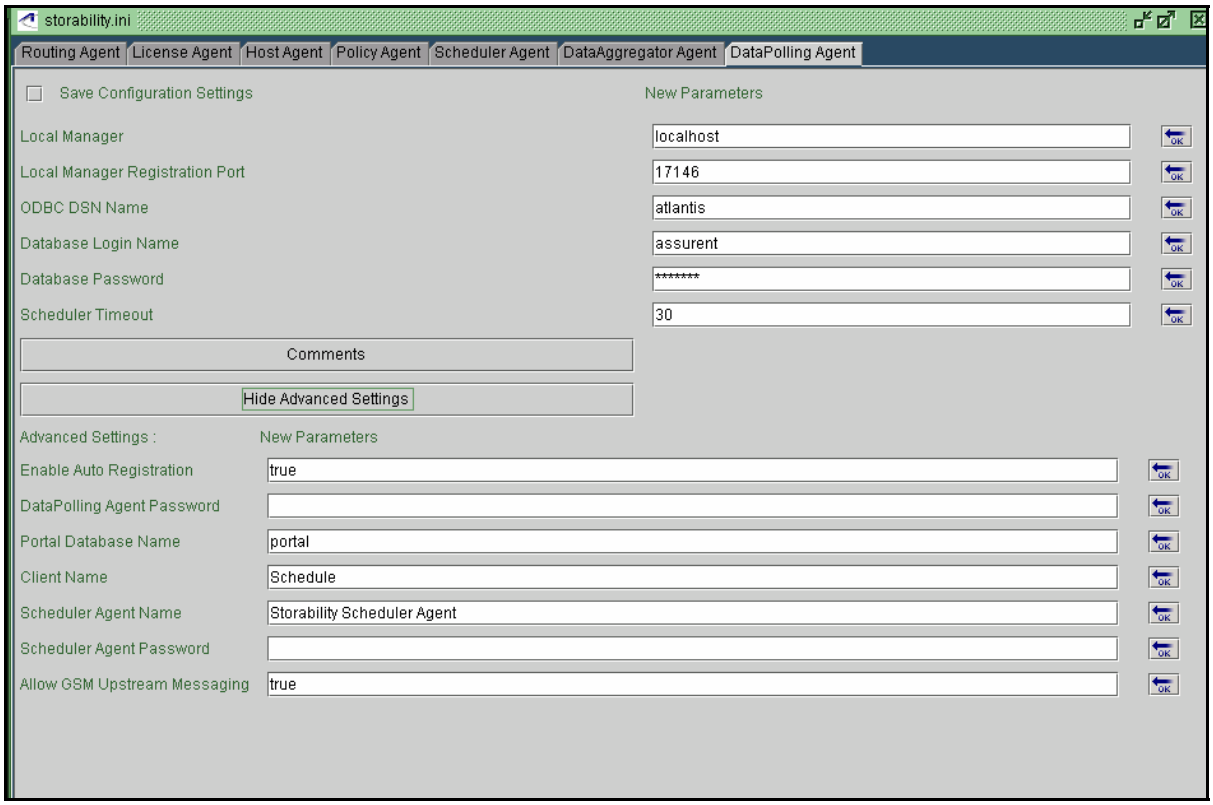

Figure 6 - Data Polling Agent Configuration Window

3. Click the **Data Polling Agent** tab.
4. For **Local Manager**, identify the Local Manager by IP address or host name to be contacted for agent auto registration. The default value is localhost.
5. For **Local Manager Registration Port**, identify the port number the Local Manager uses for agent auto registration. The default port number is 17146.
6. The **ODBC DSN Name** is *atlantis* by default.
7. The **Database Login Name** is *assurent*.
8. The **Database Password** field is *st0rage* and is displayed as asterisks in the Configuration Tool window. A password is encrypted before stored in the storability.ini file.
9. In the **Scheduler Timeout** field, specify how long the Data Polling Agent waits when communicating with the Scheduler Agent. The default timeout is 30 seconds.
10. Click **Show Advanced Settings** to review/modify the following parameters:
    - **Enable Auto Registration** – Turns agent auto registration on (default) or off.
    - **Data Polling Agent Password** – Is optional.
    - **Portal Database Name** – Is *portal*.

- **Client Name** – Sets the agent's client name.
- **Scheduler Agent Name** – Names the client.
- **Scheduler Agent Password** – Optionally specifies the Scheduler Agent's password.
- **Allow GSM Upstream Messaging** – Turns on (true) or off (false) having this agent publish the **gsa_message** object, used for communication between Storability agents on the Central Manager. This value must be true (enabled) for the Storability Data Polling Agent.

14. With the "Save Configuration Settings" check box enabled, select **File->Save** and confirm your changes to the storability.ini file.
15. Select another agent tab to review/modify its configuration settings or click **File->Exit** to close the Configuration Tool.

CONFIGURE STORABILITY SCHEDULER AGENT

In conjunction with the Data Polling Agent, the Sun StorageTek Business Analytics Scheduler Agent is used to control the scheduling of agent data collection and execution of policy management. To configure the Scheduler Agent, you must specify the IP address or network-resolvable host name of the database server.

Proceed as follows to configure this agent:

1. Launch the Configuration Tool.
2. Select **File->Edit->Smart Agent Configuration**.
3. Click the **Scheduler Agent** tab. The Scheduler Agent configuration window, with Show Advanced Settings turned on, appears below.

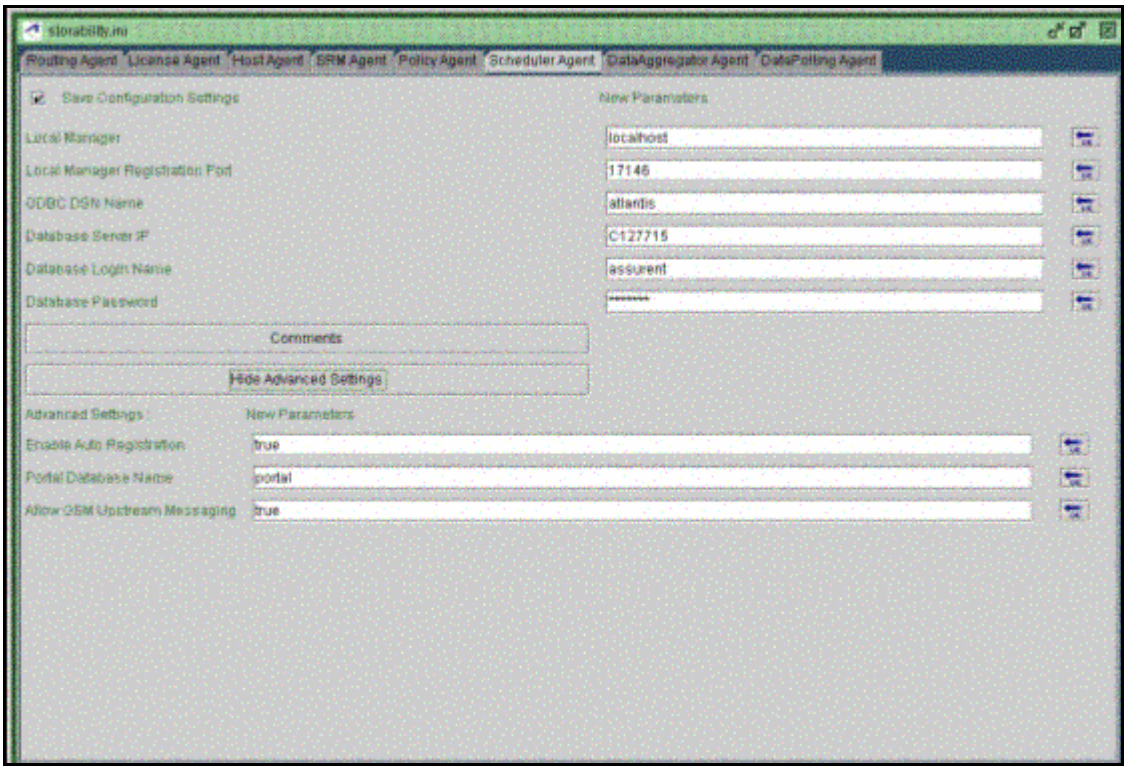

Figure 7 - Scheduler Agent Configuration Window

4. For **Local Manager**, identify the Local Manager by IP address or host name to be contacted for agent auto registration. The default value is localhost.
5. For **Local Manager Registration Port**, specify the port number that the Local Manager uses for agent auto registration. The default port number is 17146.

6. In the **ODBC DSN Name** input box, identify the ODBC System Data Source Name the Scheduler will use to access the database. The default value is *atlantis*.
7. In the **Database Server IP** input box, specify the IP address (or network resolvable host name) of the Central Manager database server.
8. The database name for polling schedules is "portal" (default value).
9. In the **Database Login Name** field, accept the default value of "assurent".
10. Accept the default password for the assurent database user in the **Database Password** field.
11. Click **Show Advanced Settings** to review/modify:
    - **Enable Auto Registration** – Turns agent auto registration on (default) or off.
    - **Portal Database Name** – Is *portal*.
    - **Allow GSM Upstream Messaging** – Turns on (true) or off (false) having this agent publish the **gsa_message** object, used for communication between Storability agents on the Central Manager. This value must be true (enabled) for the Storability Data Polling Agent.
12. With the "Save Configuration Settings" check box enabled, select **File->Save** and confirm your changes to the storability.ini file.
13. Select another agent tab to review/modify its configuration settings or click **File->Exit** to close the Configuration Tool.

CONFIGURE POLICY AGENT

The Sun StorageTek Business Analytics Policy Agent is responsible for executing the actions related to policy management. Besides specifying auto registration information and an ODBC System DSN to access the Sun StorageTek Business Analytics database, you will enter SMTP client configuration settings.

Note: The Policy Agent will not start successfully unless there is valid SMTP Server configuration details stored in its section of the storability.ini file.

The policies are defined using the Management Console's **Policy Alerting** menus. You must start the Policy Agent to use these menus.

Note: Sun StorageTek Business Analytics provides an ETL data loading process policy alert. By default, the ETL process is set up to run as a policy alerting item at 4:00 am each day in the application for the default user (gsmuser). To view the policy, log into the Sun StorageTek Business Analytics application as gsmuser, and go to Tools -> Policy Alerting. The name of the policy is "ETL data loading process" and should be enabled by default. To schedule the ETL process at another time, modify this policy accordingly.

The ETL process will invoke a database stored procedure **gsr_main_proc_etl** in the Sun StorageTek Business Analytics assurent database. The execution result of the stored procedure is kept in the gsr_statistics table. The best time to schedule the ETL process is during the off hours, when the load on the database server is light, and after the records for the array tables are newly populated by the array agents.

By default, the ETL process is set up to run in "incremental mode". This means that the program will only process "delta" records, those records that are changed since the last ETL process; therefore, the impact on the database resources for the daily ETL process is lessened. However, in the case of an upgrade for a very large database, the ETL process may consume a lot of resources in order to go through the legacy records for the first time and build the data warehouse tables to be used by the Storage Wizards. If you need to upgrade a large database, you should plan the upgrade process accordingly by allocating enough time and database resources to allow the ETL process to complete.

Proceed as follows to configure this agent:

1. Launch the Configuration Tool.
2. Select **File->Edit->Smart Agent Configuration**.
3. Click the **Policy Agent** tab. The Policy Agent configuration window, with Show Advanced Settings turned on, appears below.

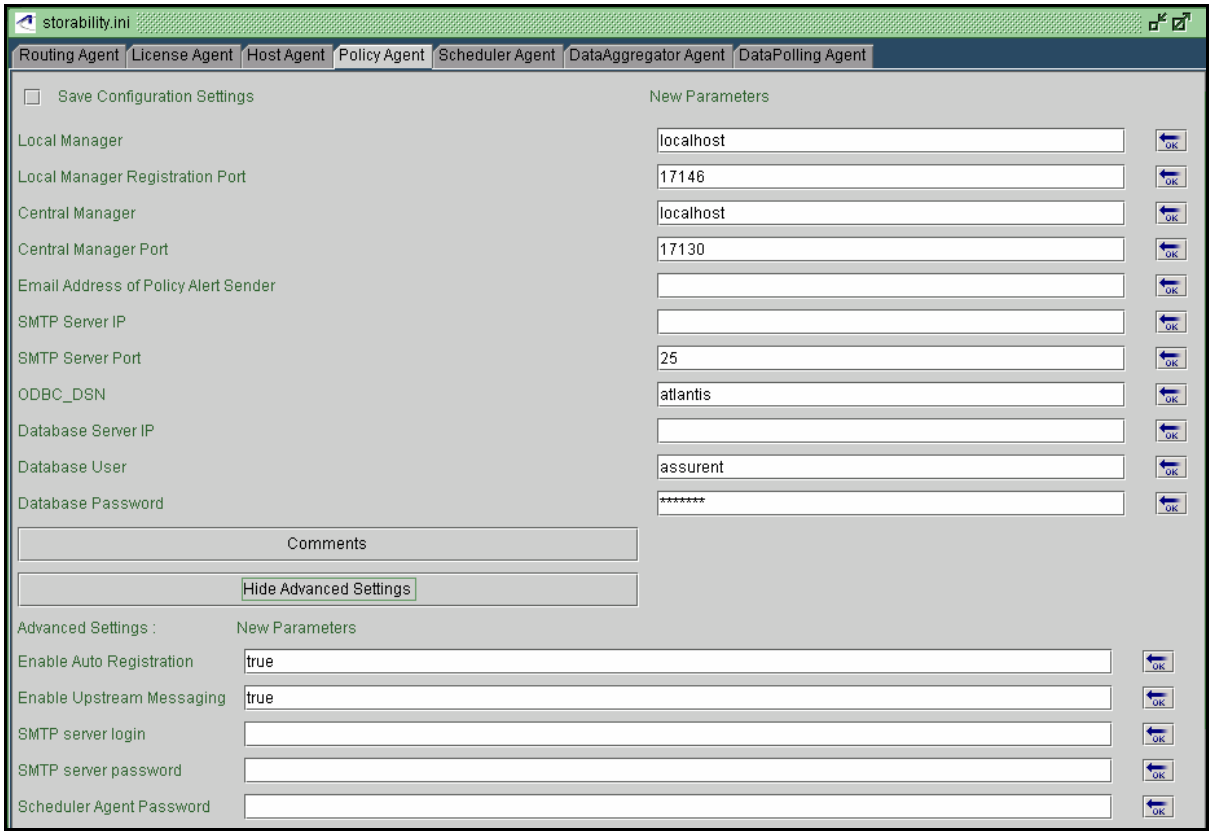

Figure 8 - Policy Agent Configuration Window

4. For **Local Manager**, identify the Local Manager by IP address or host name to be contacted for agent auto registration. The default value is localhost.
5. For **Local Manager Registration Port**, specify the port number the Local Manager uses for agent auto registration. The default port is 17146.
6. For **Central Manager**, enter the Central Manager's network resolvable host name or IP address; default value is local host.
7. For **Central Manager Port**, identify the port on which the Central Manager's Routing Agent publishes its objects. The default port number is 17130.
8. In the **Email Address of Policy Alert Sender** input box, enter the email address that will be used to send emails containing policy execution results.
9. In the **SMTP Server IP** input box, specify the IP address of the SMTP Mail server used to send emails.
10. In the **SMTP Server Port** input box, specify the SMTP server port used for sending emails. The default SMTP server port number is 25.
11. In the **ODBC DSN Name** input box, specify the ODBC System Data Source Name the Policy Agent will use to access the database. The default value is "atlantis".
12. In the **Database Server IP** input box, specify the IP address of the Central Manager database server.
13. The database name for polling schedules is "portal" (default value).

14. In the **Database Login Name** field, accept the default value of "assurent" as the database user ID.
15. Accept the default password for the assurent database user.
16. Click **Show Advanced Settings** to review/modify:
    - **Enable Auto Registration** – Turns auto registration on (true) or off (false). Auto registration is enabled (true) by default.
    - **Enable GSM Upstream Messaging** – Turns on (true) or off (false) having this agent publish the **gsa_message** object, used for communication between Storability agents on the Central Manager. This setting must be set to true for the Storability Policy Agent.
    - **SMTP server login** – Specify a valid SMTP server login if the SMTP server requires authentication.
    - **SMTP server password** – Enter the SMTP user's password.
    - **Scheduler password** – Encrypted Scheduler agent password (if applicable).
    - **Portal Database Name** – Is "portal" by default.
    - **Assurent Database Name** – Is "assurent" by default.

17. With the "Save Configuration Settings" check box enabled, select **File->Save** and confirm your changes to the storability.ini file.
18. Select another agent tab to review/modify its configuration settings or click File**->Exit** to close the Configuration Tool.

CONFIGURE STORABILITY HOST AGENT

The Host Agent reports configuration information as well as file system, physical volume, and logical volume information for Windows, Solaris, IBM AIX, HP-UX, VMWare, and Linux platforms. The Host Agent is automatically started after it is installed.

If you change any configuration settings, such as the location of the EMC *powermt* program, restart the Host Agent to have the changes take effect. Proceed as follows to configure this agent on the Sun StorageTek Business Analytics Central Manager:

1. Launch the Configuration Tool.
2. Select **File->Edit->Smart Agent Configuration**.
3. Click the **HostAgent** tab.

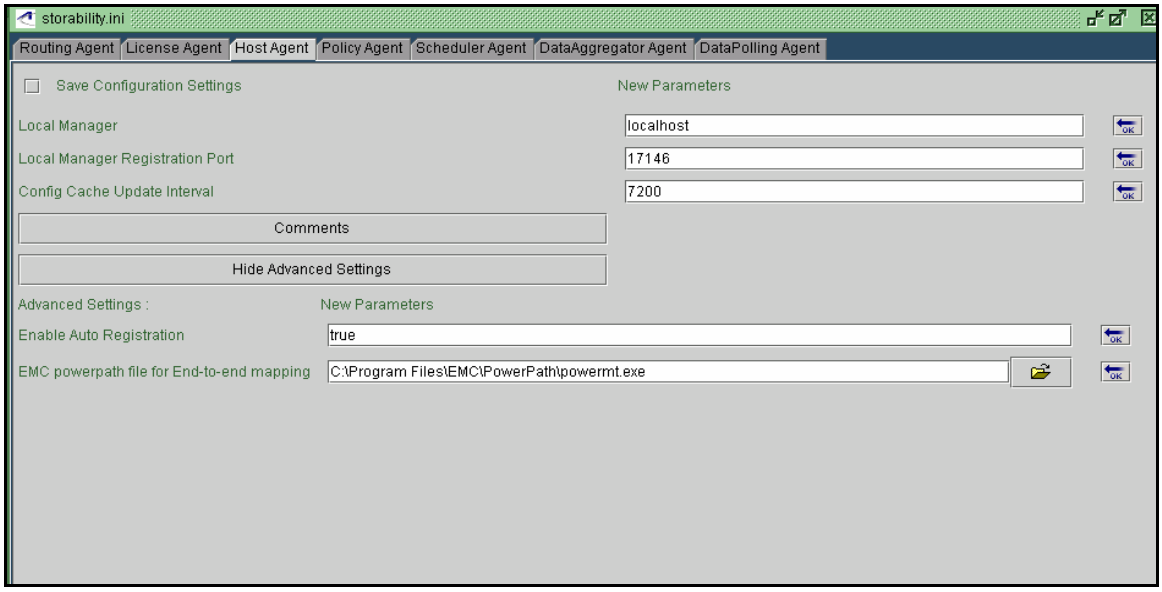

Figure 9 - Host Agent Configuration Window

4. In the **Local Manager** field, type the network resolvable host name or IP address of the Local Manager to be contacted for agent auto registration. The default value is "localhost". In this case, keep in mind that the Central Manager is also a Local Manager as it runs a Routing Agent.
5. In the **Local Registration Manager Port** input box, specify the port number that the Routing Agent uses for agent auto registration. The default port is 17146.
6. In the **Config Cache Update Interval** input box, review/modify how long the agent caches data. The default value is 7200 seconds.
7. Click **Show Advanced Settings**.
8. Review/modify the **Enable Auto Registration** configuration setting that turns auto discovery on (true) or off (false). The default value of "true" will cause the agent to attempt to register with the Local Manager at start up. If registration fails, the agent will re-attempt registration every five minutes. If registration succeeds, the agent will "refresh" its registration every twenty-four (24) hours.
9. Review/modify the **EMC powerpath file for End to end mapping** setting. If the host server has EMC PowerPath software installed, use the **Browse** icon to locate and specify the location of the **powermt.exe** file.
10. With the "Save Configuration Settings" check box enabled (check mark), click **File->Save** and then confirm saving the storability.ini file.
11. Click **File->Exit** to close the Configuration Tool.
12. Use the Windows **Services** panel to restart the Host Agent if you have made any configuration changes.

Start Sun StorageTek Business Analytics Central Manager Agents

The Windows administrator can use the Windows **Services** panel to start, stop, or restart the agents installed on the Sun StorageTek Business Analytics Central Manager. Be sure to start the Routing Agent first and then allow time for each agent to auto register before you verify agent functionality.

Note:
If you restart the database server, you also must restart the Sun StorageTek Business Analytics Central Manager agents.

1. Use the Windows **Services** panel to start the Sun StorageTek Business Analytics agents installed on the Central Manager in the following order:

    a. Storability Routing Agent.
    b. Storability License Agent.
    c. Storability Scheduler Agent.
    d. Storability Data Polling Agent.
    e. Storability Data Aggregator
    f. Other remaining Storability agents

2. Use the Windows **Services** panel to start or restart the remaining Central Manager agents (i.e. Policy Agent, Host Agent, SRM Agent, SNMP Proxy Agent, and Remote Host Agent as applicable).

The following section describes how to verify the Central Manager agents have started and registered successfully.

Verify Central Manager Agents' Functionality

The GSM Agent Diagnostic Tool (gsmdiag.exe) should be used to verify the Central Manager agents are running and are publishing their objects. The utility is located in the installed Storability Local Manager Utilities folder.

Proceed as follows:

1. Using **Windows Explorer**, launch gsmdiag.exe from the <install drive>:\Program Files\Storability\GSM\Utilities\Storability Local Manager folder.

 Verify Routing Agent

2. Wait approximately 30 seconds after the Storability Routing Agent has started to allow it to initialize before querying it with GSMdiag.
3. On the **Agent Info** tab, 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.
4. Set the port to **17130** (or select the Routing Agent from the drop down list of service names).
5. Click the **Get Object List** button and you should receive a list of objects published by the Routing Agent.
6. Select the **gsa_ini_control-2_0** object and verify each agent's storability.ini configuration parameters.

7. Select the **alerts-3_1** object and examine the columns for warnings or errors.
8. Collect the **gsa_agent_version-2_0** object to verify the agent's software release level.
9. Verify the other objects the agent publishes.

 Verify License Agent

10. Wait approximately 30 seconds after the Storability License Agent has started to allow registration and agent initialization to occur.
11. In the **Agent Info** window, enter the IP Address or network resolvable Host Name of the Central Manager/Local Manager in the **ip address/host name** input box.
12. Set the port to **17167** (or select Storability License Agent from the drop down list of service names).
13. Click the **Get Object List** button and you should receive a list of objects published by the License Agent.
14. Select the **gsa_ini_control-2_0** object to verify the agent's configuration settings.
15. Select the **gsa_agent_version-2_0** object and verify the software version of the License Agent.
16. Verify the other objects that the agent publishes.

 Verify Scheduler Agent

17. Wait approximately 30 seconds after the Storability Scheduler Agent has started to allow registration and agent initialization to occur.
18. In the **Agent Info** window, enter the IP Address or network resolvable Host Name of the Central Manager/Local Manager in the **ip address/host name** input box.
19. Set the port to **17171** (or select Storability License Agent from the drop down list of service names).
20. Click the **Get Object List** button and you should receive a list of objects published by the Scheduler Agent.
21. Select the **gsa_ini_control-2_0** object to verify the agent's configuration settings.
22. Select the **gsa_agent_version-2_0** object and verify the software version of the Scheduler Agent.
23. Verify the other objects that the agent publishes.

 Verify Data Polling Agent

24. Wait approximately 30 seconds after the Storability Data Polling Agent has started to allow registration and agent initialization to occur.
25. In the **Agent Info** window, enter the IP Address or network resolvable Host Name of the Central Manager/Local Manager in the **ip address/host name** input box.
26. Set the port to **17165** (or select Storability Data Polling Agent from the drop down list of service names).
27. Click the **Get Object List** button and you should receive a list of objects published by the Data Polling Agent.
28. Select the **gsa_ini_control-2_0** object to verify the agent's configuration settings.
29. Select the **gsa_agent_version-2_0** object and verify the software version of the Data Polling Agent.
30. Verify the other objects that the agent publishes.

 Verify Data Aggregator Agent

31. Wait approximately 30 seconds after the Storability Data Aggregator Agent has started to allow registration and agent initialization to occur.
32. In the **Agent Info** window, enter the IP Address or network resolvable Host Name of the Central Manager/Local Manager in the **ip address/host name** input box.
33. Set the port to **17147** (or select Storability Data Aggregator Agent from the drop down list of service names).
34. Click the **Get Object List** button and you should receive a list of objects published by the Routing Agent.
35. Select the **gsa_ini_control-2_0** object to verify the agent's configuration settings.
36. Select the **gsa_agent_version-2_0** object and verify the software version of the Data Aggregator Agent.

At this point, the Central Manager agents are running and are publishing their objects.

Step 6: Install the Management Console

1. Insert the Sun StorageTek Business Analytics Management Console Installation CD into the CD-ROM drive. **Note**: If the Setup program does not auto-run after you insert the CD into the drive, run setup.exe from the installation media to start the InstallShield Wizard.
2. Click **Next>** on the Installation **Welcome** screen.
3. Click **Yes** to accept the Sun StorageTek Business Analytics License Agreement.
4. Review/modify the **Company Name** and **User Name** and click **Next>** to continue.
5. Select **Typical** on the **Setup Type** screen and click **Next>**. The COM Agent (comAgent) Configuration dialog appears.

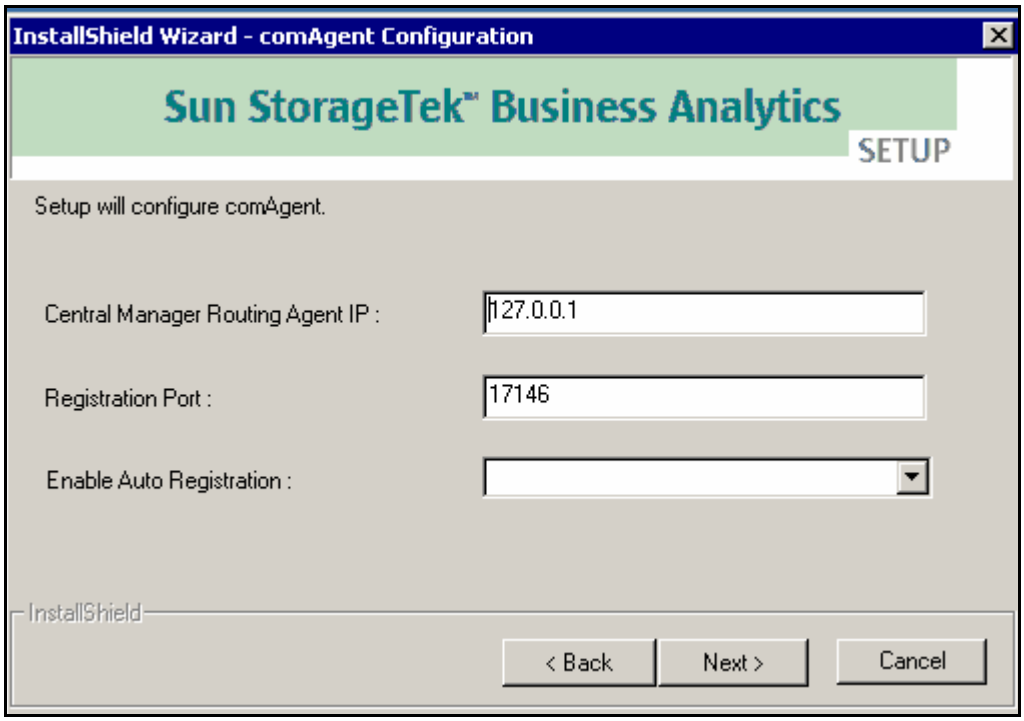

Figure 10 - Configure COM Agent

6. In the respective input boxes, enter the following:
   - Central Manager Routing IP – Specify the IP Address or network resolvable host name for the Local Manager to be contacted for auto registration. The default IP address is localhost (127.0.0.1) and will need to be changed if the Local Manager/Central Manager is not running on the Management Console server.
   - Registration Port – Specify the Central Manager Routing's Agent's port used for agent auto registration. The default port is 17146.
   - Enable Auto Registration – Set this parameter to TRUE and allow the COM Agent to use agent auto registration, or set it to FALSE to disable auto registration for the Storability COM Agent.

   Click **OK** to continue.
7. Click **Next>** to accept the default installation path on the Choose Destination Location screen (or click **Browse** to select a different installation path).
8. Select **Yes** to have the installation create the System DSN to allow the Management Console to communicate with the Central Manager.
9. Choose the Program Folder (e.g., Storability) to be updated and click **Next>**.
10. Review your current settings and click **Next>** to continue.
11. When the dialog appears that warns you that the installation will need to shut down Microsoft IIS-related services, click **Yes** to continue.

    Note: The system will display the **Setup Status** progress bar as the installation progresses.
13. The InstallShield Installation Complete dialog appears. Specify whether or not to view the **Readme** file and click **Finish**.

STEP 7: BASIC APPLICATION CONFIGURATION

7a: Launch Management Console

1. Select Start->Programs->Storability-> Launch Management Console. The Sun StorageTek Business Analytics Management Console Login window appears.

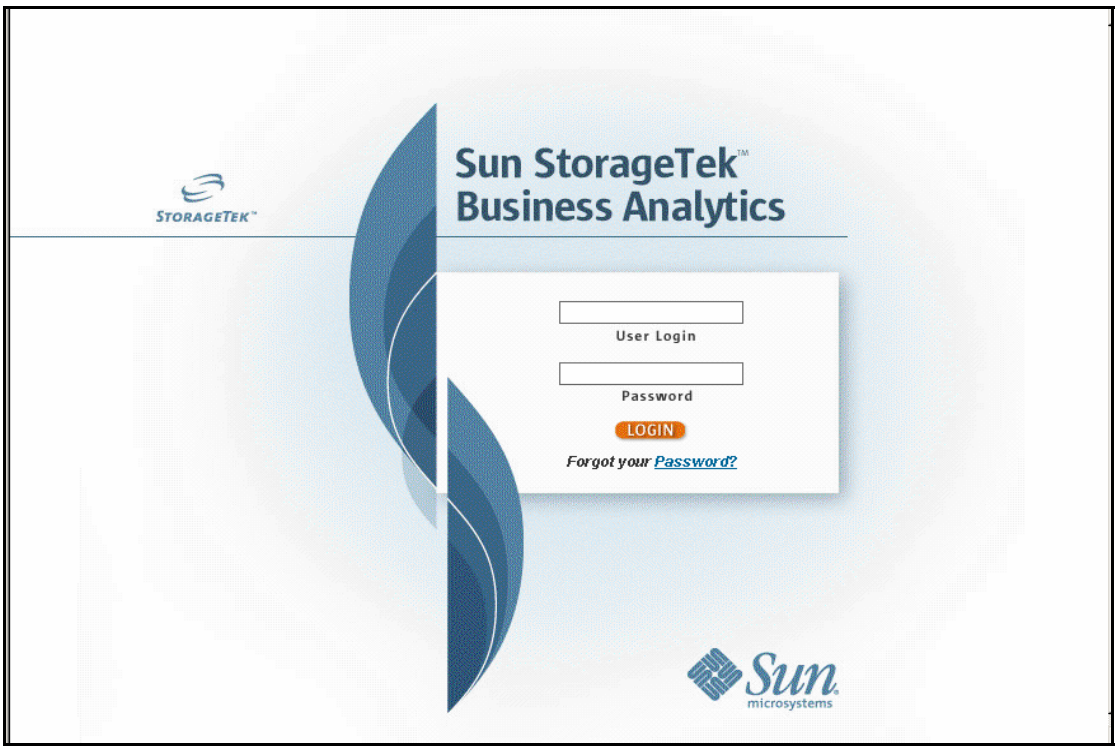

Figure 11 - Management Console Login

2. Log in using the default administrative account, gsmuser, as both the username and password.

7b: Customize the Default Local Manager

1. Select Tools -> Site/Local Manager Administration.
2. Click the Default Local Manager link displayed in the Site/Local Manager Listing window.
3. Customize the default name to suit your company and to accommodate the Central Manager that you are setting up as a Local Manager. Remember that the Central Manager also functions as a Local Manager because it runs a Routing Agent.
4. Modify the Short Name or alias for the Local Manager to suit your application.
5. Update the IP Address of the Central Manager to its actual IP address.
6. Click Save and click OK on the confirmation dialog box to update the Local Manager.

7c: Customize the Default Site

1. Click the Default Site link for the listed default site.
2. Enter a site name and location to suit your company's implementation.
3. Click **Save** and confirm the changes, when prompted.
4. Close the window.

7d: Create View and Assign to User

5. Create a view:
   a. Select **Tools -> View Administration** and the Views wizard appears.
   b. Select Create New View (default) and click **Next >>** to continue.

c. In the Create View window, enter the name of your enterprise as the name of the view.
d. Use the **View Type** list box to select Asset View (do not specify Composite View).
e. Click **Next>>** and the Add Assets to View window appears for your new view.
f. Select the "What type of asset do you wish to add to this view?" list box and select Sites.
g. Click the **List** button and the site(s) you created will appear.
h. Click the Select check box to choose the site and then click the **Add to View** button.
i. Click **Next>>**. The "Site assets added successfully." text message appears on the Add Assets to View window to confirm adding the site to the view.
j. Click **Next>>** and the Add Users to View <View Name> window appears.
k. Use the checkbox to choose the (GSMuser) and click **Add to View**. The "Users Added Successfully" message is displayed in the Add Users to View window.
l. Click **Next>** and the Create View – Summary window appears.
m. Review the information on the new asset view, including its status ("<view_name> created successfully."), View Type, and Asset List. You can optionally click the **Printer Friendly Page** button and then Print to print the Create View – Summary information on a local or network printer.
n. Click **Finish>>** and you are returned to the Views Wizard window.
o. Click Close to close the Views Wizard.

7e: Dashboard Administration – Create Dashboard

6. Create Dashboard:
   a. Select **Tools->Dashboard Administration->Manage Dashboards**.
   b. Click **Create New**.
   c. Type a meaningful name for the dashboard.
   d. Use the dashboard type list box to choose the dashboard security of public or private. Assign public to allow any Sun StorageTek Business Analytics user to choose the dashboard. Select private to restrict its use to its creator.
   e. Optionally enter a description.
   f. Beside the "Components in the layout:" heading, click each type of pane (Storage, etc.) you want to be included. In this example, minimally click Server. A check appears in the selection box for each component you select.
   g. Click **Save**.
   h. Close the window.

7f: Dashboard Administration - Change Dashboard

7. Select **Tools->Dashboard Administration->Change Dashboard**.
8. Use the radio button to select the dashboard you created.
9. Click **Set as current dashboard** and click **OK** to confirm.
10. Verify the Home Page appears displaying the Host Filesystem Utilization pane (as pane well as any other selected panes in the dashboard you created). Note: Because you have not yet collected agent data using the Data Polling Schedules functionality, no data appears in the panes.

7g: Data Polling Schedules

11. Select **Tools -> Data Polling Schedule**.
12. The Polling Schedules window is displayed. The default polling schedules in the database, which were automatically created at installation time, include three schedules for Host. These have a Collection Metric of Configuration, FileSystem, and Logical VM (Volume Manager).
13. You are now ready to collect the Host Agents' data for all sites. You can later repeat this procedure for the other Collection types after your Storability Agents (fabric, array, etc.) have been deployed.
14. Click the **Collect Now** button for the Collection Type of Host and the Collection Metric of Configuration.

15. Wait approximately thirty seconds and click the **Collect Now** button for the Collection Type of Host and the Collection Metric of Filesystem.
16. Wait approximately thirty seconds and click the **Collect Now** button for the Collection Type of Host and the Collection Metric of Logical VM.
17. Verify the Central Manager server appears in the Host Filesystem Utilization dashboard. If so, your Sun StorageTek Business Analytics application is now verified to support agent data collection.

Step 9: Install and Configure Local Manager(s)

1. Install and configure the Sun StorageTek Business Analytics Local Manager using the Windows Local Manager Installation media or the Solaris Local Manager Installation media. Refer to the *Installation* chapter for detailed instructions.
2. Configure the Local Manager's Routing Agent to communicate with the appropriate Routing Agent (i.e., Central Manager Routing Agent) in the messaging hierarchy. The configuration parameters are essentially the same as those previously described for the Central Manager. However, you **must specify** a **parent Routing IP** for a Local Manager in the Routing section of the storability.ini file to have the messaging infrastructure work properly.

Step 10: Install and Configure Smart Agents

1. Refer to the *Sun StorageTek Business Analytics Support Matrix* that is located on the Documentation CD to obtain the latest Smart Agent prerequisites.
2. The Documentation CD also provides installation manuals for all agent types (Fabric, Array, Host, Backup, Library, SRM, Database, and NAS) of Smart Agents.
3. Be sure to use the Management Console's administrative menus to update the users, views, and dashboards to allow the agent's collected data to be viewed using the Management Console reports.