CA SOA Security Manager

Policy Server Administration Guide

r12.1

Second Edition

CA Product References

This document references the following CA products:

- CA SOA Security Manager
- CA SOA Security Manager®
- CA Identity Manager
- CA Security Compliance Manager

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Chapter 1: Policy Server Management

This section contains the following topics:

Policy Server Management Overview

The Policy Server provides a platform for access control that operates in conjunction with other CA products, including:

- CA SiteMinder—Combines the Policy Server with Web Agents to provide access control for Web servers.
- CA SOA Security Manager—Provides access control for XML-based transactions. If you have purchased this product, see the *CA SOA Security Manager Policy Configuration Guide* for more information.
- CA Identity Manager—Provides identity management services, see the *CA Identity Manager Administration Guide* for more information.

Note: For information about SiteMinder and policy-based resource management, see the *Policy Server Configuration Guide.*

Policy Server Components

A Policy Server environment consists of two core components:

- **Policy Server**—Provides policy management, authentication, authorization, and accounting services.
- **Policy Store**—Contains all Policy Server data.

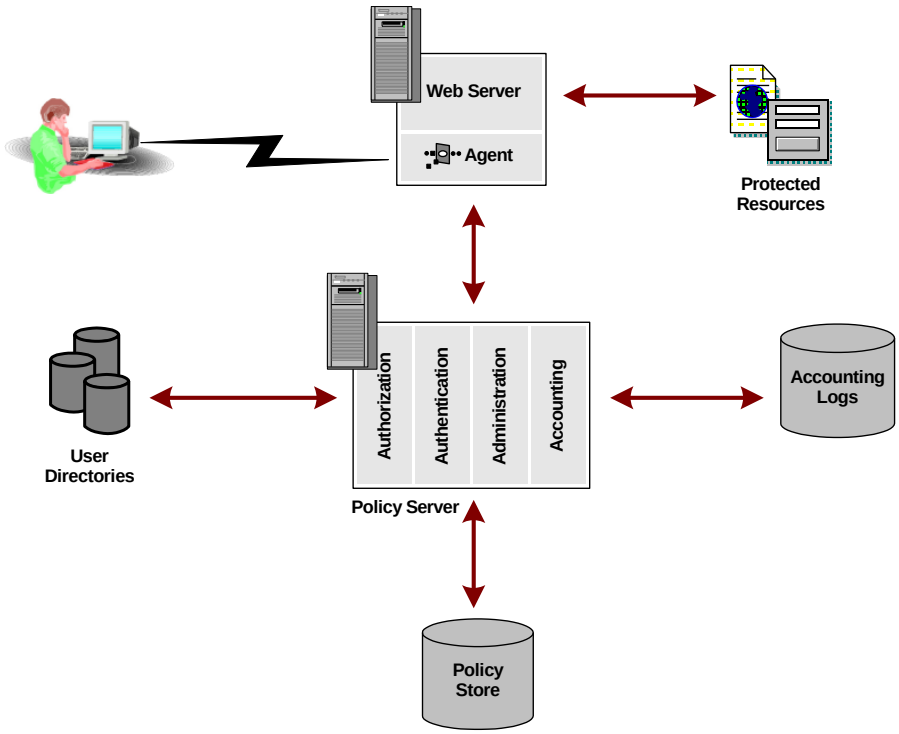
Additional components are included with various CA products, for example, SOA Agents.

Policy Server Operations

The Policy Server provide access control and single sign-on. It typically runs on a separate Windows or UNIX system, and performs the following key security operations:

- **Authentication**—The Policy Server supports a range of authentication methods. It can authenticate users based on user names and passwords, using tokens, using forms based authentication, and through public-key certificates.
- **Authorization**—The Policy Server is responsible for managing and enforcing access control rules established by Policy Server administrators. These rules define the operations that are allowed for each protected resource.
- **Administration**—The Policy Server can be configured using the Administrative UI. The Administration service of the Policy Server is what enables the UI to record configuration information in the Policy Store. The Policy Store is the database that contains entitlement information.
- **Accounting**—The Policy Server generates log files that contain auditing information about the events that occur within the system. These logs can be printed in the form of predefined reports, so that security events or anomalies can be analyzed.
- **Health Monitoring**—Policy Server provides health monitoring components.

The following diagram illustrates a simple implementation of a Policy Server in a SiteMinder environment that includes a single SiteMinder Web Agent.

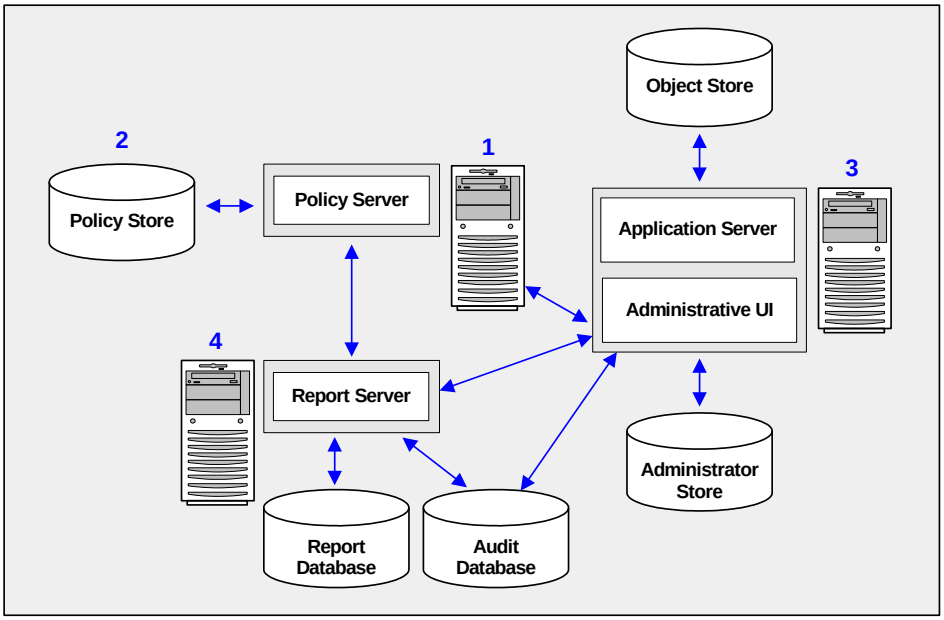


In a Web implementation, a user requests a resource through a browser. That request is received by the Web Server and intercepted by the SiteMinder Web Agent. The Web Agent determines whether or not the resource is protected, and if so, gathers the user's credentials and passes them to the Policy Server. The Policy Server authenticates the user against native user directories, then verifies if the authenticated user is authorized for the requested resource based on rules and policies contained in the Policy Store. When a user is authenticated and authorized, the Policy Server grants access to protected resources and delivers privilege and entitlement information.

Note: Custom Agents can be created using the SiteMinder Agent API. For more information, see the *Programming Guide for C*.

Policy Server Administration

The following diagram illustrates the Policy Server administrative model:



1. **Policy Server**—The Policy Server provides policy management, authentication, authorization, and accounting services.
2. **Policy store** - The policy store contains all of the Policy Server data. You can configure a policy store in a supported LDAP or relational database.
3. **Administrative UI**—You use the Administrative UI to manage SOA Security Manager administrator accounts, objects, and policy data through the Policy Server. You configure a directory XML file, an administrator user store, and an object store when installing the Administrative UI:
   - **Object store**—The Administrative UI is an asynchronous application that is event and task-based. The object store stores this information. You configure an object store in either a Microsoft SQL Server or Oracle database.
   - **Administrator user store**—The Administrative UI authenticates SOA Security Manager administrator accounts using the administrator user store. All of your administrator accounts must be stored in a single administrator user store. You configure an administrator user store in a supported LDAP directory server or ODBC database when installing the Administrative UI.

4. **Report server and databases**—You can create and manage a collection of SOA Security Manager policy analysis and audit reports from the Administrative UI. A report server and report database are required to use the reporting feature. The report server and report database are required to run policy analysis reports. The report server and audit database are required to run audit-based reports.

Policy Server Management Tasks

As a Policy Server administrator, you are responsible for system-level configuration and tuning of the SiteMinder environment, monitoring and ensuring its performance, as well as management of users and user sessions as necessary.

You perform most fundamental system configuration and management tasks using the Policy Server Management Console. Others tasks are performed using the Administrative UI.

Policy Server management tasks include:

- Starting and Stopping the Policy Server
- Configuring the Policy Server Executives
- Cache Management
- Configuring and Managing Encryption Keys
- User Session and Account Management
- Monitoring the Health of Your SiteMinder Environment
- Running Reporting

Policy Server Management Console

The Policy Server Management Console (or Management Console) provides a range of Policy Server configuration and system management options. The Management Console has a tab-based user interface in which information and controls are grouped together by function and presented together on tabs in a single window.

Important! The Policy Server Management Console should only be run by users who are members of the administrator group in Microsoft Windows.

Start the Management Console

To open the Management Console

- **Windows**--Select the Policy Server Management Console icon in the SOA Security Manager program group
- **UNIX**--Run *installation_directory*/siteminder/bin/smconsole.

Note: To run the Policy Server Management Console on UNIX, the X display server needs to be running and the display enabled by 'export DISPLAY=n.n.n.n:0.0', where n.n.n.n is the IP address of the machine running the Policy Server.

Save Changes to Management Console Settings

On any tab in the Management Console, click:

- Apply to save the settings and keep the Management Console open
- OK to save the settings and close the Management Console.

Note: You must stop and restart the Authentication and Authorization processes to put Management Console settings changes into effect. The Policy Server cannot use the new settings until these services restart.

Policy Server User Interface[2]

The browser-based CA SOA Security Manager Administrative UI primarily enables management of Policy Server objects, but also provides some system management functionality.

To access the Administrative UI

1. Do one of the following:
   - From the computer hosting the Administrative UI, click Start, Programs, CA, SOA Security Manager, SOA Security Manager Administrative UI.
   - Open the following URL in your browser:

     http://*host_name.domain*:*port_number*/iam/siteminder

   The *host_name* is the name of the computer on which the Administrative UI runs. You must use a fully-qualified domain name. If the Administrative UI is *not* using the default HTTP port (80), you must add the port number as shown in the following example:

   http://maincomputer.example.com:8080/iam/siteminder.

   The login page for the Administrative UI appears.

2. Enter a valid user name and password in the appropriate fields.

   If you are accessing the Policy Server for the first time, use the default super user administrator account, which you created during Policy Server installation.

3. Click Log In.

   The Administrative UI opens.

   The contents of the window depend on the privileges of the administrator account you used to login. You will only see the items to which your account has access.

Grant Access to XPS Tools

Access to the XPS Tools included with SOA Security Manager must be granted to individual users by an Administrator using the Administrative UI.

To grant access to the XPS tools

1. Log into the Administrative UI.
2. Click the Administration tab.
3. Click Administrator, and then click one of the following:
   - To add a new administrator, click Create Administrator
   - To change the access of an existing administrator, click Modify Administrator
4. Enter a name and an optional description in the respective fields.
5. Enter a user path, or click the Lookup button and select an existing user path.

   Note: The user path (specified in the Administrative UI or with the XPSSecurity tool by an Administrator) is required for write access to any of the settings controlled by the XPS Tools. A user path has the following format:
   namespace://*directory_server*/*DN* or *Login_for_OS*
6. (Optional) Select the Super User check box to grant super user rights.
7. Select any of the following check boxes in the command line tools section of the Access Methods group box:

   XPSEvaluate Allowed

   Grants access to the XPS expression evaluation tool.

   XPSExplorer Allowed

   Grants access to the tool that edits the XPS database.

   XPSRegClient Allowed

   Grants access to the XPS tool that registers Web Access Managers or Reports servers as privileged clients.

   XPSConfig Allowed

   Grants access to the tool that examines configures XPS settings in XPS-aware products.

   XPSSecurity Allowed

   Grants access to the security tool which creates XPS users and specifies their XPS-related privileges.
8. (Optional) Select the check box of any other access you want to grant.

9. (Optional) To restrict the user's access to specific categories only, click the Create button, and then select the categories you want.
10. Click Submit.

    Your changes are submitted and a response appears.

More information:

Add Event Handler Libraries (see page 84)

Open the Federation Security Services Administrative UI

The Federation Security Services Administrative UI is an applet-based application that is installed with the Policy Server. This UI contains federation-specific objects such as affiliates (consumers, service providers, resource partners) and SAML authentication schemes that you configure to support federated communication between two partners.

Important! You must register each UI with the Policy Server. Registering the Federation Security Services Administrative UI with the Policy Server ensures that the communication between both components is FIPS-encrypted (AES encryption). For more information about registering a UI, see the *Policy Server Installation Guide*.

To open the Federation Security Services Administrative UI

1. Do *one* of the following tasks:
   - Open the following URL in your browser:

     http://*policy_server_fully_qualified_URL:non_default_port_number*/siteminder

     Note: A port number is required only when you are *not* using the default port.
   - Click Start, Program Files, SOA Security Manager, SOA Security Manager Federation Security Services Administrative UI.

   The Federation Security Services Administrative UI appears in your browser.
2. Enter the following information:
   - SiteMinder in the Username field
   - The password for the SiteMinder Super User account in the Password field.
   - The name of the 4.x Agent identity you created in the Host Name field.
   - The shared secret of the 4.x Agent identity you created in the Passphrase field.
3. Click Login.

   You can administer your SOA Security Manager federation objects and policies using the Federation Security Services Administrative UI.

The intent of the Federation Security Services Administrative UI is to let you manage SOA Security Manager eTrust SiteMinder FSS. If you are familiar with previous versions of the SiteMinder Policy Server User Interface, you will notice that all SiteMinder objects appear in the Federation Security Services Administrative UI. The only objects that do not appear are objects related to Enterprise Policy Management (EPM) and reports. You can use the Federation Security Services Administrative UI to manage the SOA Security Manager objects. If you need information while using the Federation Security Services Administrative UI, consult the Federation Security Services Administrative UI online help system.

Chapter 2: Starting and Stopping the Policy Server

This section contains the following topics:

Services and Processes Overview

The Policy Server runs two services under Windows and two processes on UNIX. The Policy Server installation process starts the Policy Server and Monitor processes and configures executive applications to run the processes automatically at system startup in the future.

The main Policy Server processes for Windows are:

Policy Server

Serves Agent requests for authentication, authorization, accounting and logging, and (if enabled) administration.

SiteMinder Health Monitor Service

The OneView Monitor, which monitors the health and performance of the authentication server, authorization server, and Web Agent.

The main Policy Server processes for UNIX are:

smpolicysrv

Serves Agent requests for authentication, authorization, accounting and logging, and (if enabled) administration.

smmon

The OneView Monitor, which monitors the health and performance of the authentication server, authorization server, and Web Agent.

Start and Stop Policy Server Services on Windows Systems

To start or stop Policy Server services on Windows systems:

- On the Management Console Status tab, click the Start or Stop button.
- Use the Windows Services dialog, which you can access from the Windows Start Menu using Settings, Control Panel, Services. When you start or stop a Policy Server process, the associated executive starts or stops.
- You can stop the policy server from the command line using smpolicysrv:

  installation_path\siteminder\bin\smpolicysrv -stop

Note: On Windows systems, do *not* run the smpolicysrv command from a remote desktop or Terminal Services window. The smpolicysrv command depends on inter-process communications that do not work if you run the smpolicysrv process from a remote desktop or Terminal Services window.

Important! If you are running a SOA Security Manager utility or executable on Windows Server 2008, be sure to open the command–line window with Administrator permissions, even if you are logged into the system as an Administrator. For more information, see the release notes for your SOA Security Manager component.

Start and Stop Policy Server Processes on UNIX Systems

To start or stop Policy Server processes on UNIX systems, take either of these actions:

- On the Management Console Status tab, click the corresponding Start and Stop button.
- Use the supplied scripts. Two scripts are provided to start and stop the Policy Server processes. These scripts also stop the UNIX executive so that the processes do not restart automatically.

  installation_path/siteminder/start-all
  installation_path/siteminder/stop-all

In addition, the following script can be used to start and stop the Policy Server process. If the UNIX executive is not running when you execute the script, the executive starts along with the process. The script can be invoked with the same command line options, as follows:

installation_path/siteminder/smpolsrv

Command line options:

-stop

Stops a process.

-start

Starts a process.

-status

Indicates whether or not a process is running.

The Policy Server logs all UNIX executive activity in the *installation_directory*/log/smexec.log file. Log entries are always appended to the existing log file.

More Information:

Command Line Troubleshooting of the Policy Server (see page 181)

Configure the Policy Server Executives

In both UNIX and Windows installations of the Policy Server, one or more executive applications monitor the status of Policy Server processes and automatically restart any processes that fail. The following sections describe how to start and stop Policy Server processes based on your platform and how to configure, disable, and enable the UNIX and Windows executives.

Configure Windows Executives

For Windows, each Policy Server process is monitored by a separate executive. Each of these executives reads the following threshold values from the *Policy_Server_installation_ path*\config\siteminder.conf configuration file:

SMEXEC_UPTIME_THRESHOLD

Indicates the minimum amount of time (in seconds) a Policy Server service must run after startup before the associated executive stops monitoring for frequent crashes. The default value for this parameter is 60 seconds.

SMEXEC_RESTART_THRESHOLD

Indicates the maximum number of times the executive attempts to restart a service in the time specified by the SMEXEC_UPTIME_THRESHOLD parameter. If a service crashes more than the number of attempts specified by this parameter, the executive stops attempting to restart the service. The default value for this parameter is five attempts.

To change the threshold parameters, edit the siteminder.conf file and restart the Policy Server processes.

Configure the UNIX Executive

For UNIX, the Policy Server and Health Monitor processes are monitored by a single executive. The executive reads its settings from the following configuration file:

installation_path/config/siteminder.conf

You can edit this file to change the following settings:

POLICYSERVER_ENABLED

Indicates the state of the Policy Server process when the executive starts running. Set this parameter to YES to enable the process at executive startup.

MONITOR_ENABLED

Indicates the state of the health monitor process when the executive starts running. Set this parameter to YES to enable the process at executive startup.

SMEXEC_UPTIME_THRESHOLD

Indicates the minimum amount of time (in seconds) a Policy Server service must run after startup before the associated executive stops monitoring for frequent crashes. The default value for this parameter is 60.

SMEXEC_RESTART_THRESHOLD

Indicates the maximum number of times the executive attempts to restart a service in the time specified by the SMEXEC_UPTIME_THRESHOLD parameter. If a service crashes more than the number of attempts specified by this parameter, the executive stops attempting to restart the service. The default value for this parameter is five attempts.

To change any of the UNIX Executive parameters

1. Edit the *installation_path*/config/siteminder.conf file.
2. From a command line, run the following script:

   installation_path/siteminder/bin/stop-all

   The Policy Server processes stop.
3. From a command line, run the following script:

   installation_path/siteminder/bin/start-all

   The UNIX executive restarts using the new settings in the siteminder.conf file.

Chapter 3: Configuring Policy Server Data Storage Options

This section contains the following topics:

Configure Data Storage Options Overview

You configure storage locations for Policy Server databases (policy store, key store, and audit logs) from the Management Console Data tab.

To configure Policy Server data storage settings

1. Start the Policy Server Management Console.

   Important! If you are accessing this graphical user interface on Windows Server 2008, open the shortcut with Administrator permissions, even if you are logged into the system as an Administrator. For more information, see the release notes for your SOA Security Manager component.

2. Click the Data tab.

3. Select the database that you want to configure from the Database drop-down list. The database you select determines the storage possibilities that are available for that database type and presented on the Storage drop-down list.

   Note: The table at the end of this procedure lists the databases you can configure and the storage options available for each one. The combination of these settings determines the settings displayed in the context-sensitive group box below them.

4. Select a storage type for the selected database from the Storage drop-down list.

5. Configure data storage options for the chosen Policy Server database in the context-sensitive group box below the Database and Storage controls.
6. When you have finished, click Apply to save your settings, or click OK to save the settings and exit the Management Console.

The following table lists SOA Security Manager database types and the available storage options:

Database	Database Description	Available Storage
Policy Store	The database for the Policy Store. You *must* specify the Policy Store database.	LDAP ODBC
Key Store	The database that contains keys used to encrypt cookies created by SOA Security Manager Agents.	LDAP ODBC
Audit Logs	The database where you store audit logs containing event information.	ODBC Text file
Session Server	The database in which the session server stores persistent session data.	ODBC

Configure the Policy Store Database

The Policy Store is the database in which all Policy Server objects are stored.

To configure the policy store database

1. Select Policy Store from the Database drop-down list.
2. Select an available storage type (LDAP or ODBC) from the Storage drop-down list.
3. Specify Storage Options appropriate for the chosen storage type.
4. Click Apply to save your settings, or click OK to save the settings and exit the Console.
5. (Optional) If you changed the Policy Store database storage type to LDAP, and want the Policy Store to be used as the key store, complete the steps described Configure the Key Store or Audit Logs to Use the Policy Store Database (see page 33).

   Note: If you have one or more Policy Servers communicating with an LDAP-enabled policy store, configure the same setting in the Management Console on each of those Policy Server systems.

More Information:

Configure LDAP Storage Options (see page 36)

Configure the Key Store or Audit Logs to Use the Policy Store Database

After you configure the Policy Store, you can optionally configure databases. If the Policy Store is of a compatible storage type (that is, if the Policy Store is configured to be stored in a database that is also a valid storage option for the other database), you can configure the Policy Server to use the policy store database as one or more of the following:

- Key store
- Audit logs

Important! If you are using an LDAP database as your Policy Store, do *not* use the Policy Store database for audit logs. Audit logs cannot be written to an LDAP database. If you are using the SOA Security Manager sample data source (SmSampleUsers) as your Policy Store, do *not* use the Policy Store database for audit logs. Audit logs are not supported by the sample policy store.

To configure another database to be stored in the Policy Store database, set the Use Policy Store Database option that appears between the Database drop-down list and the Storage Options area whenever a database other than Policy Store is chosen from the Database drop-down list.

When the Use Policy Store Database option is selected, the Storage drop-down list and the context-sensitive Storage Options are grayed-out.

Configure a Separate Database for the Key Store

The Key store is where the Policy Server stores keys used to encrypt cookies created by SOA Security Manager Agents.

To configure a separate database for the key store

1. Choose Key Store from the Database drop-down list.
2. Choose an available storage type (LDAP or ODBC) from the Storage drop-down list.

   Note: The Policy Server supports mixed LDAP/ODBC policy and key stores. The policy store can exist in an ODBC database and the key store can reside in an LDAP Directory Server or vice versa. For a list of supported databases, refer to the SOA Security Manager Platform Matrix on the Technical Support site.

3. Specify Storage Options appropriate for the chosen storage type.
4. Click Apply to save your settings, or click OK to save the settings and exit the Console.

More information:

Configure LDAP Storage Options (see page 36)

Configure a Separate Database for the Audit Logs

The audit log database is where the Policy Server stores audit logs containing event information. These settings may reduce Policy Server performance. If this is a problem, configure auditing data logs in a text file instead of database.

To configure a separate database for audit logs

1. Choose Audit Log from the Database drop-down list.
2. Choose an available storage type (ODBC or Text file) from the Storage drop-down list.
3. Specify Storage Options appropriate for the chosen storage type.
4. Click Apply to save your settings, or click OK to save the settings and exit the Console.

When deciding whether to store the Policy Server audit logs in an ODBC database or text file, you should consider the following factors:

- SOA Security Manager Reporting requires that the audit logs are written to an ODBC database. Reporting will not function if the audit logs are written to a text file.
- SOA Security Manager audit logging to an ODBC database and to a text file supports internationalization (I18N).
- If your Policy Server will operate under heavy load, you should consider logging to a text file rather than an ODBC database. However, if you do log to an ODBC database, you should set the following registry key values in the HKEY_LOCAL_MACHINE\SOFTWARE\Netegrity\SiteMinder\CurrentVersion\Database\ registry location to prevent loss of auditing data under heavy load:

  ConnectionHangwaitTime

  Set to 60 seconds for heavy loads. The default is 30 seconds.

  QueryTimeout

  Set to 30 seconds for heavy loads. The default is 15 seconds.

LoginTimeout

Set to 30 seconds for heavy loads. The default is 15 seconds.

Note: The value of ConnectionHangwaitTime should always be at least double the value of QueryTimeout and LoginTimeout.

Configure a Separate Database for Token Data

The token data database is where the Policy Server stores token data for hardware authentication tokens.

To configure a separate database for token data

1. Choose Token Data from the Database drop-down list.
2. Choose an available storage type (ODBC) from the Storage drop-down list.
3. Specify the ODBC Storage Options appropriate for the chosen storage type.
4. Click Apply to save your settings, or click OK to save the settings and exit the Console.

Configure a Database for the Session Server

The session server database is where the Policy Server Session Server stores persistent session data.

To configure a database for the session server

1. Choose Session Server from the Database drop-down list.
2. Choose an available storage type from the Storage drop-down list.
3. Set the Enable Session Server option.

   You should only enable the Session Server if you are going to use persistent sessions in one or more realms; when enabled, the Session Server impacts Policy Server performance.

   Note: The Use Policy Store database check box is disabled. For performance reasons, the session server cannot be run on the same database as the policy store.
4. Specify Storage Options appropriate for the chosen storage type.
5. Click OK to save the settings and exit the Console.

Configure Session Server Timeout for Heavy Load Conditions

Under extremely heavy load conditions, long-running queries necessary for Session Server maintenance tasks, such as removing idled-out or expired sessions, can timeout. You can adjust the timeout for Session Server maintenance tasks (60 seconds by default), by increasing the value of the MaintenanceQueryTimeout registry setting to allow the maintenance thread to complete its' tasks successfully. The MaintenanceQueryTimeout registry setting can be found at the following registry location:

HKEY_LOCAL_MACHINE\SOFTWARE\Netegrity\SiteMinder\CurrentVersion\SessionServer

Configure LDAP Storage Options

Use the LDAP context-sensitive storage controls to point to an LDAP directory configured to be used as a policy store to hold policy information or to point to an LDAP directory configured to be used as a key store.

Note: Whenever you update parameters relating to an LDAP database, restart the Policy Server to make the new parameters effective.

Configure an LDAP Database

To configure an LDAP database

1. Specify the Server name or IP address of the LDAP server in the LDAP IP Address field. For performance reasons, the IP address is preferred.

   Note: You can specify multiple servers in this field to allow for LDAP server failover.

2. Specify the LDAP branch under which the SOA Security Manager schema is located in the Root DN field (for example, o=myorg.org).

3. If your Policy Server communicates with the LDAP directory over SSL, select the Use SSL check box.

   Note: If you select this option, you must specify a certificate database in the Netscape Certificate Database File field.

4. Specify the DN of the LDAP directory administrator (for example, cn=Directory Manager) in the Admin Username field.

5. Enter the administrative password for the LDAP directory in the Admin Password field.

6. Confirm the administrative password for the LDAP directory in the Confirm Password field.
7. Click Test LDAP Connection to verify that the parameters you entered are correct and that the connection can be made.

Configure LDAP Failover

If you have multiple LDAP directories, you can configure directories for failover. To enable failover, enter LDAP server IP addresses and port numbers in the LDAP Server field as a space-delimited list of LDAP server addresses. You can specify a unique port for each server. If your LDAP servers are running on a non-standard port (389 for non SSL/ 636 for SSL), append the port number to the last server IP address using a ':' as a delimiter. For example, if your servers are running on ports 511 and 512, you can enter the following:

123.123.12.11:511 123.123.12.22:512

If the LDAP server 123.123.12.11 on port 511 did not respond to a request, the request is automatically passed to 123.123.12.22 on port 512.

If all of your LDAP servers are running on the same port, you can append the port number to the last server in the sequence. For example, if all of your servers are running on port 511, you can enter the following:

123.123.12.11 123.123.12.22:511

Configure Enhanced LDAP Referral Handling

Enhancements have been made to SOA Security Manager's LDAP referral handling to improve performance and redundancy. Previous versions of SOA Security Manager supported automatic LDAP referral handling through the LDAP SDK layer. When an LDAP referral occurred, the LDAP SDK layer handled the execution of the request on the referred server without any interaction with the Policy Server.

SOA Security Manager now includes support for non-automatic (enhanced) LDAP referral handling. With non-automatic referral handling, an LDAP referral is returned to the Policy Server rather than the LDAP SDK layer. The referral contains all of the information necessary to process the referral. The Policy Server can detect whether the LDAP directory specified in the referral is operational, and can terminate a request if the appropriate LDAP directory is not functioning. This feature addresses performance issues that arise when an LDAP referral to an offline system causes a constant increase in request latency. Such an increase can cause SOA Security Manager to become saturated with requests.

To configure LDAP referral handling

1. Open the Policy Server Management Console.

   Important! If you are accessing this graphical user interface on Windows Server 2008, open the shortcut with Administrator permissions, even if you are logged into the system as an Administrator. For more information, see the release notes for your SOA Security Manager component.

2. Select the Data tab.

   Enable Enhanced Referrals

   Mark this check box to allow the Policy Server to use enhanced handling LDAP referrals at the Policy Server, rather than allowing LDAP referral handling by the LDAP SDK layer.

   Max Referral Hops

   Indicates the maximum number of consecutive referrals that will be allowed while attempting to resolve the original request. Since a referral can point to a location that requires additional referrals, this limit is helpful when replication is misconfigured, causing referral loops.

3. Modify the values as required.
4. Restart the Policy Server.

Configure Support for Large LDAP Policy Stores

Large LDAP policy stores can cause Administrative UI performance issues.

To prevent these problems, you can modify the values of these two registry settings:

Max AdmComm Buffer Size

Specifies the Administrative UI buffer size (specifically, the maximum amount of data, in bytes, that is passed from the Policy Server to the Administrative UI in a single packet).

The Max AdmComm Buffer Size registry setting should be configured at the following registry location:

HKEY_LOCAL_MACHINE\SOFTWARE\Netegrity\SiteMinder\CurrentVersion\PolicyServ\

The value of this setting must be set very carefully as allocation of a larger buffer results in a decrease in overall performance. The acceptable range of Max AdmComm Buffer Size is 256KB to 2 GB. The default value this is 256KB (also applies when this registry setting does not exist).

SearchTimeout

Specifies the search timeout, in seconds, for LDAP policy stores.

The SearchTimeout registry setting should be configured at the following registry location:

HKEY_LOCAL_MACHINE\SOFTWARE\Netegrity\SiteMinder\CurrentVersion\LdapPolicyStore\SearchTimeout

The appropriate value for this setting depends upon and can vary according to several factors including network speed, size of the LDAP search query response, the LDAP connection state, load on LDAP server, and so on. The value should be large enough to prevent LDAP timeout when fetching large amounts of policy store data from the LDAP server. The default value is 20 seconds (also applies when this registry setting does not exist).

More information:

Configure the Policy Store Database (see page 32)
Configure a Separate Database for the Key Store (see page 33)

Configure ODBC Storage Options

Use the ODBC context-sensitive storage controls to configure an ODBC data source to hold the policy store, key store, audit logs, token data, or session server data.

Note: For more information on installing ODBC data sources, see the *Policy Server Installation Guide*.

Configure an ODBC Data Source

To configure an ODBC data source

1. Specify the name of the ODBC data source in the Data Source Information field. You can enter multiple names in this field to enable ODBC failover.

   Data Source Information

   Indicates the name of the ODBC data source. You can enter multiple names in this field to enable failover.

   User Name

   Indicates the user name of the database account (if required) with full rights to access the database.

   Password

   Contains the password of the database account.

Confirm Password

Contains a duplicate of the database account password, for verification.

Maximum Connections

Indicates the maximum number of ODBC connections per database allowed at one time.

2. Click Test ODBC Connection to verify that the parameters you entered are correct and that the connection can be made.

Configure ODBC Failover

If you have multiple ODBC data sources and you want to configure failover, list the data source names in the Data Source Information field, separated by commas. For example, entering SOA Security Manager Data Source1,SOA Security Manager Data Source2 in the Data Source Name field causes the Policy Server to look at Data Source 1 first. If SOA Security Manager Data Source1 does not respond, the Policy Server automatically looks for SOA Security Manager Data Source2.

Note: Using the method described above, you can configure failover for data sources used as policy stores, key stores, session stores, and audit logs.

Configure Text File Storage Options

Use the Text File storage options to configure a text file to store the Policy Store audit logs.

To specify a text file, type the full path of a file in the File name field or click the Browse button and browse to the required directory and click on or type the name of the desired file.

Specify a Netscape Certificate Database File

If you are using an LDAP directory to store policies or user information over SSL, you must point the Policy Server to the directory that contains Netscape Certificate Database files. The directory must contain the cert7.db and key3.db files.

Before you install the Certificate Database file, make a copy of it. Use the certificate database copy instead of the original and do not use cert7.db if it is currently being used by Netscape Communicator.

Type the name of the Certificate database in the Netscape Certificate Database file field or browse the directory tree to locate and select the database. This field does not require a value for Active Directory user stores configured in the Administrative UI using the AD namespace. AD user stores use the native Windows certificate repository when establishing an SSL connection.

More information:

Configure a Separate Database for the Audit Logs (see page 34)

Chapter 4: Configuring General Policy Server Settings

This section contains the following topics:

Policy Server Settings Overview

The Policy Server allows you to configure a number of general settings that determine the way it behaves and performs from the Policy Server Management Console Settings tab:

- TCP ports for access control
- Administration settings including the TCP port, and Inactivity Timeout
- Connection settings
- RADIUS settings
- Performance settings
- OneView Monitor settings

Configure Policy Server Settings

To configure general Policy Server settings

1. Start the Policy Server Management Console.

   Important! If you are accessing this graphical user interface on Windows Server 2008, open the shortcut with Administrator permissions, even if you are logged into the system as an Administrator. For more information, see the release notes for your SOA Security Manager component.

2. Click the Settings tab.
3. Adjust the desired settings.
4. When you have finished, click Apply to save your settings, or click OK to save the settings and exit the Management Console.

Configure Access Control Settings

The Policy Server uses three separate TCP ports to communicate with SOA Security Manager Agents for authentication, authorization, and accounting.

To enable or disable these Agent communication ports, as well as change the TCP port numbers used for each function, use the controls in the Access Control group box on the Management Console Settings tab.

Configure Policy Server Administration Settings

The Policy Server uses a TCP port to communicate with the Administrative UI to allow browser-based policy management.

To enable or disable and change the TCP port number used to communicate with the Administrative UI, as well as specifying a timeout value for administrative inactivity, use the controls in the Administration group box on the Management Console Settings tab.

Configure Policy Server Connection Options

To specify the maximum number of Policy Server threads, and the idle timeout for a connection to the Policy Server, use the controls in the Connection Options group box on the Management Console Settings tab.

Configure Policy Server Performance Settings

To configure cache and thread settings to tune Policy Server performance, use the Performance group box on the Management Console Settings tab.

Configure RADIUS Settings

To specify settings to enable support of RADIUS components in your deployment, use the RADIUS group box on the Management Console Settings tab.

Configure OneView Monitor Settings

By default the OneView Monitor runs locally on the Policy Server that it is monitoring.

To configure the monitor to accept connections from other Policy Servers to be monitored remotely or to specify a central remote Policy Server that is to monitor all Policy Servers in a cluster, use the OneView Monitor group box on the Management Console Settings tab.

Reschedule SOA Security Manager Policy Data Synchronization

SOA Security Manager automatically synchronizes Policy Data using the XPSSweeper tool. You can change how often this tool runs by setting the following parameter:

AutosweepSchedule

Specifies the days and times (hour and minute) at which the XPSSweeper process runs.

Default: Mondays at 08:30

Limits: GMT Time zone using the 24-hour clock. Separate multiple entries with commas or spaces

Example: Mon@13:30,Tue@14:00

Note: If you do *not* have write access to the SOA Security Manager binary files (XPS.dll, libXPS.so, libXPS.sl), an Administrator must grant you permission to use the related XPS command line tools using the Administrative UI or the XPSSecurity tool.

To reschedule the synchronization of the SOA Security Manager databases

1. Open a command line on the Policy Server, and enter the following command:

   xpsconfig

   The tool starts and displays the name of the log file for this session, and a menu of choices opens.

2. Enter the following:

   xps

   A list of options appears.

3. Enter the following:

   8 (AutosweepSchedule)

   The current schedule for the XPSSweeper tool appears.

4. Type C, and then enter the day and time you want. If you want to enter several days or times, separate them with commas or spaces. Use the following format:

   Mon@13:30,Tue@14:00

   The new and old settings appear. The values you added are shown at the bottom of the settings as a "pending value."

5. Do the following:

   a. Enter Q twice.

   b. Enter L.

   c. Enter Q to end your XPS session.

   Your changes are saved and the command prompt appears.

More information:

Policy Server Tools Overview (see page 141)

Chapter 5: Changing the Policy Server Super User Password

This section contains the following topics:

Super User Password Overview

The Super User is the Policy Server administrator account established automatically by the Policy Server installation process. You can change the Super User password from the Management Console Super User tab.

Note: Changing the Super User Account Password in this dialog box does not enable the Super User if it has been previously disabled by using the Administrative UI.

Change the Policy Server Super User Password

To change the Policy Server super user password

1. Start the Policy Server Management Console.

   Important! If you are accessing this graphical user interface on Windows Server 2008, open the shortcut with Administrator permissions, even if you are logged into the system as an Administrator. For more information, see the release notes for your SOA Security Manager component.

2. Click the Super User tab.
3. In the Old Password field, enter the current password of the Super User.
4. In the New Password field, enter the new password of the Super User.

   Note: The SOA Security Manager superuser administrator's password may not contain the pipe (|), greater than (>), or less than (<) characters.

5. In the Confirm Password field, enter the new password to verify it.
6. Click Apply to save the Super User changes, or click OK to save the settings and close the Console.

   Note: Changes to the Super User account password take effect without restarting the Policy Server process.

Chapter 6: Configuring and Managing Encryption Keys

This section contains the following topics:

Policy Server Encryption Keys Overview

The Policy Server and Agents use encryption keys to encrypt and decrypt sensitive data passed between Policy Servers and Agents in a SiteMinder environment.

- Agent keys are used to encrypt SiteMinder cookies that may be read by all agents in a single sign-on environment, and are shared by all agents in a single sign-on environment, since each agent must be able to decrypt cookies encrypted by the other agents. Agent keys are managed by the Policy Server, and distributed to agents periodically.
- Session ticket keys are used by the Policy Server to encrypt session tickets. Session tickets contain credentials and other information relating to a session (including user credentials). Agents embed session tickets in SiteMinder cookies, but cannot access the contents since they do not have access to session ticket keys which never leave the Policy Server.

Both types of keys are kept in the Policy Server's key store and distributed to Agents at runtime. By default, the key store is part of the Policy Store, but a separate key store database can be created if desired.

Other, special keys are:

- A policy store key is used to encrypt certain data in the policy store. The policy store key is stored, encrypted, in an on-disk file. The Policy Server encrypts the policy store key using a proprietary technique. The policy store key is derived from the encryption key specified when you installed the Policy Server.
- A key store key is used to encrypt agent and session ticket keys in a separately configured key store. The key store key is kept in the registry (or UNIX equivalent) encrypted with the policy store key.

Cryptographic Hardware Support

Because the policy store key is used directly or indirectly to encrypt all other keys, it is the Policy Server's most critical key and the most important key to protect. Cryptographic hardware is no longer supported. Without it, the policy store key is stored in the key stash file using a proprietary encryption technique.

Key Management Overview

To keep key information updated across large deployments, the Policy Server provides an automated key rollover mechanism. You can update keys automatically for Policy Server installations that share the same key store. Automating key changes also ensures the integrity of the keys. For SOA Security Manager Agents that are configured for single sign-on, the key store must be replicated and shared across all SOA Security Manager environments in the single sign-on environment.

If the Policy Server determines that a key store that was configured separately from the policy store is unavailable, it attempts to reconnect to the key store to determine if it has come back online. If the connection fails, the Policy Server:

- Goes in to a suspended state and refuses any new requests on established connections until the key store comes back online.

  A Policy Server in a suspended state remains up for the length of time specified in SuspendTimeout, at which point the Policy Server shuts down gracefully. If SuspendTimeout is equal to zero, the Policy Server remains in the suspended state until the key store connection is reestablished.
- Returns an error status to let Web Agents failover to another Policy Server.
- Logs the appropriate error messages.

Additionally, when the Policy Server is started and the key store is unavailable, the Policy Server shuts down gracefully.

You manage keys using the SOA Security Manager Key Management dialog box in the Federation Security Services Administrative UI.

Agent Keys

SiteMinder Web Agents use an Agent key to encrypt cookies before passing the cookies to a user's browser. When a Web Agent receives a SiteMinder cookie, the Agent key enables the Agent to decrypt the contents of the cookie. Keys must be set to the same value for all Web Agents communicating with a Policy Server.

The Policy Server provides the following types of Agent keys:

- *Dynamic Keys* are generated by a Policy Server algorithm and are distributed to connected Policy Servers and any associated SiteMinder Web Agents. Dynamic keys can be rolled over at a regular interval, or by using the Key Management dialog box of the Administrative UI. For security reasons, this is the recommended type of Agent key.
- *Static Keys* remain the same indefinitely, and can be generated by a Policy Server algorithm or entered manually. SiteMinder deployments uses this type of key for a subset of features that require information to be stored in cookies on a user's machine over extended periods of time.

  Note: A static agent key is always generated at installation. This static key is used for certain other product features, such as user management, whether or not you use the static key as the Agent key.

More information:

Dynamic Agent Key Rollover (see page 51)

Dynamic Agent Key Rollover

Dynamic Agent key rollover is configured in the Key Management dialog of the Federation Security Services Administrative UI. Web Agents poll the Policy Server for key updates at a regular interval. If keys have been updated, Web Agents pick up the changes during polling. The default polling time is 30 seconds, but can be configured by changing the pspollinterval parameter of a Web Agent.

Note: For information about changing the parameters of a Web Agent, see the *SOA Security Manager SOA Agent Configuration Guide*.

The Policy Server uses an algorithm to generate dynamic keys at a regular interval. These keys are saved in the key store. When a Web Agent detects new keys, it retrieves them from the key store.

Agent Keys Used in Dynamic Key Rollover

SOA Security Manager deployments use the following keys in a dynamic key rollover and maintain them in the key store:

- An Old Key is a Dynamic key that contains the last value used for the Agent key before the current value.
- A Current Key is a Dynamic key that contains the value of the current Agent key.
- A Future Key is a Dynamic key that contains the next value that will be used as the Current key in an Agent key rollover.
- Static Key

When the Policy Server processes a dynamic Agent key rollover, the value of the current key replaces the value of the old key. The value of the future key replaces the value of the current key, and the Policy Server generates a new value for the future key.

When receiving a cookie from a client browser, the Web Agent uses the current key from the key store to decrypt the cookie. If the decrypted value is not valid, the Web Agent tries the old key, and if necessary, the future key. The old key may be required to decrypt cookies from an Agent that has not yet been updated, or to decrypt existing cookies from a client's browser. The future key may be required for cookies created by an updated Agent, but read by an Agent that has not yet polled the key store for updated keys.

Rollover Intervals for Agent Keys

At a specified time, the Agent key rollover process begins. To prevent multiple rollovers from multiple Policy Servers, each server sets a rollover wait time of up to 30 minutes. If no update has been performed by the end of the wait time, that Policy Server updates the keys.

All Policy Servers wait for updated keys and then process the new keys to their Agents. Even for a single Policy Server, the update time may be up to 30 minutes beyond the time specified for the rollover.

The Agent Key Rollover process begins at the time(s) specified in the SOA Security Manager Agent Key Management dialog box. The process can take up to three minutes. In that time period, all Web Agents connected to the Policy Server receive updated keys.

Note: In a deployment that involves multiple replicated Policy Servers, the process for distributing Agent keys may take up to 30 minutes.

Static Keys

A static key is a string used to encrypt data which remains constant. In a SiteMinder deployment that uses the Agent Key rollover feature, a static key provides a method for maintaining user information across an extended period of time.

The following SiteMinder features and situations make use of the static key:

- Saving User Credentials for HTML Forms Authentication

  If an HTML Forms authentication scheme has been configured to allow users to save credentials, the Policy Server uses the static key to encrypt the user's credentials.

- User Tracking

  If user tracking is turned on, the Policy Server uses the static key to encrypt user identity information.

- Single Sign-on Across Multiple Key Stores

  In a SiteMinder deployment that includes multiple key stores, the static key may be used for single sign-on. In this situation, SiteMinder Agents use the static key for all cookie encryption.

  Note: If you change the static key, any cookies created with the former static key are invalid. Users may be forced to re-authenticate, and user tracking information becomes invalid. In addition, if the static key is used for single sign-on, users are challenged for credentials when they attempt to access resources in another cookie domain.

More information:

Multiple Policy Stores with Separate Key Stores (see page 59)

Session Ticket Keys

When a user successfully logs into a protected resource, the Policy Server creates a session ticket. The session ticket is what the Policy Server uses to determine how long a user's authentication remains valid. This session ticket is encrypted using the session ticket key and cached in the Agent User Cache.

You can choose to have the Policy Server generate the session ticket key using an algorithm, or you can enter a session ticket key in the SOA Security Manager Key Management dialog box. For security reasons, the randomly generated key is recommended. However, if your SOA Security Manager implementation includes multiple key stores in a single sign-on environment, you must enter the same session ticket key for all key stores.

More information:

Cache Management Overview (see page 89)
Manage the Session Ticket Key (see page 64)

Key Management Scenarios

There are three types of scenarios for key management based on how you implement Policy Servers, policy stores and key stores, along with your single sign-on requirements. These scenarios include:

- Common Policy Store and Key Store

  In this scenario, a group of Policy Servers shares a single policy store and key store, providing access control and single sign-on in a single cookie domain.

  The policy store data is maintained in a single policy store. Key data is maintained in a single key store. The key store may be part of the policy store, or may be a separate store.

  Both policy store and key store data may be replicated for failover purposes. Replication must be configured based on the database or directory type selected for the policy store. For information about replication schemes, consult the documentation provided by your database or directory vendor.

- Multiple Policy Stores with a Common Key Store

  In this scenario, groups of Policy Servers connect to separate policy stores, but share a common key store, providing access control and single sign-on across multiple cookie domains.

  The policy store data for each group of Policy Servers is maintained in a single policy store. Key data for all groups of Policy Servers is maintained in a single key store. The separate key store allows Agents associated with all Policy Servers to share keys, enabling single sign-on across separate cookie domains.

  Both policy store and key store data may be replicated for failover purposes. Replication must be configured based on the database or directory type selected for the policy store. For information about replication schemes, consult the documentation provided by your database or directory vendor.

- Multiple Policy Stores and Multiple Key Stores

  In this scenario, each group of Policy Servers shares a single policy store and key store, providing access control and single sign-on across multiple cookie domains where it is desirable for the Policy Servers in each cookie domain to have a separate key store.

  The policy store data for each group of Policy Servers is maintained in a single policy store. Key data for each group of Policy Servers is maintained in a single key store. The key store may be part of the policy store, or may be a separate store. The same set of static keys allows for single sign-on across all Web Agents.

  Both policy store and key store data may be replicated for failover purposes. Replication must be configured based on the database or directory type selected for the policy store. For information about replication schemes, consult the documentation provided by your database or directory vendor.

More information:

Configure LDAP Failover (see page 37)
Configure ODBC Failover (see page 40)

Key Management Considerations

When deciding on the key management scenario for your enterprise, consider the following:

- When configuring dynamic keys in an environment with multiple Policy Servers that share a common key store, a single Policy Server must be nominated to perform Agent Key generation. You should disable key generation on all other Policy Servers.
- In a network configuration with multiple Policy Servers, the Policy Server Management Console enables you to specify a policy store for each Policy Server. Policy stores can be master policy stores that are the primary location for storing SOA Security Manager objects and policy information, or they can be replicated policy stores that use data copied from a master policy store.
- Master/slave directories or databases must be configured according to the specifications of the directory or database provider. The Policy Server provides the ability to specify a failover order for policy stores, but it does not control data replication. For information about replication schemes, see your directory or database provider's documentation.
- In any network that uses dynamic key rollover, the key store for a Policy Server may be a master key store or a replicated slave key store. Master key stores receive keys directly from the Policy Server process that generates the keys. Slave key stores receive copies of the keys in the master key store.

- In a master/slave environment, you must configure key generation from Policy Servers that point to the master policy store and key store. The master policy store and key store data must then be replicated across all other policy stores and key stores included in your failover order.
- In any single sign-on environment for multiple cookie domains, dynamic keys can only be used if there is a single master key store, or slave key stores with keys replicated from a single master key store.
- Policy stores and keys stores can be installed on mixed LDAP and ODBC directories. The policy store can reside in an ODBC database and the key store can reside in an LDAP Directory Server or vice versa. For a list of supported databases, go to the Technical Support site and search for the SOA Security Manager r12.1 Platform Support Matrix.

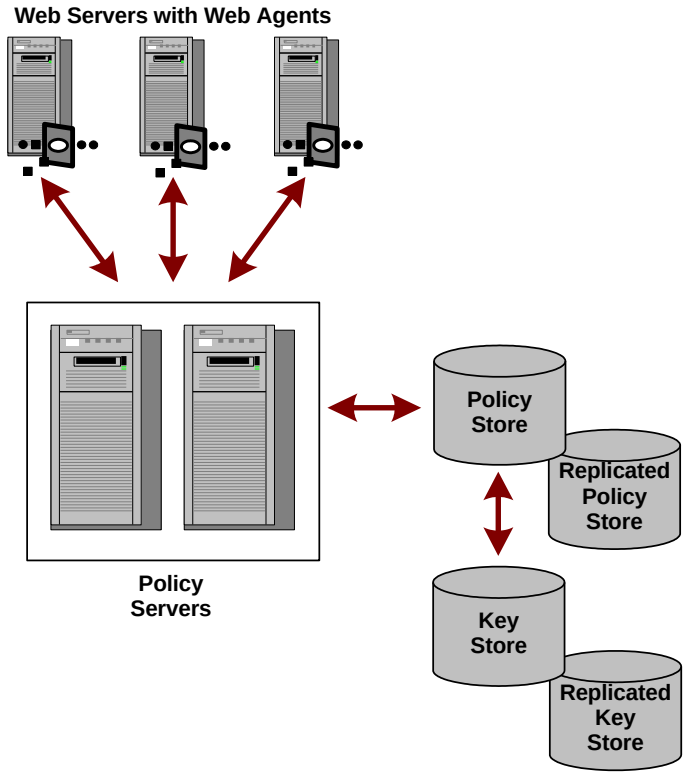
More information:

Configure Agent Key Generation (see page 61)
Configure LDAP Failover (see page 37)
Configure ODBC Failover (see page 40)

Common Policy Store and Key Store

The simplest scenario for a SiteMinder configuration that uses key rollover is when multiple Policy Servers use a single policy store (and its associated failover policy stores), along with a single key store.

The following figure shows multiple Policy Servers using a single policy store.



In this type of configuration, Policy Servers retrieve dynamic keys from the key store. The Web Agents associated with the Policy Servers collect new keys from the Policy Servers.

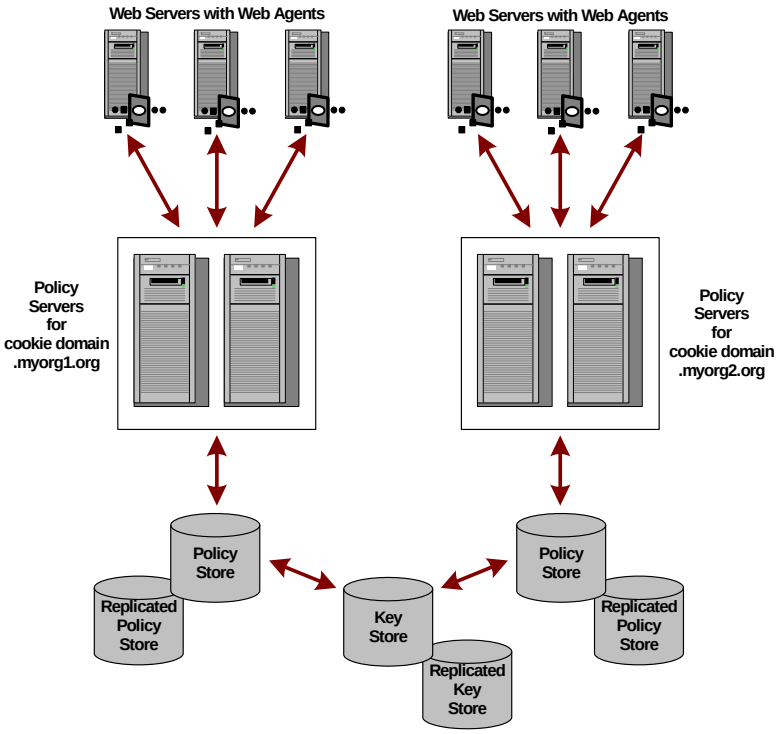
More information:

Key Management Considerations (see page 55)

Multiple Policy Stores with a Common Key Store

If a network configuration consists of multiple Policy Servers with separate policy stores in a single sign-on environment, it is possible to have a common key store that all of the Policy Servers use for key rollover.

The following figure shows multiple Policy Servers using a common key store.



One Policy Server generates dynamic keys and stores them in the central key store. Each Policy Server is configured using the Policy Server Management Console to use the central key store; Agent key generation should be disabled for all other Policy Servers. Agents poll their respective Policy Servers to retrieve new keys. The Policy Servers retrieve new keys from the common key store and pass them to the SOA Security Manager Agents.

Note: This scenario requires an additional registry setting that forces Policy Servers that are not generating keys to poll the key store for key updates.

More information:

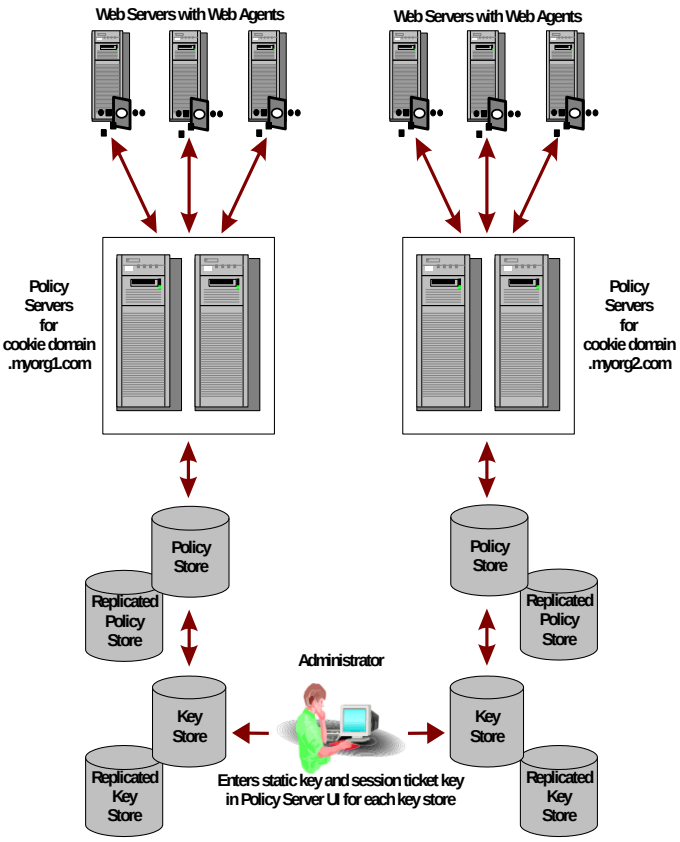
Key Management Considerations (see page 55)
Set the EnableKeyUpdate Registry Key (see page 66)

Multiple Policy Stores with Separate Key Stores

If a network configuration is composed of multiple Policy Servers, policy stores, and master key stores, an administrator with appropriate privileges can specify the same static key and session ticket key for each policy store in order to facilitate one or more of the following:

- Single sign-on across all Agents
- Password Services with a common user directory

The following figure shows an environment with multiple Policy Servers and stores.



In the previous example, the same static key is used to encrypt all cookies created by SOA Security Manager Web Agents.

More information:

Key Management Considerations (see page 55)

Reset the Policy Store Encryption Key

To reset the policy store Encryption Key

1. Export your existing policy store content in clear text.
2. Run smldapsetup remove to clear the policy store content and SOA Security Manager schema.
3. Run "smreg -key *new_encryption_key*" to reset the Encryption Key.
4. Reboot the machine.
5. Load the Policy Server Management Console and retype the Admin password for the Directory Server.
6. Open a command prompt.
7. Run "smldapsetup ldgen -f*any_filename_to_store_new_schema* -v". The LDAP instance is correctly identified.
8. Run "smldapsetup ldmod -f*previous_filename* -v" LDAP is modified with the schema file.
9. Run "smreg -su *SOA Security Manager_admin_password*" to reset SOA Security Manager Administrator password.
10. Run "smobjimport -i*smpolicy.smdif file* -dsiteminder -wpassword -v" to import SOA Security Manager policy store base contents to LDAP.
11. Run "smobjimport -i*the_original_exported_policy_export_file*.smdif> -dsiteminder -wpassword -v" to restore the original content of policy store.

Important! If you are running a SOA Security Manager utility or executable on Windows Server 2008, be sure to open the command–line window with Administrator permissions, even if you are logged into the system as an Administrator. For more information, see the release notes for your SOA Security Manager component.

Configure Agent Key Generation

You use the Policy Server Management Console Keys tab to configure how the Policy Sever handles Agent key generation.

Note: Enable key generation only on the Policy Server that you want to generate Agent keys.

To configure Policy Server agent key generation

1. Start the Policy Server Management Console.

   Important! If you are accessing this graphical user interface on Windows Server 2008, open the shortcut with Administrator permissions, even if you are logged into the system as an Administrator. For more information, see the release notes for your SOA Security Manager component.

2. Click the Keys tab.
3. Complete the fields and controls presented on the Keys tab to configure Agent key generation.
4. When you are done, click Apply to save your changes.

Manage Agent Keys

The SiteMinder Key Management dialog box, which you access from the Administrative UI, enables you to configure periodic Agent key rollovers, execute manual rollovers, and change the static key. It also enables you to manage the session ticket key.

Note: To manage keys, you must log into the Administrative UI using an account with the Manage Keys and Password Policies privilege. For more information, see the *Policy Server Configuration Guide*.

More information:

Manage the Session Ticket Key (see page 64)
Configure Periodic Key Rollover (see page 62)
Manually Rollover the Key (see page 62)
Change Static Keys (see page 63)

Configure Periodic Key Rollover

The Policy Server supports periodic Agent key rollovers weekly, daily, or at fixed intervals in a single day. The shortest allowable period between rollovers is one hour.

Note: If your operating system is not configured to adjust the system time for daylight savings time, key rollover may be offset by one hour. To ensure that key rollover occurs at the expected time, configure your operating system to recognize daylight savings time.

To configure periodic key rollover

1. In the Policy Server Management Console, select Enable Agent Key Generation check box in the Keys tab and click OK.
2. Log into the Administrative UI.
3. From the Administration tab, select Policy Server, Key Management.

   The Key Management pane opens.
4. In the Agent Key group box, select Use dynamic Agent Key.

   The pane changes to support dynamic keys.
5. In the Dynamic Key Detail group box, select Automatic key rollover then click Set rollover frequency.

   The Dynamic Key Rollover group box appears.
6. Set the frequency of the automatic key rollover.
7. Click OK.

   You return to the Key Management pane.

Manually Rollover the Key

One of the Agent key management features lets you manually rollover dynamic Agent keys. This feature provides added security because the keys can be rolled over at any time. You can also use this feature if you want the Policy Server to generate dynamic keys, but you do not want the keys to rollover at a fixed interval.

To manually rollover dynamic Agent keys

1. Log into the Administrative UI.
2. From Administration tab, select Policy Server, Key Management.

   The Key Management pane opens.

3. In the Agent Key group box, select Use dynamic Agent Key.

   The pane changes to support dynamic keys.

4. In the Dynamic Key Detail group box, select Manual Key Rollover.

5. To rollover dynamic keys, click Rollover Now.

   The Policy Server immediately generates new Agent keys. Unless you manually execute an Agent key rollover, the Policy Server does not generate new dynamic keys automatically.

   Note: Do not click this button multiple times unless you want to rollover keys more than once.

   Web Agents pick up the new keys the next time they poll the Policy Server, which may take up to three minutes due to cache synchronization. If you want to use an entirely new set of keys to for security reasons, you can rollover dynamic keys twice to remove the old key and the current key from the key store.

Coordinate Agent Key Management and Session Timeouts

You must coordinate the updating of agent keys and session timeouts or you may invalidate cookies that contain session information. This coordination is critical because the person designing policies in your organization may be different than the person configuring dynamic key rollover.

Session timeouts should be less than or equal to two times the interval configured between Agent key rollovers. If an administrator configures an agent key rollover to occur two times before a session expires, cookies written by the Web Agent before the first key rollover will no longer be valid and users will be re-challenged for their identification *before* their session terminates.

For example, if you configure key rollover to occur every three hours, you should to set the Maximum Session timeout to six hours or less to ensure that multiple key rollovers do not invalidate the session cookie.

Change Static Keys

You can change the static Agent key used by SiteMinder Web Agents to encrypt identity information for certain SiteMinder features.

Important! Changing the static key is not recommended because the change can cause some SiteMinder features to lose the data they require to function properly. Features that establish and use an identity stored in a persistent cookie will no longer work. Change the static key *only* in extreme situations such as security breaches. Authenticated users may be forced to login again before single sign-on will function across multiple SiteMinder installations.

A static key may also be used to maintain a single sign-on environment in an environment that requires multiple Policy Servers and multiple master key stores.

To change the static key

1. Log into the Administrative UI.
2. From the Administration tab select Policy Server, Key Management.

   The Key Management pane opens.
3. In the Agent Key group box, select Use Static Key.

   The pane changes to support static keys.
4. Do one of the following:
   - In the Generate a random key group box, click Rollover Now to make the Policy Server generate a new random static key.
   - In the Specify an Agent key group box, enter a static key by setting the following fields:

     Static key

     Specify a value that the Policy Server uses as the static key. Use this option in situations where two key stores must use the static key to maintain a single sign-on environment.

     Confirm key

     Re-enter the static key.
5. Click Rollover Now.

   Depending on the option you selected, the Policy Server generates a new static key or uses the one you specified. The static key rolls over within three minutes.
6. Click Submit to save your changes.

Manage the Session Ticket Key

The Policy Server can generate the session ticket key using an algorithm, or you can enter the session ticket key manually. A session ticket is established each time a user authenticates successfully and enables the Policy Server to determine how long a user's session can continue.

Note: The only implementation that requires a manually assigned session ticket key is one that includes multiple, independent key stores. Automatically generated keys cannot be propagated across independent key stores by the Policy Server. In all other instances it is recommended that you use the session ticket key generated by the Policy Server algorithm.

Generate a Session Ticket Key

The Policy Server can generate the session ticket key using a method similar to the one for generating dynamic Agent keys. Randomly generating the session ticket key enables the Policy Server to use an algorithm to create the key used for encryption and decryption.

To generate a session ticket key

1. Log into the Administrative UI.
2. From the Administration tab, select Policy Server, Key Management.

   The Key Management pane opens.
3. Do *one* of the following:
   - In the Generate a Random Session Ticket Key group box, click Rollover Now.

     The Policy Server generates a new session ticket key. This key immediately replaces the one that is used to encrypt and decrypt session tickets.
   - Specify a Session Ticket Key group box, complete the following fields:

     Session ticket key

     Enter a value for the session ticket key. The Policy Server immediately replaces the existing session ticket key with the value you entered.

     Confirm

     Re-enter the session ticket key.
4. Click Rollover Now.
5. Click Submit to save your changes.

Manually Enter the Session Ticket Key

If your Policy Server is part of an implementation that includes multiple key stores, you can manually enter the session ticket key.

To enter the session ticket key

1. From the Administration tab, select Policy Server, Key Management.

   The Key Management pane opens.

2. In the Specify a Session Ticket Key group box, enter values for the following fields:

   Session Ticket Key

   Enter a session ticket key

   Confirm

   Re-enter the session ticket key

3. Click Rollover Now.

   The Policy Server immediately replaces the existing session ticket key with the value you entered.

4. Click Submit.

Set the EnableKeyUpdate Registry Key

When a single Policy Server generates encryption keys in an environment with multiple Policy Servers that connect to disparate policy stores, but share a central key store, an additional registry setting is required. This registry setting configures each Policy Server to poll the common key store and retrieve new encryption keys at a regular interval.

To configure the EnableKeyUpdate registry key on a Windows Policy Server

1. From the Windows Start menu, select Run.
2. Enter regedit in the Run dialog box and click OK.
3. In the Registry Editor, navigate to:

   HKEY_LOCAL_MACHINE\SOFTWARE\Netegrity\SiteMinder\CurrentVersion\ObjectStore

4. Change the following registry value:

   "EnableKeyUpdate"=0

   to

   "EnableKeyUpdate"=1

5. Restart the Policy Server.

To configure the EnableKeyUpdate registry key on a UNIX Policy Server

1. Navigate to:

   install_directory/siteminder/registry

2. Open sm.registry in a text editor.

3. Locate the following text in the file:

   HKEY_LOCAL_MACHINE\SOFTWARE\Netegrity\SiteMinder\
   CurrentVersion\ObjectStore

4. Change the following registry value:

   "EnableKeyUpdate"=0

   to

   "EnableKeyUpdate"=1

5. Restart the Policy Server.

More information:

Multiple Policy Stores with a Common Key Store (see page 57)

Shared Secret for a Trusted Host

When you register a trusted host, the installation process automatically generates a shared secret for the Web Agent and stores that shared secret in the SmHost.conf file, the Host Configuration file. If you choose to enable shared secret rollover when registering a trusted host, you can rollover the shared secrets for trusted hosts. You can rollover shared secrets manually or periodically.

During a manual or periodic shared secret rollover, shared secrets are only rolled over for Agents that were configured at installation to allow rollovers.

For information about installing Web Agents and registering trusted hosts, see the *SOA Security Manager Web Agent Installation Guide*.

Shared secret rollover occurs automatically only on servers that are configured to enable Agent key generation. You enable Agent key generation by selecting the Enable Agent Key Generation check box in the Keys tab of the Policy Server Management Console. This setting is enabled by default.

Important! We recommend that only one Policy Server be enabled to generate keys. If there are multiple policy stores in an environment, but only a single shared key store, the shared secrets in the policy store are rolled over automatically *only* in the policy store for the Policy Server with key generation enabled. For the other policy stores, you can manually execute a rollover.

To manually rollover the shared secret, use the Federation Security Services Administrative UI or the C Policy Management API running on a Policy Server configured to the target policy store.

Note: The shared secret policy object is kept in the key store, and thus will be shared by all policy stores that share the same key store. The shared secrets themselves are kept in the trusted host objects, which are part of the policy store.

Configure Trusted Host Shared Secret Rollover

The Policy Server supports manual and periodic rollover of shared secrets for trusted hosts.

Periodic rollovers can be configured hourly, daily, weekly, or monthly; one hour is the shortest allowable period between rollovers. The Policy Server initiates periodic rollovers based on the age of the shared secret for each trusted host, rather than at a specific time of the day, week, or month. By rolling over each shared secret as it expires, the processing associated with the rollover is distributed over time, and avoids placing a heavy processing load on the Policy Server.

If you use the manual rollover feature, future periodic rollovers will generally be clustered together for all trusted hosts, since the manual rollover sets new shared secrets for all trusted hosts that allow shared secret rollover.

Important! If you enable key generation on more than one Policy Server associated with a single policy store, the same shared secret can be rolled over more than once in a short period of time due to object store propagation delays. This can result in orphaned hosts whose new shared secrets have been discarded. To avoid this potential problem, enable shared secret rollover for a single Policy Server per policy store.

To configure shared secret rollover for trusted hosts

1. In the Keys tab of the Policy Server Management Console, ensure that the Enable Agent Key Generation check box is selected.
2. Log into the Administrative UI.
3. From the Administration tab, select Policy Server, Shared Secret Rollover.

   The Shared Secret Rollover pane opens.
4. In the Shared Secret Rollover group box, do one of the following:
   - For an immediate rollover, click Rollover Now.
   - To ensure that the shared secret is never rolled over, select Never Rollover Shared Secret.
   - To specify a period rollover, select Rollover Shared Secret every and complete the following fields:

     Rollover Frequency

     Enter an integer for the number of times a rollover should occur. This number works together with the value of the rollover period.

     Rollover Period

     From the pull-down list, select Hours, Days, Weeks or Months for the occurrence of the rollover.

   The Policy Server begins the process of rolling over shared secrets for all trusted hosts configured to allow shared secret rollover. The rollover may take some time depending on the number of trusted hosts in your deployment.
5. Click Submit to save your changes.

Chapter 7: Configuring Policy Server Logging

This section contains the following topics:

Policy Server Logging Overview

The Policy Server log file records information about the status of the Policy Server and, optionally, configurable levels of auditing information about authentication, authorization, and other events in the Policy Server log file. If the Policy Server is configured as a RADIUS Server, RADIUS activity is logged in the RADIUS log file.

You configure these logs from the Management Console Logs tab.

Configure the Policy Server Logs

To configure the Policy Server logs

1. Start the Policy Server Management Console.

   Important! If you are accessing this graphical user interface on Windows Server 2008, open the shortcut with Administrator permissions, even if you are logged into the system as an Administrator. For more information, see the release notes for your SOA Security Manager component.

2. Click the Logs tab.
3. Adjust the settings presented in the Policy Server Log and Policy Server Audit Log group boxes to configure the location, rollover characteristics and required level of audit logging for the Policy Server log.
4. If the Policy Server is configured as a RADIUS server, adjust the settings presented in the RADIUS Log group box.
5. Click Apply to save your changes.

Record Administrator Changes to Policy Store Objects

You can specify whether changes made to policy store objects by administrators are recorded in the Policy Server audit logs.

The audit logs are stored as text files, as shown in the following example:

policy_server_home/audit/xps-*process_id-start_time-audit_sequence.file_type*

The name of each audit log file contains the following information:

process_id

Indicates the number of the process associated with the audited event.

start_time

Indicates the time the transaction *started* in the following format:

YYYYMMDDHHMMSS

A four-digit year and the 24-hour clock are used.

Example: 20061204133000

audit_sequence

Provides a sequence number for the audited event.

file_type

Indicates one of the following event types:

access

Indicates an audit log file that contains the following access events:

- a Administrative UI or a reports server is registered
- a Administrative UI or a reports server acts as a proxy on behalf of another user
- an administrator is denied access for a requested action

audit

Indicates an audit log file that contains the following events:

- an object is modified (using an XPS Tool or Administrative UI)
- administrator records are created, modified, or deleted

txn

Indicates an audit log file that contains the following transaction events:

- An XPS tool begins, commits, or rejects a change to an object.

Note: If you do *not* have write access to the SOA Security Manager binary files (XPS.dll, libXPS.so, libXPS.sl), an Administrator must grant you permission to use the related XPS command line tools using the Administrative UI or the XPSSecurity tool.

To track administrator changes to policy store objects

1. Open a command line on the Policy Server, and enter the following command:

   xpsconfig

   The tool starts and displays the name of the log file for this session, and a menu of choices opens.

2. Enter the following:

   xps

   A list of options appears.

3. Enter the following:

   1 (AuditEnabled)

   The current policy store audit settings appear.

4. Enter C.

   Note: This parameter uses a value of TRUE or FALSE. Changing its value toggles between the two states.

   The updated policy store audit settings appear. The new value is shown at the bottom of the list as "pending value."

5. Do the following:

   a. Enter Q twice.

   b. Enter L.

   c. Enter Q to end your XPS session.

   Your changes are saved and the command prompt appears.

How to Process Old Log Files Automatically

You can configure SOA Security Manager Policy Server to automatically process old log files by customizing one of the following scripts:

- Harvest.bat (Windows)
- Harvest.sh (UNIX or Linux)

The script runs when one of the following events occurs:

- When the XPSAudit process starts (using the following option)

  CLEANUP

  Processes all of the log files in the directory at once.

- Whenever the log files are rolled over
- When the XPSAudit process exits

  During a rollover or an exit, the files are processed one-at-a-time by file name.

You can customize the script to process the files any way you want. For example, you could modify the script to delete them, move them to a database or archive them to another location.

Note: This script is provided only as an example. It is not supported by CA.

To automatically process old log files, do the following:

1. Open the following directory on your Policy Server:

   policy_server_home/audit/samples

2. Open the appropriate script for your operating system with a text editor, and then save a copy to the following directory:

   policy_server_home/audit/Harvest.*extension*

   Note: Do *not* rename the file or save it to a location different from the one specified.

3. Use the remarks in the script as a guide to customize the script according to your needs.

4. Save your customized script and close the text editor.

Report Logging Problems to the System Log

You can configure the Policy Server to log information about exceptions that can occur while preparing or executing audit logs to the Windows event log viewer. This configuration can prevent you from missing this information in a production environment where debug logs are disabled. To configure this feature, set the value of the CategoryCount registry key to 7.

The CategoryCount registry key is found in the following registry location:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Eventlog\Application
\SiteMinder

These events are logged under the event log categories ObjAuditLog and AccessAuditLog.

SOA Security Manager calls object events when objects are created, updated, or deleted. Any exceptions that occur while preparing/executing SOA Security Manager obj audit logs are logged to Windows event viewer under the 'ObjAuditLog' category.

Access events result from user-related activities and are called in the context of authentication, authorization, administration, and affiliate activity. Any exceptions that occur while preparing/executing SOA Security Manager access audit logs are logged to Windows event viewer under the 'AccessAuditLog' category.

Chapter 8: Configuring the Policy Server Profiler

This section contains the following topics:

Configure the Policy Server Profiler

The Policy Server Profiler allows you to trace internal Policy Server diagnostics and processing functions.

To configure the profiler

1. Start the Policy Server Management Console.

   Important! If you are accessing this graphical user interface on Windows Server 2008, open the shortcut with Administrator permissions, even if you are logged into the system as an Administrator. For more information, see the release notes for your SOA Security Manager component.

2. Click the Profiler tab.
3. Set the Enable Profiling option to enable profiling.
4. To select configuration settings for the Profiler, do one of the following:
   - Accept the Profiler settings specified by the default smtracedefault.txt file presented in the Configuration File drop-down list.
   - Select another configuration file that has already been selected during this management session from the Configuration File drop-down list.
   - Click the Browse button to select another configuration file.
5. To change the Profiler settings stored in a Profiler configuration file and save them in the same or a new file, click the Configure Settings button to open the Policy Server Profiler dialog.
6. Adjust the settings presented in the Output group box to specify the output format for information generated by the Policy Server Profiler.
7. Click Apply to save your changes.

Notes:

Changes to the Profiler settings take effect automatically. However, if you restart the Policy Server, a new output file (if the Profiler is configured for file output) is created. The existing Profiler output file is automatically saved with a version number. For example:

smtracedefault.log.1

If changes to the Logging or Tracing facility settings are not related to the Profiler output file, for example, enabling/disabling the console logging on Windows, the existing file is appended with new output without saving a version of the file.

By default The Policy Server retains up to ten output files (the current file and nine backup files). Older files are replaced automatically with newer files when the ten file limit is reached. You can change the number of files to retain by configuring the TraceFilesToKeep DWORD registry setting to the required decimal value. The TraceFilesToKeep registry setting must be created in the following registry location:

HKEY_LOCAL_MACHINE\SOFTWARE\Netegrity\SiteMinder\CurrentVersion\LogConfig\TraceFilesToKeep

Change Profiler Settings

You can specify which components and data fields will be included in Policy Server tracing, and you can apply filters to tracing output so that the profiler only captures specific values for a given component or data field.

To configure profiler settings

1. Start the Policy Server Management Console.

   Important! If you are accessing this graphical user interface on Windows Server 2008, open the shortcut with Administrator permissions, even if you are logged into the system as an Administrator. For more information, see the release notes for your SOA Security Manager component.

2. Click the Profiler tab.
3. Click the Configure Settings button.

   Note: This button is only active when you select the Enable Profiling check box.

   The Policy Server Profiler dialog opens.

4. Optionally, choose a Profiler template file that contains a predefined set of components and data fields appropriate for a particular tracing task from the Template drop down list:

   general_trace.template

   Provides options for general, broad scope tracing.

   authentication_trace.template

   Provides options for tracing user authentications.

   authorization_trace.template.txt

   Provides options for tracing user authorizations.

   You can use Profiler templates as a starting point for Profiler configuration. Once a template has been loaded, you can manually modify the components and data fields that it specifies as well as apply data filters.

5. Review/configure trace options by doing one or more of the following:
   - Select Components--Specify which components--actions executed by the Policy Server--to trace on the Components tab.
   - Select Data Fields--Specify which data fields--actual pieces of data used by the Policy Server to complete its tasks--to trace on the Data tab.
   - Add Filters--Specify data filters that will include or exclude information from the tracing process on the Filters tab.
6. To save your new settings, do one of the following:
   - To save the settings in the currently selected configuration file, click OK.
   - To save the settings to a new configuration file, select File, Save As and specify a new text file.
7. Select File, Close to close the profiler and return to the Policy Server Management Console.
8. Select the Browse button to the right of the Configuration File field.

Avoid Profiler Console Output Problems on Windows

On Windows Policy Servers, you should disable QuickEdit Mode and Insert Mode to avoid problems when you enable console debugging. QuickEdit Mode and Insert Mode are features that you can enable from a Windows command prompt window.

To Disable QuickEdit Mode and Insert Mode

1. Access the command prompt window.
2. Right click in the window's title bar to display the pull-down menu.
3. Select Properties.

4. If QuickEdit Mode and Insert Mode are checked, deselect them.
5. Click OK.

Configure Profiler Trace File Retention Policy

By default the Policy Server retains up to ten output files (the current file and nine backup files). Older files are replaced automatically with newer files when the ten file limit is reached. You can change the number of files to retain by configuring the TraceFilesToKeep DWORD registry setting to the required decimal value. The TraceFilesToKeep registry setting should be created in the following registry location:

HKEY_LOCAL_MACHINE\SOFTWARE\Netegrity\SiteMinder\CurrentVersion\LogConfig\TraceFilesToKeep

Manually Roll Over the Profiler Trace Log File

The Policy Server allows you to manually rollover the Policy Server Profiler trace log file using the smpolicysrv command.

Important! If you are running a SOA Security Manager utility or executable on Windows Server 2008, be sure to open the command–line window with Administrator permissions, even if you are logged into the system as an Administrator. For more information, see the release notes for your SOA Security Manager component.

To start trace logging to a file, run the following command:

```
smpolicysrv –starttrace
```

This command starts logging to a trace file and does not affect trace logging to the console. It issues an error if the Policy Server is not running.

If the Policy Server is already logging trace data, running the –starttrace command causes the Policy server to rename the current trace file with a time stamp appended to the name in the form: *file_name*.YYYYMMDD_HHmmss.*extension* and create a new trace file with the original name. For example, if the trace file name in Policy Server Management Console's Profiler tab is C:\temp\smtrace.log, the Policy Server generates a new file and saves the old one as c:\temp\smtrace.20051007_121807.log. The time stamp indicates that the Policy Server created the file on October 7, 2005 at 12:18 pm.

If you have not enabled the tracing of a file feature using the Policy Server Management Console's Profiler tab, running this command does not do anything.

To stop trace logging to a file, run the following command:

```
smpolicysrv -stoptrace
```

This command stops logging to a file and does not affect trace logging to the console. It issues an error if the Policy Server is not running.

Note: On Windows systems, do *not* run the smpolicysrv command from a remote desktop or Terminal Services window. The smpolicysrv command depends on inter-process communications that do not work if you run the smpolicysrv process from a remote desktop or Terminal Services window.

Dynamic Trace File Rollover at Specified Intervals

You can also write a script to cause a trace file to be rolled over at a specified time interval. For example, to create a new trace file every hour, write a script similar to the following:

```
smpolicysrv –starttrace
repeat forever
wait 1 hour
smpolicysrv –starttrace
end repeat
```

This is similar to the time-based rollover option on the Policy Server Management Console's Logs tab.

Chapter 9: Configuring Administrative Journal and Event Handler

This section contains the following topics:

Administrative Journal and Event Handler Overview

The Policy Server Administrative Journal can be configured to specify how often administrative changes are applied to the Policy Server and how long the Policy Server maintains a list of applied changes.

Event Handlers are shared libraries that can be added to the Policy Server to handle certain events.

Configure Advanced Settings for the Policy Server

To configure the Policy Server advanced settings

1. Start the Policy Server Management Console.

   Important! If you are accessing this graphical user interface on Windows Server 2008, open the shortcut with Administrator permissions, even if you are logged into the system as an Administrator. For more information, see the release notes for your SOA Security Manager component.

2. Click the Advanced tab.
3. Adjust the settings presented in the Administrative Journal group box to configure how often administrative changes are applied to the Policy Server, and how long the Policy Server maintains a list of applied changes.
4. Click Apply to save your changes.

Add Event Handler Libraries

You can add additional event handler libraries to the SOA Security Manager Policy Server.

Note: If you do *not* have write access to the SOA Security Manager binary files (XPS.dll, libXPS.so, libXPS.sl), an Administrator must grant you permission to use the related XPS command line tools using the Administrative UI or the XPSSecurity tool.

To add event handler libraries

1. Open a command line on the Policy Server, and enter the following command:

   xpsconfig

   The tool starts and displays the name of the log file for this session, and a menu of choices opens.

2. Enter the following:

   xps

   A list of options appears.

3. Enter the following:

   5 (AuditSMHandlers)

   The settings for the event handler libraries appear.

4. Type C, and then enter the path and file name of the event handler library you want to add. Separate multiple library locations with commas.

   The settings for the event handler libraries appear. The value you added is shown at the bottom of the settings as a "pending value."

5. Do the following:

   a. Enter Q twice.

   b. Enter L.

   c. Enter Q to end your XPS session.

   Your changes are saved and the command prompt appears.

More information:

Grant Access to XPS Tools (see page 20)
Event Handlers List Settings Warning when Opening Policy Server Management Console (see page 192)

Chapter 10: Adjusting Global Settings

This section contains the following topics:

Enable User Tracking

The Policy Server Global Tools task lets you enable and disable user tracking. If you enable user tracking, SiteMinder Web Agents save Global Unique Identifiers (GUIDs) in cookies. When users access a resource protected by an Anonymous authentication scheme for the first time, the Web Agent creates a cookie that includes the user's GUID. Each GUID is a unique value, therefore, it may be used to track an anonymous user and customize Web content.

Affiliate Agents require user tracking. If you are using SiteMinder for a network that includes Affiliate Agents, you must enable user tracking as described in the following procedure.

To enable user tracking

1. Log into the Administrative UI.
2. Click Administration, Policy Server, Global Tools.

   The Global Tools pane opens.
3. Select Enable User Tracking in the Global Settings group box.
4. Click Submit.

   The Policy Server enables user tracking.

Enable Nested Security

The Policy Server Modify Global Tools pane in the Administrative UI lets you enable and disable the nested security, which provides backwards compatibility for older versions of SiteMinder.

To enable the nested security option

1. Log into the Administrative UI.
2. Click Administration, Policy Server, Global Tools.

   The Global Tools pane opens.
3. Select the Enable Nested Security checkbox.
4. Click Submit.

   The Policy Server enables nested security.

Enable Enhanced Active Directory Integration

Active Directory 2000 and Active Directory 2003 have several user and domain attributes that are specific to the Windows network operating system (NOS) and are not required by the LDAP standard. These attributes are:

- accountExpires
- userAccountControl
- pwdLastSet
- unicodePwd
- lastLogon
- lastLogonTimestamp
- badPasswordTime
- badPwdCount
- lockoutTime

- lockoutDuration
- pwdMaxAge

If you configure the Policy Server to use Active Directory as a user store, enable Enhanced Active Directory Integration from the Policy Server Global Tools task available from the Administrative UI. This option improves the integration between the Policy Server's user management feature and Password Services with Active Directory by synchronizing Active Directory user attributes with SiteMinder mapped user attributes.

Note: The feature is not supported with ADAM.

To enable enhanced Active Directory integration

1. Log into the Administrative UI.
2. Click Administration, Policy Server, Global Tools.

   The Global Tools pane opens.
3. Select Enhance Active Directory Integration. By default this feature is disabled.

   Note: After enabling this feature, you must have administrator credentials to modify the AD user store and have privileges to update AD attributes. If you do not have these credentials and privileges, the Policy Server returns an error message.
4. Click Submit.

   The Policy Server enables enhanced Active Directory integration.
5. Navigate to the User Directory dialog on the Infrastructure tab.
6. Open the Active Directory object for editing.
7. In the Root field, enter the default Windows domain's DN as the user directory root. For example:

   dc=WindowsDomain,dc=com

   Note: AD-specific features may not work in the Root field is set to another value.
8. Click Submit.

Note: A password policy that disables an account after exceeding an inactivity period does not work properly if the Enhance Active Directory Integration feature is enabled with AD 2000. As a result, user account inactivity integration is not supported for AD 2000; use AD 2003 instead.

Chapter 11: Cache Management

This section contains the following topics:

Cache Management Overview

SOA Security Manager provides several caches that can be configured to maintain copies of recently accessed data (for example, user authorizations) to improve system performance. These caches should be configured to suit the nature of the data in your environment, but may also require periodic manual flushing.

SOA Security Manager deployments can be configured to maintain the following cache on the Policy Server:

- The *User Authorization Cache* stores user distinguished names (DNs) based on the user portion of policies and includes the users' group membership.

SOA Security Manager also maintains an *Agent Cache* on each a SOA Security Manager Agent machine. The Agent Cache has two components:

- The *Agent Resource Cache* stores a record of accessed resources that are protected by various realms. This cache speeds up Agent to Policy Server communication, since the Agent knows about resources for which it has already processed requests.
- The *Agent User Cache* maintains users' encrypted session tickets. It acts as a session cache by storing user, realm, and resource information. Entries in this cache are invalidated based on timeouts established by the realms a user accesses.

Configure Caches

You enable and configure Policy Server cache settings using the Policy Server Management Console. For more information about configuring the agent caches, see the *Web Agent Configuration Guide*.

Flush Caches

When you change SOA Security Manager objects, SOA Security Manager automatically flushes the appropriate cache entries. The cache settings also specify a regular interval for applying administrative changes. When making sensitive changes (for example, changing the access rights to highly critical information), you have the option of flushing SOA Security Manager caches manually. This manual step helps ensure that unauthorized users cannot access protected resources based on information stored in the caches.

Cache Management features are accessible from the Policy Server Global Tools pane in the Administrative UI. They let you force an update of SiteMinder data by manually flushing the following caches:

All Caches

Enables you to flush all caches, including user sessions, resource information, and user directory caches (including certificate CRLs).

User Session Caches

Enables you to force users to reauthenticate when they try to access protected resources.

Resource Caches

Enables you to flush cached information about resources.

Flush All Caches

The Cache Management options provide a method for administrators to flush the contents of all caches. Flushing all caches may adversely affect the performance of a Web site, since all requests immediately following the cache flush must retrieve information from user directories and the policy store. However, this action may be necessary if critical user privileges and policy changes must go into effect immediately.

Cache management features are only available to administrators who have either the Manage Users or Manage System and Domain Objects privileges. The Flush All button is only available for administrators with the Manage System and Domain Objects. If the menu selection is not available, the administrator account you used to log in does not have enough privileges to access the cache function.

If your configuration contains two policy servers pointing to one policy store, you can ensure that the primary (object cache) is included in the Flush All command. This causes both the primary and secondary caches to be rebuilt from the policy store. To enable this functionality, you must add the following entry to the registry:

Registry Name - FlushObjCache
Type - DWORD
Value - 0 (default)
Location - HKEY_LOCAL_MACHINE\SOFTWARE\Netegrity\SiteMinder\CurrentVersion\ObjectStore

To flush all caches

1. Log into the Administrative UI.
2. Click Administration, Policy Server, Cache Management
3. In the All Caches group box, click Flush All.

   Note: The Flush All button is only enabled for administrators that have both the Manage Users and Manage the SiteMinder Objects privileges.

   The Policy Server and associated SiteMinder Agents flush all caches. This process will take up to twice the time specified by your policy server poll interval while the Policy Server synchronizes caches.
4. Click Submit.

   All caches are cleared.

Flush User Session Caches

When a user successfully authenticates, the Policy Server begins a session for the authenticated user. During the user's session, the Web Agent stores authorization information in the user cache. However, if you change user access rights, it may be necessary to force the Policy Server to flush user session information from the Web Agent's cache. You can do this from the Administrative UI's Modify Global Tools pane.

To flush user sessions

1. Log into the Administrative UI.
2. Click Administration, Policy Server, Cache Management.
   The Modify Global Tools pane appears.

3. In the User Session Caches group box, select one of the following options:

   All

   Flushes all user sessions from the user cache.

   Specific User DN

   Flushes a specific DN from the user cache.

   If you select this radio button, select the user directory from the Directory drop-down list that contains the DN you want to remove and then enter the distinguished name in the DN field. You must specify a user's DN, not a group's DN. If you do not know the DN, click Lookup and search for the DN.

   Note: The option to flush user caches is only enabled for administrators that have the Manage Users privilege.

4. Click Flush.

   Depending on the radio button you selected, SiteMinder flushes all users or a specific DN from the user cache. This process takes up to twice the time specified by your Policy Server poll interval while the Policy Server synchronizes caches.

5. Click Submit.
   The user session caches are cleared.

Flush Resource Caches

SiteMinder Web Agents stores information about specific resources that users access in a resource cache. The resource cache records the following:

- Record of the Resources that have been accessed by users
- Whether or not the resources are protected by SiteMinder
- If a resource is protected, how the resource is protected

If you change rules or realms, you may want the changes to take effect immediately. If so, you must flush the resource cache.

Note: For detailed information about flushing resource caches for a realm or for a specific policy, see the *Policy Server Configuration Guide.*

To flush resource caches

1. Log into the Administrative UI.
2. Click Administration, Policy Server, Cache Management.

3. In the Resource Caches group box, click Flush.

   This flushes all resource caches and forces Web Agents to authorize requests against the Policy Server. This process will take up to twice the time specified by your policy server poll interval while the Policy Server synchronizes caches.

   Note: For an administrator with the Manage Domain Objects privilege for specific policy domains, flushing all resource caches only flushes the caches for the realms within the administrator's policy domains.

4. Click Submit.

   The resource cache are cleared.

Flush the Requests Queue on the Policy Server

Requests from SOA Security Manager agents are set to time out after a certain interval. However, the Policy Server continues to process all agent requests in the queue, even those requests that have timed out, in the order that they were received. The following situations can cause the queue to fill with agent requests faster than the Policy Server can process them:

- Network lag between the Policy Server and the policy store or user store databases
- Heavy loads on the policy store or user store databases
- Policy Server performance problems

When the Policy Server requests queue fills with agent requests, you can flush the timed-out agent requests from the queue, so that only the current agent requests remain. Only use this procedure in the following case:

1. Agent requests waiting in the Policy Server queue time out.
2. One or more Agents resend the timed-out requests, overfilling the queue.

Important! Do not use -flushrequests in normal operating conditions.

To flush the requests queue on the Policy Server

1. Open a command prompt on the Policy Server.
2. Run the following command:

   ```
   smpolicysrv -flushrequests
   ```

   The request queue is flushed.

Note: On Windows systems, do *not* run the smpolicysrv command from a remote desktop or Terminal Services window. The smpolicysrv command depends on inter-process communications that do not work if you run the smpolicysrv process from a remote desktop or Terminal Services window.

Important! If you are running a SOA Security Manager utility or executable on Windows Server 2008, be sure to open the command–line window with Administrator permissions, even if you are logged into the system as an Administrator. For more information, see the release notes for your SOA Security Manager component.

Chapter 12: User Session and Account Management

This section contains the following topics:

User Session and Account Management Prerequisites

The Policy Server provides user session and account management functionality, allowing you to flush the session cache, enable and disable users, and manage passwords for individual users.

To manage user sessions and accounts, the following prerequisites must be met:

- You must have an administrator account with the Manage Users privilege.
- To enable or disable user accounts, the user directory that contains user information must be configured with a Disable User attribute.
- To change passwords or force password changes, a password policy must be configured on the Policy Server and the user directory that contains user information must be configured with the Password Data attribute.

Note: For more information about configuring administrator privileges, user directories, and password policies, see the *Policy Server Configuration Guide*.

Enable and Disable Users

SiteMinder begins a user session after a user logs in and is authenticated. SiteMinder stores user attributes in its user session cache. When you disable a user, the Agent flushes the session cache, removing user identification and session information.

When the user attempts to access additional resources in the current session, the Web Agent no longer has the user's data in its cache. The Agent contacts the Policy Server and attempts to re-authenticate the user. The Policy Server determines that this user is disabled in the user directory and rejects the Agent's request to authenticate, which ends the session.

To enable or disable a user account

1. Log into the Administrative UI.
2. Click Administration, Users, Manage User Accounts.

   The Manage User Accounts pane opens.
3. Select the user directory connection for the directory that contains the user you want to enable or disable.
4. Click the Search icon.

   The Policy Server displays the Directory Users pane.
5. Enter search criteria in the Users/Groups group box and click GO to execute a search for the user you want to enable or disable. The search criteria is determined by the type of user directory you selected. You can enter the search criteria as either an attribute and a value, or as an expression. You can click Reset to clear the search criteria.

   The Policy Server displays search results in the Users/Groups group box.
6. Select a single user from the list of results.

   The Change user's state group box contains a button. This button is labeled Enable for a disabled user, or Disable for an enabled user.
7. Click Enable/Disable.

   The Policy Server disables or enables the selected user by changing a value in the user's profile.

Manage User Passwords

The Manage User Accounts pane in the Administrative UI enables you to force password changes for users, or change user passwords to new values.

Be sure that a password policy exists before you force users to change passwords. If no password policy exists, users will not be able to change their passwords, and therefore will not be able to access protected resources.

If you force a user to change passwords, and the user is accessing resources through an Agent that is not using an SSL connection, the user's new password information will be received over the non-secure connection. To provide a secure change of passwords, set up a password policy that redirects the user over an SSL connection when changing passwords.

To manage user passwords

1. Log into the Administrative UI.
2. Click Administration, Users, Manage User Accounts.
   The Manage User Accounts pane opens.

3. Select the user directory connection for the directory that contains the user for whom you want to manage passwords.
4. Click the Search icon.

   The Policy Server displays the user directory search dialog box associated with the type of directory you selected from the Directory drop-down list.
5. Enter search criteria in the Users/Groups group box and click GO to execute a search for the user you want to enable or disable. The search criteria is determined by the type of user directory you selected. You can either enter an attribute and a value, or enter an expression. You can click Reset to clear the search criteria.

   The Policy Server displays search results in the Users/Groups group box.
6. Select a single user from the list of results.
7. To force the selected user to change passwords on their next login, click Force Password Change in the Reset User's Password group box.
8. To change a user's password to a new value, enter a new password in the Change user's password group box. Re-enter the password to confirm.

   Note: The password that you specify is not constrained by any password policy but it is recorded in the user's password history.

Auditing User Authorizations

Use the Web Agent's auditing feature to track and log successful authorizations stored in the user session cache, allowing you to track user activity and measure how often applications on your Web site are used.

When you select this option, the Web Agent sends a message to the Policy Server each time a user is authorized from cache to access resources. You can then run log reports that shows user activity for each SiteMinder session.

If you do not enable auditing, the Web Agent will only audit authentications and first-time authorizations.

Note: For instructions on how to enable auditing, see the *Web Agent Configuration Guide*.

Web Agents automatically log user names and access information in native Web Server log files when users access resources. Included in the audit log is a unique transaction ID that the Web Agent generates automatically for each successful user authorization request. The Agent also adds this ID to the HTTP header when SiteMinder authorizes a user to access a resource. The transaction ID is then available to all applications on the Web server. The transaction ID is also recorded in the Web Server audit logs. Using this ID, you can compare the logs and follow the user activity for a given application.

To view the output of the auditing feature, you can run a SiteMinder report from the Administrative UI.

Chapter 13: Clustering Policy Servers

This section contains the following topics:

Clustered Policy Servers

Load balancing and failover in a SOA Security Manager deployment provide a high level of system availability and improve response time by distributing requests from SOA Security Manager Agents to Policy Servers. Defining clusters in combination with load balancing and failover further enhance the level of system availability and system response time.

Traditional round robin load balancing without clusters distributes requests evenly over a set of servers. However, this method is not the most efficient in heterogeneous environments, where computing powers differ, because each server receives the same number of requests regardless of its computing power.

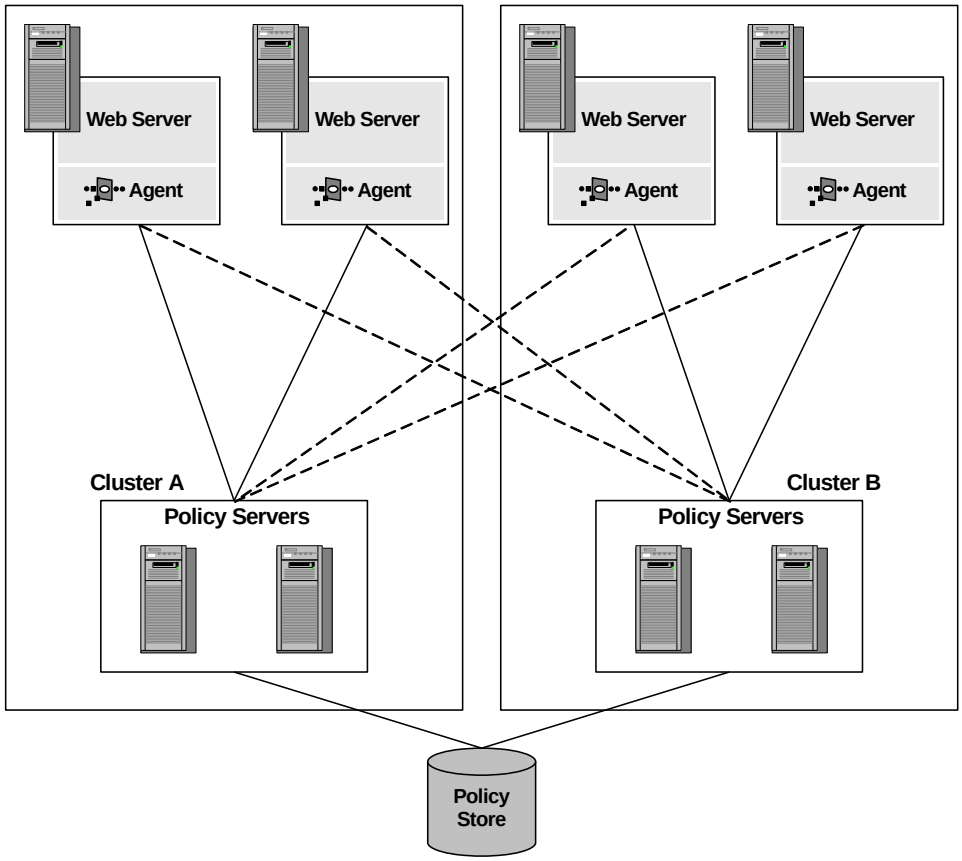
Another problem with efficiency can occur when data centers are located in different geographical regions. Sending requests to servers outside a certain locale can lead to the increased network communication overhead, and in some cases to the network congestion.

To address these issues and to improve system availability and response time, you can define a cluster of Policy Servers and associated Web Agents configured to perform (software-based) load balancing and failover.

Policy Server clusters provide the following benefits over a traditional load balancing/failover scheme:

- Load is dynamically distributed between Policy Servers in a cluster based on server response time.
- A cluster can be configured to failover to another cluster when the number of available servers in the cluster falls below a configurable threshold.

The following figure illustrates a simple SOA Security Manager deployment using two clusters:



Consider Cluster A and Cluster B as distributed in two different geographical locations, separated by several time zones. By dividing the Web Agents and Policy Servers into distinct clusters, the network overhead involved with load balancing across geographically separate regions is only incurred if the Policy Servers in one of the clusters fail, requiring a failover to the other cluster.

More information:

Failover Thresholds (see page 101)
Clustered Environment Monitoring (see page 117)

Failover Thresholds

In any clustered SOA Security Manager environment, you must configure a failover threshold. When the number of available Policy Servers falls below the specified threshold, all requests that would otherwise be serviced by the failed Policy Server cluster are forwarded to another cluster.

The failover threshold is represented by a percentage of the Policy Servers in a cluster. For example, if a cluster consists of four Policy Servers, and the failover threshold for the cluster is set at 50%, when three of the four Policy Servers in the cluster fail, the cluster fails, and all requests fail-over to the next cluster.

The default failover threshold is zero, which means that all servers in a cluster must fail before failover occurs.

Configure Clusters

Policy Server clusters are defined as part of a Host Configuration Object. When a SiteMinder Web Agent initializes, the settings from the Host Configuration Object are used to setup communication with Policy Servers.

Note: For information about Host Configuration Objects, see the *Web Agent Configuration Guide* and the *Policy Server Configuration Guide.*

To configure a cluster

1. Select the Infrastructure tab.

   A list of tasks appears.

2. Select Agents, Create Host Configuration.

   The Create Host Configuration pane appears.

3. Select the Clusters tab.

4. In the Clusters group box, click Add.

   The Cluster Setup group box opens.

   Note: You can click Help for a description of fields, controls, and their respective requirements.

5. Enter the IP address and the port number of the Policy Server in the Host and Port fields respectively.

6. Click Add to Cluster.

   The Policy Server appears in the servers list in the Current Setup group box.

7. Repeat these steps to add other Policy Servers to the cluster.

8. Click OK to save your changes.

   Your return to the Host Configuration pane. The Policy Server cluster is listed in a table.

9. In the Failover Threshold Percent field, enter a percentage of the number of Policy Servers that must be active and click Apply.

   If the percentage of active servers in the cluster falls below the percentage you specify, the cluster fails over to the next available cluster in the list of clusters. This setting applies to all clusters that use the Host Configuration Object.

   Important! The Policy Server specified in the Configuration Values group box is overwritten by the Policy Servers specified in a cluster. This Policy Server is no longer used because a cluster is configured. For the value of the Policy Server parameter in the Configuration Values group box to apply, do not specify any Policy Servers in a cluster. If clusters are configured and you decide to remove the clusters in favor of a simple failover configuration using the Policy Server parameter in the Configuration Values group box, be sure to delete all Policy Server information from the cluster.

10. Click Submit to save your changes.

Configure a Policy Server as a Centralized Monitor for a Cluster

The OneView Monitor can be configured to monitor a Policy Server cluster. To enable this configuration, one Policy Server must be set up as a centralized monitor with the other clustered Policy Servers pointing to it.

To configure a Policy Server as a centralized monitor

1. Start the Policy Server Management Console.

   Important! If you are accessing this graphical user interface on Windows Server 2008, open the shortcut with Administrator permissions, even if you are logged into the system as an Administrator. For more information, see the release notes for your SOA Security Manager component.

2. In the Settings tab, select Allow Incoming Remote Connections.

3. Click OK to save your changes and close the Policy Server Management Console.

4. Restart the OneView Monitor.

This setting allows the centralized Policy Server monitor to accept remote connections from the other clustered Policy Servers.

Note: The network channel between a Policy Server and a Monitor process is non-secure.

After you configure a Policy Server as a centralized monitor, configure the Policy Server Management Console to point the other clustered Policy Servers to it.

Point Clustered Policy Servers to the Centralized Monitor

To point Policy Servers to a centralized monitor

1. For each Policy Server that will point to the monitoring service, open the Policy Server Management Console.

   Important! If you are accessing this graphical user interface on Windows Server 2008, open the shortcut with Administrator permissions, even if you are logged into the system as an Administrator. For more information, see the release notes for your SOA Security Manager component.

2. In the Settings tab, under OneView Monitor, select Connect to Remote Monitor.
3. In the field below, enter the hostname and TCP port number of the system where the monitoring service is configured. For example:

   server.company.com:44449.

4. Click OK to save your changes and close the Policy Server Management Console.
5. Restart the Policy Server.

More information:

Clustered Policy Servers (see page 99)

Chapter 14: Using the OneView Monitor

This section contains the following topics:

OneView Monitor Overview

The SOA Security Manager OneView Monitor identifies performance bottlenecks and provides information about resource usage in a SOA Security Manager deployment. It also displays alerts when certain events, such as component failure, occur. It does this by collecting operational data from the following SOA Security Manager components:

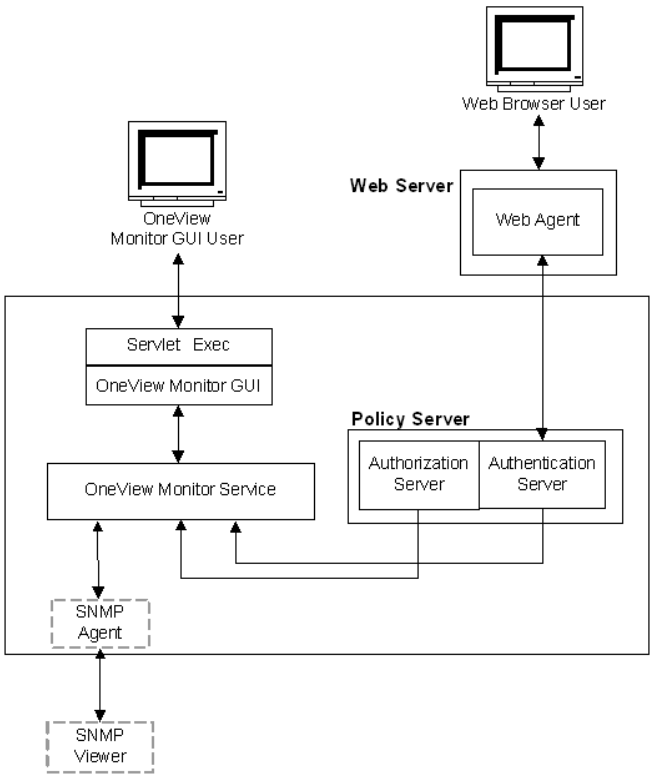
- Policy Server
- SOA Security Manager Web Agent

As these components are added to a SOA Security Manager deployment, they are automatically registered with OneView Monitor. You do not need to configure OneView to monitor these components.

Each machine that hosts a monitored component includes a OneView agent. The agent sends operational data to the OneView Monitor, which resides on the machine where the Policy Server is installed. The OneView Monitor sends the operational data to a Web browser or (optionally) an SNMP agent. The SNMP agent sends the data to the SNMP manager.

OneView Monitor data can be accessed from a Web browser, or from a third-party SNMP monitoring application.

The following graphic illustrates how the OneView Monitor is integrated in a SOA Security Manager deployment.



The OneView Monitor collects properties, such as the IP address of the component's host machine, and counters that reflect a component's activity, such as how many times users have logged into your site. Counters are reset when the component is restarted.

Using the Web-based OneView viewer, administrators can define tables to view some or all of the data for a specific component. The data is refreshed at configurable intervals.

SNMP support enables monitoring applications to retrieve operational data from the OneView Monitor. SNMP support includes a Management Information Base (MIB) and an SNMP agent.

Note: In an environment that includes a clustered Policy Servers, you can specify a single OneView Monitor to monitor activity on all Policy Servers in a cluster. To configure a central monitor, you must adjust the OneView Monitor settings in the Policy Server Management Console for each Policy Server in the cluster.

More information:

Setting The Data Refresh Rate and Heartbeat (see page 116)
SNMP Monitoring (see page 123)

Policy Server Data

The following lists and describes Policy Server data:

AgentTable

Table of agents that are connected to this server.

Note: AgentTable is not available using SNMP.

AuthAcceptCount

Number of successful authentications.

AuthRejectCount

Number of failed authentication attempts. These attempts failed because of invalid credentials.

AzAcceptCount

Number of successful authorization attempts.

AzRejectCount

Number of rejected authorization attempts. These attempts were rejected because of insufficient access privileges.

CacheFindCount

Number of find operations in the authorization cache. Updated each time an authorization process asks whether a user belongs to a policy.

CacheFindCount/sec

Number of authorization cache find operations occurring per second.

CacheHitCount

Number of hits on the authorization cache. Updated each time the cache answers true when an authorization process asks whether a user belongs to a policy.

CacheHitCount/sec

Number of hits on the authorization cache occurring per second.

CacheTTLMissCount

Number of authorization cache misses because an element is found in the cache but considered too old.

Component Path

Path of the Policy Server, which uniquely identifies the server. The component path includes the following information:

- Host IP address
- Component type
- Component instance ID

Note: Component Path is not available using SNMP.

Crypto bits

Length of the encryption key used to encrypt/decrypt data sent between the Web Agent and the Policy Server.

HitRate

The ratio of authorization cache hits to authorization find operations. This is an indicator of authorization cache effectiveness.

Host

IP address of the machine where the authentication server is installed.

Note: The Host IP address is included in the Component Path.

IsProtectedCount

Number of IsProtected calls received from an Agent.

Label

Policy Server build number.

LastActivity

Date and time of the Policy Server's last interaction with the Monitor.

MaxSockets

Maximum number of Web Agent sockets available to submit concurrent requests to a Policy Server.

MaxThreads

Maximum number of worker threads in the thread pool.

MaximumThreadsEverUser

Maximum number of worker threads from the thread pool ever used.

PriorityQueueLength

Number of entries in the priority queue. The priority queue holds entries of high priority. See ServerQueueLength.

Platform

Operating system of the machine where the Policy Server is installed.

PolicyCacheEnabled

Indicates whether the policy cache is enabled.

Port

Policy Server port number.

Product

Policy Server product name.

ServerQueueLength

Number of entries in the normal queue. The normal queue holds entries of normal priority. See PriorityQueueLength.

SocketCount

Number of open sockets, which corresponds to the number of open connections between the Policy Server and Web Agents.

Status

Status of the Policy Server. The status can be Active or Inactive.

Inactive status indicates that there was no interaction between the Policy Server and the monitor for a specified period of time. The period of time is determined by the heartbeat interval.

ThreadsAvailable

Number of a worker threads that are available from within the thread pool. All worker threads, which process requests, are organized into a thread pool. Not all threads are busy immediately--only when enough load is applied. This value shows how many threads are not currently busy.

ThreadsInUse

Number of worker threads from the thread pool that are in use.

Time Zone

Time zone for the geographical location where the Policy Server is installed.

Type

Type of Policy Server.

Universal Coordinated Time

The startup time of the Policy Server.

UserAzCacheEnabled

Indicates whether the user authorization cache is enabled.

Update

Version number of the most recently applied update.

Version

Version number of the Policy Server.

Web Agent Data

The following lists and describes Web Agent data:

AuthorizeAvgTime

Indicates the average time it takes to authorize a user (in milliseconds).

AuthorizeCount

Number of authorization attempts made by this Agent. An authorization attempt occurs when a user supplies credentials to the Policy Server in order to access a protected resource.

AuthorizeErrors

Number of errors that occurred during authorization attempts made by this Web Agent. An error indicates a communication failure between the Web Agent and Policy Server during an authorization call.

AuthorizeFailures

Number of failed authorization attempts. An authorization attempt fails when a user lacks sufficient privileges to access a resource.

BadCookieHitsCount

Number of cookies that the Web Agent could not decrypt.

BadURLcharsHits

Number of requests that the Agent refuses because of bad URL characters. Bad URL characters are specifically blocked to prevent a Web client from evading SiteMinder rules. These characters are specified in the Web Agent's configuration.

Component Path

Path of the Web Agent. The component path includes the following information:

- Host IP address
- Component type
- Component instance ID

Note: Component Path is not available using SNMP.

CrosssiteScriptHits

Number of cross-site scripting hits. A cross-site scripting hit consists of malicious code embedded in pages at your site.

Note: For more information about cross-site scripting, see the *Web Agent Configuration Guide*.

Crypto bits

Length of the encryption key used to encrypt/decrypt data sent between the Web Agent and the Policy Server.

ExpiredCookieHitsCount

Number of requests that contained an expired cookie.

Host

IP address of the machine where the Web Agent is installed.

Note: The Host IP address is included in the Component Path.

IsProtectedAvgTime

The average amount of time it takes (in milliseconds) for the Web Agent to determine from the Policy Server whether or not a resource is protected.

IsProtectedCount

Number of times the Web Agent has checked the Policy Server to see if a resource is protected.

Note: If the resource cache is set to 0, the OneView Monitor may record two or more IsProtected calls per login attempt. If the Web Agent is not caching information, it must check with the Policy Server to determine whether or not a resource is protected each time a request is made to the Web server.

If the resource cache is not set to 0, the OneView Monitor only records one IsProtected call. In this case, the Web Agent makes one IsProtected call to the Policy Server; subsequent requests to the Web server for the same resource are satisfied against the Web Agent's resource cache until the resource in the cache expires or the resource cache is flushed.

IsProtectedErrors

Number of times an error has occurred when the Web Agent asks the Policy Server whether or not a resource is protected. An error indicates a communication failure between the Web Agent and the Policy Server.

Label

Web Agent build number.

Last Activity

Date and time of the Web Agent's last activity.

LoginAvgTime

Average time it takes for a user to log in.

LoginCount

Number of login attempts made from this Web Agent.

LoginErrors

Number of errors that occurred during login attempts. An error indicates a communication failure between the Web Agent and the Policy Server.

LoginFailures

Number of failed login attempts. Login failures occur when users supply invalid credentials.

Name

Name of the Web Agent.

Platform

Operating system of the machine where the Web Agent is installed.

Product

Web Agent product name.

ResourceCacheCount

Number of entries in the resource cache. The resource cache stores information about recently accessed resources to speed up subsequent requests for the same resource.

The number of entries in the resource cache can be 0 to *n*, where *n* is the maximum cache size specified in the Web Agent's configuration.

ResourceCacheHits

Number of times that the Web Agent located a resource in the resource cache. This number indicates how frequently SiteMinder is using cached resources.

ResourceCacheMax

The maximum number of entries the resource cache can contain. This number is specified in the Web Agent's configuration.

Note: Details on setting the resource cache size exist in the *Web Agent Configuration Guide*.

ResourceCacheMisses

- The number of times the Web Agent could not locate a resource in the resource cache. This occurs when:
- The resource has not been accessed before
- The cached information has expired

SocketCount

Number of open sockets, which corresponds to the number of open connections between the Policy Server and the Web Agent.

Note: Because the Web Agent architecture has changed, SocketCount has no value.

Status

Status of the Web Agent. The status can be Active or Inactive.

Inactive status indicates that there was no interaction between the Web Agent and the monitor for a specified period of time. The period of time is determined by the heartbeat interval.

Time Zone

Time zone for the geographical location where the Web Agent is installed.

Type

Type of monitored component. In this case, the Web Agent.

Universal Coordinated Time

The startup time of the Web server where the Web Agent is installed.

Update

Version number of latest software update.

UserSessionCacheCount

Number of entries in the user session cache. The user session cache stores information about users who have recently accessed resources. Storing user information speeds up resource requests.

The number of entries in the user session cache can be 0 to *n*, where *n* is the maximum cache size specified in the Web Agent's configuration. see the *Web Agent Configuration Guide* for information on setting the user session cache size.

Note: The user session cache count may differ based on the Web server where the session cache is located.

For Web Agents that use multi-thread cache, such as IIS Web Agents, iPlanet 4.*x* and 6.0 Web Agents (on Windows operating systems), and Domino Web Agents (on Windows and UNIX operating systems), the OneView Monitor increases the user session cache count when a user is successfully authenticated and receives a session cookie from the Web Agent.

Apache and iPlanet 4.*x* and 6.0 Web Agents running on UNIX operating systems, which use multi-process cache, count sessions differently. A user's session is not added to the session cache until he presents a session cookie to the Web Agent. The Web Agent creates a session cookie for the user *after* he is successfully authenticated. SiteMinder uses that cookie to authenticate the user if he makes additional resource requests. This means that the user's first login is not recorded in the user session cache count. If the user makes another request and SiteMinder authenticates the user using the session cookie, the user session cache count increases.

In all Web Agents, the user session is valid for resources in one realm. If the user accesses a resource in a different realm using a session cookie, he is given another user session, which increases the user session cache count.

UserSessionCacheHits

Number of times that Web Agent accessed the user session cache.

UserSessionCacheMax

The maximum number of entries the user session cache can contain. This number is specified in the Web Agent's configuration.

Note: Details on setting the user session cache size exist in the *Web Agent Configuration Guide*.

UserSessionCacheMisses

The number of times the Web Agent could not locate user session information in the user session cache. This occurs when:

- The user has not accessed a resource before
- The cached information has expired

ValidationAvgTime

Average amount of time it takes to validate a cookie used to authenticate a user (in milliseconds). Cookies may be used to authenticate a user in a single sign-on environment.

ValidationCount

The number of times a specific Web Agent attempted to validate a session cookie against the Policy Server to authenticate a user, instead of matching that user's credentials to a user directory entry. (The Web Agent creates a session cookie on the user's browser when a user is successfully authenticated, and uses that cookie to authenticate the user on subsequent requests for new resources.)

The following conditions affect the ValidationCount:

User Session Cache size

If a Web Agent's user session cache is set to a value greater than 0, the user's session information is stored in the cache. The Web Agent validates the session against the session cache instead of the Policy Server, so the ValidationCount does not increase. If the user session cache is set to 0, the ValidationCount increases each time a user requests a protected resource because the Web Agent must validate the session against the Policy Server.

Multi-thread vs. Multi-process cache

Web Agents that use multi-threaded cache, such as IIS Web Agents, iPlanet 4.x and 6.0 Web Agents (on Windows operating systems, and Domino Web Agents (on Windows and UNIX operating systems), add a session to the session cache (if the session cache size is greater than 0) when a user is successfully authenticated. If that user requests additional resources from the same realm, the Web Agent validates the user against the session cache, so the ValidationCount does not increase.

Apache and iPlanet 4.x and 6.0 Web Agents running on UNIX operating systems, which use multi-process cache, do not add the session cookie to the session cache until the user presents the cookie to the Web Agent during a request for another resource in the realm where she was authenticated. The Web Agent validates the first request made with a session cookie against the Policy Server, which increases the ValidationCount. Subsequent requests are validated against the cache.

ValidationErrors

The number of errors that occurred when the Web Agent attempted to validate a user session. Errors indicate a communication failure between the Web Agent and the Policy Server.

ValidationFailures

The number of times the Web Agent has failed to validate a user session because of an invalid session cookie.

Version

Version number of the Web Agent.

Configure the OneView Monitor

Configuring the OneView Monitor includes:

- Setting the data refresh rate and heartbeat
- Configuring port numbers

Setting The Data Refresh Rate and Heartbeat

You can change how often data is sent between the OneView Monitor and a monitored component by modifying the following settings:

- Refresh rate determines how often the OneView Monitor requests data from the authentication and authorization servers. The default refresh rate is 5 seconds.
- Heartbeat specifies how often monitored components send a heartbeat to the Monitor. For the authentication and authorization servers, the heartbeat indicates whether or not the component is active. For the Web Agent, the heartbeat determines how often the Monitor receives the Web Agent's operational data. The default value is 30 seconds.

To modify the default values

1. Open *Policy_Server_installation*/monitor/mon.conf.
2. Change the value paired with the following properties, as necessary:
   - Refresh rate: nete.mon.refreshPeriod
   - Hearbeat: nete.mon.hbPeriod

   Note: The value for these properties is specified in seconds.
3. Save and close mon.conf.
4. Restart the OneView Monitor.

More information:

Start and Stop Policy Server Services on Windows Systems (see page 26)
Start and Stop Policy Server Processes on UNIX Systems (see page 26)

Configuring Port Numbers

The One View Monitor uses the following default port numbers:

- OneView Agent--44449
- OneView Monitor--44450

To change the default port numbers

1. Open *Policy_Server_installation*/config/conapi.conf.
2. Change the port number paired with the following properties, as necessary:
   - OneView Agent: nete.conapi.service.monagn.port
   - OneView Monitor: nete.conapi.service.mon.port
3. Save and close conapi.conf.

   Note: For more information about the properties in conapi.conf, see the notes in the conapi.conf file.
4. Restart the OneView Monitor.

More information:

Start and Stop Policy Server Services on Windows Systems (see page 26)
Start and Stop Policy Server Processes on UNIX Systems (see page 26)

Clustered Environment Monitoring

In a non-clustered SOA Security Manager deployment, a Monitor process is located on the same system as the Policy Server. The Monitor user interface and the SNMP provide information for a single Policy Server. To monitor a cluster, the Policy Servers in the cluster must be configured to point to a single Monitor process. The Policy Server Management Console allows you to specify a Monitor process host.

Consider the following when implementing a monitoring in a clustered environment:

- The network channel between a Policy Server and a Monitor process is non-secure.
- If the Monitor process fails, all monitoring stops. If the Monitor host is disconnected, the monitoring stops.
- Monitoring through SNMP is supported for a cluster.

Note: By not enabling clustering, all servers are in the default cluster. Centralized monitoring can be enabled for non-clustered environments.

More information:

Point Clustered Policy Servers to the Centralized Monitor (see page 103)

Access the OneView Viewer

Be sure the OneView Monitor service is running before you access the OneView viewer.

To access the OneView viewer, enter the following URL in a browser:

http://*your_server.your_company.org:port*/siteminder monitor

where *your_server.your_company.org:port* is the host name or IP address, and the port number of the Web server which is configured for the OneView Monitor.

Note: For instructions on configuring a Web server for the OneView Monitor, see the *Policy Server Installation Guide*.

Protect The OneView Viewer

To protect the OneView viewer, create a SOA Security Manager policy that protects the resources in siteminder monitor.

View Monitored Components

OneView Monitor provides four default tables:

- All Components (displayed)
- Policy Servers
- Agents

The All Components table is displayed when you open OneView.

Note: A Web Agent installed on an Apache or iPlanet 6.0 Web server will not appear in the OneView viewer until that Web Agent asks the Policy Server if a resource is protected. When the Web Agent requests information from the Policy Server, it is registered with the OneView Monitor.

The OneView viewer displays operational data in configurable tables. A table may contain a Details column. Clicking an icon in the Details column opens a window that displays all the monitored data for a particular component.

How to Customize OneView Displays

Customizing OneView displays includes:

- Setting up tables (see page 119)
- Configuring alerts (see page 120)
- Displaying tables (see page 120)
- Sorting tables (see page 120)
- Configuring data updates (see page 120)
- Saving settings (see page 121)
- Changing the default display (see page 121)
- Loading settings (see page 122)

Set Up Tables

To set up tables

1. Click Configure.

   The Table Configuration dialog box opens.

2. Complete one of the following options:
   - Select Existing Table. Choose a table from the list box.
   - Select New Custom Table. Enter a name in the Table Name field.
3. Select components to display in the table.
4. Select the fields to display in the table. Specify the order in which the fields are displayed by selecting a field and using the up or down arrow to position the field. The available fields are determined by the type of component(s) selected for the table.

   Note: The value for some of the fields can be displayed as a continuously increasing number (reset when the component is restarted) or as an average since the last update period. To view the average value, select a field name with /sec appended to it.
5. Click OK.

   Note: Make sure to save the table after configuring it.

More information:

Save Settings (see page 121)

Configure Alerts

To configure alerts

1. Click Configure.
2. Click the Alerts tab.
3. Select a field from the left list box. This list box contains all of the fields in the currently loaded tables.
4. Select an operator from the middle list box.
5. Specify a value for the field that you selected in step 3.
6. Optionally, select Highlight the table cell to have OneView highlight the specified table cell when the specified criteria is met.
7. Optionally, select Pop up a warning message to have OneView display a pop-up window when the specified criteria is met.

Display Tables

To display tables, select a table from the View Table list box in the main viewer page. When you select a table from this list, OneView displays the selected table below the existing table.

To hide a table, click the Hide button.

Sort Tables

You can sort the data in each column in a table in ascending or descending order. Sorting columns helps organize a table. For example, sorting a table based on Status enables you to view all inactive components grouped together.

Note: An arrow in the column heading indicates which column is sorted.

Configure Data Updates

By default, OneView updates data every thirty seconds. You can:

- Modify the amount of time that passes between automatic updates
- Configure the OneView to update data only when you refresh the browser

To configure data updates

1. Click Updates.

   SOA Security Manager opens the Updates dialog box.

2. Select one of the following:

   - Live Updates--Updates the data after a specified period of time. Specify the time interval in seconds.
   - Manual Updates--Updates the data when a user refreshes the page.

3. Click OK.

Save Settings

Saving a setting saves:

- Table definitions
- Main page display
- Table sorting
- Update rate

To save settings

1. Click Save Settings.

   SOA Security Manager displays a dialog box where you can name the settings.

2. Enter a name in the text box.
3. Click OK.

Change the Default Display

To change the default display

1. Rename the defaults file in *siteminder_installation*\monitor\settings.
2. In the OneView Monitor console, configure the settings.
3. Save the settings as defaults.

Load Settings

To load settings

1. Click Load Settings.

   SOA Security Manager displays a dialog box where you can select settings to load.

2. Select a setting from the list box.
3. Click OK.

Chapter 15: Monitoring SOA Security Manager Using SNMP

This section contains the following topics:

SNMP Monitoring

The SOA Security Manager SNMP module enables many operational aspects of the SOA Security Manager environment to be monitored by SNMP-compliant network management applications.

SNMP Overview

Network management takes place between two types of systems: those in control, called managing systems, and those observed and controlled, called managed systems. Managed systems can include hosts, servers, and the software components that run on those systems, or network components such as routers or intelligent repeaters.

To promote interoperability, cooperating systems adhere to the industry standard Simple Network Management Protocol (SNMP), an application-layer protocol designed to facilitate the exchange of management information between network devices.

A complete SNMP solution comprises three components:

- SNMP Management Information Base (MIB) is a database of managed objects. The managed objects, or variables, can be read by a managing system to provide information about the managed system.
- SNMP Agents are low-impact software modules that access information about the managed system and make it available to the managing system. For software systems, agent functionality is sometimes split between a master agent (provided by the host operating system) and subagent (provided by the managed application).

  Note: SNMP agents, which are a standard component of all SNMP implementations should not be confused with SOA Security Manager Agents.
- SNMP Manager is typically a Network Management System (NMS) application such as HP OpenView.

The SOA Security Manager SNMP module provides SNMP request handling and configurable event trapping for the SOA Security Manager environment. It does this by collecting operational data from the SOA Security Manager OneView Monitor and making it available in a MIB to third-party NMS applications that support the SNMP protocol (for example, HP OpenView).

Note: The 6.0 SNMP agent is backwards compatible with all SOA Security Manager 5.x-based Agent applications.

SOA Security Manager SNMP Module Contents

The SOA Security Manager SNMP module consists of:

- SOA Security Manager SNMP MIB is the database of SOA Security Manager objects that can be monitored by an SNMP-compliant network management system.
- A SOA Security Manager SNMP Subagent responds to SNMP requests (GET and GETNEXT only) passed to it from an SNMP master agent.
- SOA Security Manager Event Manager captures Policy Server events and, if configured to do so, generates SNMP traps (unsolicited messages sent by an SNMP agent to a SNMP NMS indicating that some event has occurred).

More information:

SOA Security Manager MIB (see page 126)
Configure the SiteMinder Event Manager (see page 135)
Start and Stop SiteMinder SNMP Support (see page 137)

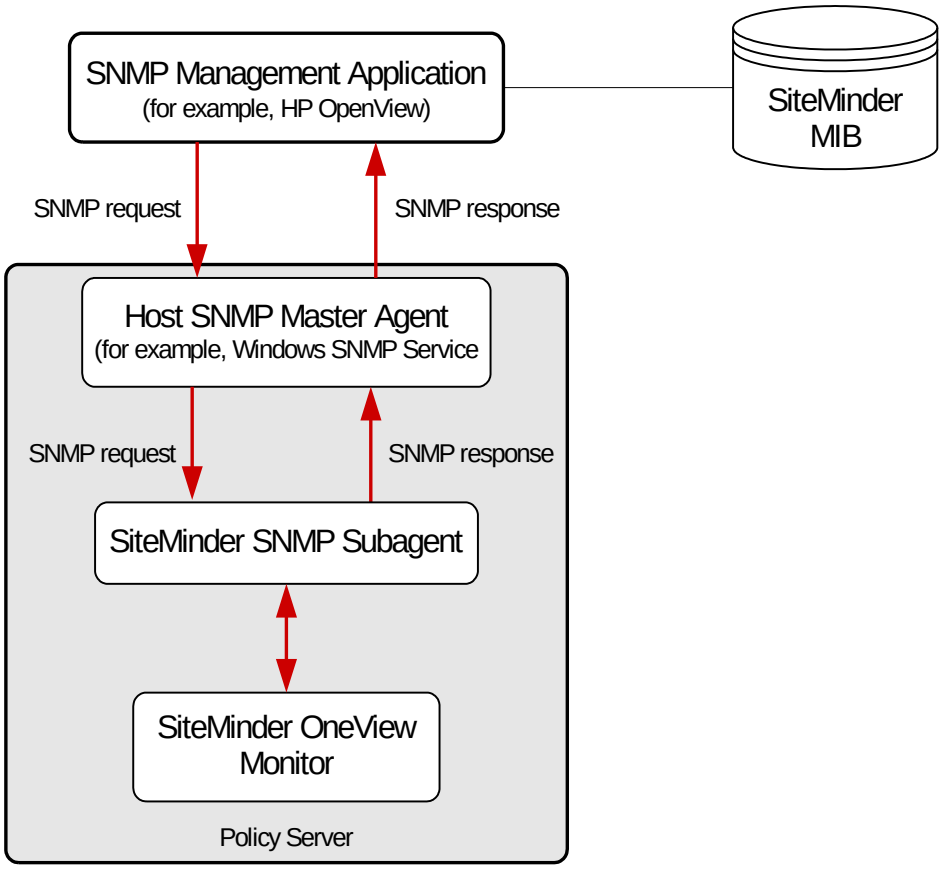
Dependencies

The SOA Security Manager SNMP Module has the following dependencies:

- **SOA Security Manager OneView Monitor**—The SOA Security Manager SNMP Module obtains operational information from the OneView Monitor. OneView Monitor *must* also be configured and running on any Policy Server on which you want to run the SOA Security Manager SNMP Module.
- **SNMP Master Agent**—The SOA Security Manager SNMP Module does *not* provide an SNMP Master Agent. You will need to ensure that the SNMP Master Agent (Windows SNMP Service or Solstice Enterprise Master Agent) appropriate to the Operating System of the Policy Server on which you are running the SOA Security Manager SNMP Module is also installed and enabled.

SNMP Component Architecture and Dataflow

The following figure illustrates SNMP module dataflow:



SOA Security Manager SNMP Dataflow:

1. The SNMP Master Agent receives SNMP requests from a management application.
2. The SNMP Master Agent forwards the SNMP request to the SNMP Subagent.
3. The SOA Security Manager SNMP Subagent retrieves the requested information from OneView Monitor.
4. The SOA Security Manager SNMP Subagent passes the retrieved information back to the SNMP Master Agent.
5. The SNMP Master Agent generates an SNMP response and sends it back to the requesting management application.

SOA Security Manager MIB

The SOA Security Manager MIB provides a SNMPv2-compliant data representation of all monitored components in the SOA Security Manager environment.

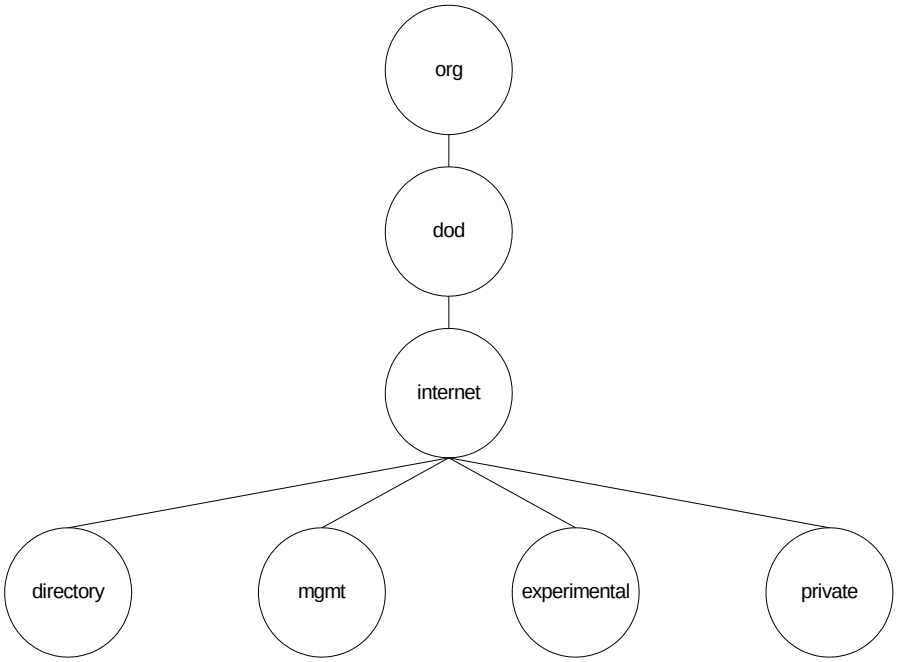
The SOA Security Manager MIB is supplied in an ASCII text file:

SiteMinder_Install_Directory\mibs\NetegritySNMP.mib.

MIB Overview

SNMP MIB structure is logically represented by an inverse tree hierarchy. MIBs for internet-related products such as SOA Security Manager are located under the ISO main branch of the MIB hierarchy.

The upper part of the ISO branch is shown in the following figure.

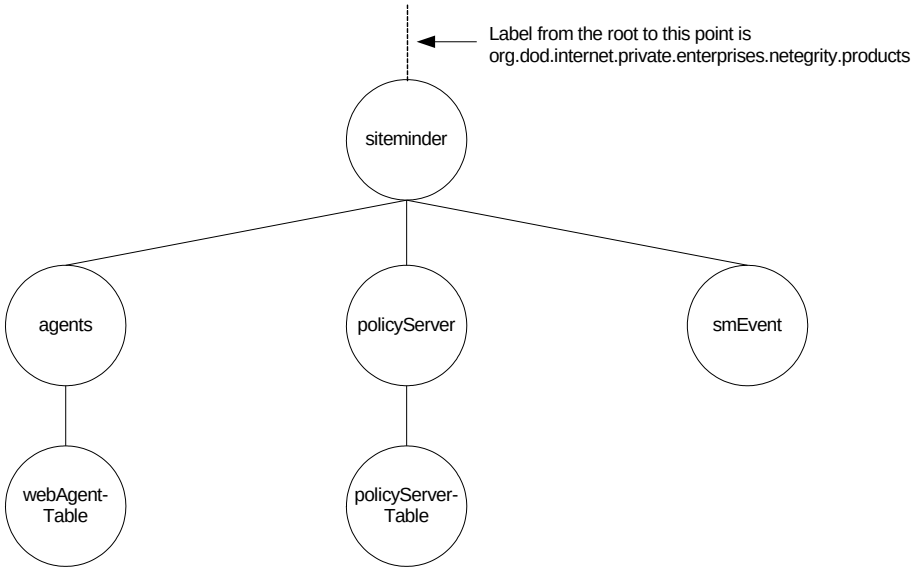


MIB branches, MIBs, and managed objects within MIBs are all identified by short text strings. Complete MIB hierarchies can be expressed notationally by concatenating branch and object identifiers, separating each entry with a period. For example, the private sub-branch of the internet entry shown above can be expressed as *iso.org.dod.internet.private.*

SiteMinder MIB Hierarchy

The SOA Security Manager MIB can be expressed as *iso.org.dod.internet.private.enterprises.netegrity.products.siteminder*.

Supported managed components represented by MIB objects are Policy Servers and Web Agents. Because there can be multiple instances of each of these components, the managed properties of each of these components are columnar objects.



The SOA Security Manager MIB has three sub-branches:

Policy Server

Contains the Policy Server (policyServerTable) objects.

agents

Contains Web Agent (webAgent) objects.

smEvent

Contains SNMP trap types for system events.

MIB Object Reference

The following sections contain detailed lists of the Policy Server, Web Agent, and Event MIB objects.

Authentication Server Data

The following table contains the subset of Authentication Server properties that are exposed as objects in the SOA Security Manager MIB, which are under iso.org…siteminder.policyServer.policyServerTable.

Object Name	SNMP Type	Object Description
policyServerIndex	Integer32	A unique identifier for the current Policy Server instance.
policyServerHostID	IP address	IP address of the machine where the Policy Server is installed.
policyServerType	Display string	Type of component.
policyServerStatus	Integer32	Status of the Policy Server. The status can be Active or Inactive.
policyServerPort	Integer32	Policy Server port number.
policyServerProduct	Display string	Policy Server product name.
policyServerPlatform	Display string	Operating system of the machine where the Policy Server is installed.
policyServerVersion	Display string	Version number of the Policy Server.
policyServerUpdate	Display string	Version number of the most recently applied update.
policyServerLabel	Display string	Policy Server build number.
policyServerCrypto	Integer32	Length of the encryption key used to encrypt/decrypt data sent between the Web Agent and the Policy Server.
policyServerUTC	Display string	The startup time of the Web server where the Policy Server is installed. The time is specified in Universal Coordinated Time format.
policyServerTime Zone	Integer32	Time zone for the geographical location where the Policy Server is installed.
policyServerMaxSockets	Integer32	Maximum number of open sockets (which correspond to the number of open connections between the Policy Server and Web Agents) that the Policy Server can support.
policyServerSocketCount	Gauge32	Number of open sockets, which corresponds to the number of open connections between the Policy Server and Web Agents.
policyServerAuth AcceptCount	Counter32	Number of successful authentications.

Object Name	SNMP Type	Object Description
policyServerAuthReject-Count	Counter32	Number of failed authentication attempts. These attempts failed because of invalid credentials.
policyServerAzAccept-Count	Counter32	Number of successful authorizations.
policyServerAzReject-Count	Counter32	Number of failed authorization attempts. These attempts failed because of invalid credentials.
policyServerPolicy-Cache Enabled	Truth Value	Indicates whether or not policy cache is enabled.
policyServerL2Cache-Enabled	Truth Value	Indicates whether or not L2 cache is enabled.

Web Agent Objects in the SiteMinder MIB

The following table contains the Web Agent properties that are exposed as objects in the SOA Security Manager MIB, which are under iso.org…siteminder.webAgentTable.webAgentEntry.

Object Name	SNMP Type	Object Description
webAgentIndex	Integer32	A unique identifier for the current Web Agent instance.
webAgentHostID	IP address	IP address of the machine where the web agent server is installed.
webAgentType	Display string	Type of component.
webAgentStatus	Integer32	Status of the Web Agent. The status can be Active or Inactive.
webAgentPort	Integer32	Web Agent port number.
webAgentProduct	Display string	Web Agent product name.
webAgentPlatform	Display string	Operating system of the machine where the Web Agent is installed.
webAgentVersion	Display string	Version number of the Web Agent.
webAgentUpdate	Display string	Version number of the most recently applied update.
webAgentLabel	Display string	Web Agent build number.
webAgentCrypto	Integer32	Length of the encryption key used to encrypt/decrypt data sent between the Web Agent and the Policy Server.

Object Name	SNMP Type	Object Description
webAgentUTC	Display string	The startup time of the Web server where the Web Agent is installed. The time is specified in Universal Coordinated Time format.
webAgentTime Zone	Integer32	Time zone for the geographical location where the Web Agent is installed.
webAgentSocketCount	Gauge32	Number of open sockets, which corresponds to the number of open connections between the Policy Server and the Web Agent. **Note:** Because the Web Agent architecture has changed, SocketCount has no value.
webAgentResource-CacheCount	Integer32	Number of entries in the resource cache. The resource cache stores information about recently accessed resources to speed up subsequent requests for the same resource. The number of entries in the resource cache can be 0 to the *n*, where n is the maximum cache size specified in the Web Agent's configuration.
webAgentResource-CacheHits	Integer32	Number of times that the resource cache is accessed. This number indicates how frequently SOA Security Manager is using cached resources.
webAgentResource-CacheMisses	Integer32	The number of times the Web Agent could not locate a resource in the resource cache. This occurs when: ■ The resource has not been accessed before. ■ The cached information has expired.
webAgentUserSession-CacheCount	Integer32	Number of entries in the user session cache. The user session cache stores information about users who have recently accessed resources. Storing user information speeds up resource requests. The number of entries in the user session cache can be 0 to *n*, where *n* is the maximum cache size specified in the Web Agent's configuration. **Note:** The user session cache count may differ based on the Web server where the session cache is located.
webAgentUserSession-CacheHits	Integer32	Number of times that Web Agent accessed the user session cache.

Object Name	SNMP Type	Object Description
webAgentUserSession-CacheMisses	Integer32	The number of times the Web Agent could not locate user session information in the user session cache. This occurs when: ■ The user has not accessed a resource before. ■ The cached information has expired.
webAgentIsProtected-Count	Integer32	Number of times the Web Agent has checked the Policy Server to see if a resource is protected. **Note:** If the resource cache is set to 0, two or more IsProtected calls may be recorded per login attempt. If the Web Agent is not caching information, it must check with the Policy Server to determine whether or not a resource is protected each time a request is made to the Web server. If the resource cache is not set to 0, only one IsProtected call will be recorded. In this case, the Web Agent makes one IsProtected call to the Policy Server; subsequent requests to the Web server for the same resource are satisfied against the Web Agent's resource cache until the resource in the cache expires or the resource cache is flushed.
webAgentIsProtected-Errors	Integer32	Number of times an error has occurred when the Web Agent asks the Policy Server whether or not a resource is protected. An error indicates a communication failure between the Web Agent and the Policy Server.
webAgentIsProtected-AvgTime	Unsigned 32	The average amount of time it takes for the Web Agent to determine from the Policy Server whether or not a resource is protected.
webAgentLoginCount	Counter 32	Number of login attempts made from this Web Agent.
webAgentLoginErrors	Counter 32	Number of errors that occurred during login attempts. An error indicates a communication failure between the Web Agent and the Policy Server.
webAgentLoginFailures	Counter 32	Number of failed login attempts because users were not authenticated or authorized by the Policy Server.
webAgentLoginAvgTime	Unsigned 32	Average time it takes for a user to log into a resource.

Object Name	SNMP Type	Object Description
webAgentValidation-Count	Counter 32	The number of times a specific Web Agent attempted to validate a session cookie against the Policy Server to authenticate a user, instead of matching that user's credentials to a user directory entry. (The Web Agent creates a session cookie on the user's browser when a user is successfully authenticated, and uses that cookie to authenticate the user on subsequent requests for new resources.).
webAgentValidation-Errors	Counter 32	The number of errors that have occurred when the Web Agent attempted to validate a user session. Errors indicate a communication failure between the Web Agent and the Policy Server.
webAgentValidation-Failures	Counter 32	The number of times the Web Agent has failed to validate a user session because of an invalid session cookie.
webAgentValidation-AvgTime	Unsigned 32	Average amount of time it takes to validate a cookie used to authenticate a user (in milliseconds). Cookies may be used to authenticate a user in a single sign-on environment.
webAgentAuthorize-Count	Counter 32	Number of authorization attempts made by this Agent. An authorization attempt occurs when a user supplies credentials to the Policy Server in order to access a protected resource.
webAgentAuthorize-Errors	Counter 32	Number of errors that occurred during authorization attempts made by this Web Agent. An error indicates a communication failure between the Web Agent and Policy Server during an authorization call.
webAgentAuthorize-Failures	Counter 32	Number of failed authorization attempts. An authorization attempt fails when a user enters invalid credentials.
webAgentAuthorize-AvgTime	Integer32	Indicates the average time it takes to authorize a user (in milliseconds)
webAgentCrosssite-ScriptHits	Integer32	Number of cross-site scripting hits. A cross-site scripting hit consists of malicious code embedded in pages at your site. For more information about cross-site scripting, see the *SOA Security Manager Web Agent Configuration Guide*.
webAgentBadURL-charsHits	Integer32	Number of requests that the Agent refuses because of bad URL characters. Bad URL characters are specifically blocked to prevent a Web client from evading SOA Security Manager rules. These characters are specified in the Web Agent's configuration.

Object Name	SNMP Type	Object Description
webAgentBadCookie-HitsCount	Gauge32	Number of cookies that the Web Agent could not decrypt.
webAgentExpired-CookieHitsCount	Gauge32	Number of requests that contained an expired cookie.

Event Data

The following table contains the objects in the SOA Security Manager MIB, under iso.org…siteminder.smEvents, for system events that can be mapped to SNMP traps using the SOA Security Manager Event Manager

Event Name	Event ID	Event Category	Event Category Type
serverInit	SmLogSystemEvent_ServerInit	Server activity	System
serverUp	SmLogSystemEvent_ServerUP		
serverDown	SmLogSystemEvent_ServerDown		
serverInitFail	SmLogSystemEvent_ServerInitFail		
dbConnectionFailed	SmLogSystemEvent_DbConnectFail		
ldapConnection-Failed	SmLogSystemEvent_LDAP-ConnectFail		
logFileOpenFail	SmLogSystemEvent_LogFile-OpenFail	System Activity	
agentConnection-Failed	SmLogSystemEvent_Agent-ConnectionFail		
authReject	SmLogAccessEvent_AuthReject	Authentication	Access
validateReject	SmLogAccessEvent_ValidateReject		
azReject	SmLogAccessEvent_AzReject	Authorization	

Event Name	Event ID	Event Category	Event Category Type
adminReject	SmLogAccessEvent_AdminReject	Administration	
objectLoginReject	SmLogObjEvent_LoginReject	Authentication	Object
objectFailedLoginAttemptsCount	SmLogObjEvent_FailedLogin-AttemptsCount		
emsLoginFailed	SmLogEmsEvent_LoginFail	DirectorySession	EMS
emsAuthFailed	SmLogEmsAuthFail		

Configure the SiteMinder Event Manager

The Event Manager application (supplied as a library file, EventSNMP.dll) that captures Policy Server events, determines whether SNMP traps are to be generated for those events (as specified by a configuration file) and if so, generates SNMP traps to specified NMS(s).

You configure the SOA Security Manager Event Manager by defining the Event Configuration File (*SM_Install_Directory*\config\snmptrap.conf), which defines what events are to be processed and the addresses of the NMSs to which the traps should be sent.

Event Configuration File Syntax

The snmptrap.conf is an editable ASCII file, with a simple one line per event syntax:

Event_Name Destination_Address

Event_Name

The name of a MIB event object (or a comma-separated group of names of event objects).

Examples:

serverUP

serverUp,serverDown

serverUp,serverDown,serverInitFail

Destination_Address

The address of an NMS (or a comma-separated group of the addresses of NMSs) to which generated traps should be sent. Each address should be of the form: *HostID*:*port*:*community*

HostID

(mandatory) Either a hostname or IP address.

Port

(optional) IP port number.

Default: 162.

Community

(optional) An SNMP community. Note that if community is specified, Port must also be specified.

Default: "public"

Example: 100.132.5.166

Example: 100.132.5.166:162

Example: victoria:162:public

Note: Be careful to avoid event duplication. That is, you should avoid putting the same event in multiple entries. Also, comment lines can be added lines, prefixed with a "#" character.

Event Configuration File Examples

```
ServerDown,serverUp    111.123.0.234:567:public
```

This entry configures the Event Manager to send serverDown and serverUp SNMP traps to the NMS at IP address 111.123.0.234, port 567, community public.

```
agentConnectionFailed   111.123.0.234,victoria
```

This entry configures the Event Manager to send SNMP traps of agentConnectionFailed type will be sent to IP address 111.123.0.234, port 567, community public and to host "victoria", port 567, community public.

```
azReject
```

This entry configures the Event Manager to discard all events of the azReject type so that no traps are sent.

Start and Stop SiteMinder SNMP Support

If you chose to install SOA Security Manager SNMP support when you installed the Policy Server, the SOA Security Manager SNMP Agent service should start automatically whenever the Policy Server initializes.

This section describes how to manually start and stop the SOA Security Manager SNMP subagent on Windows and UNIX Policy Servers.

Start and Stop the Windows Netegrity SNMP Agent Service

To start the SOA Security Manager SNMP subagent on Windows Policy Servers

1. Open the Services control panel:
   - (Windows Server) Start, Settings, Control Panels, Administrative Tools, Services.
   - (Windows NT) Start, Settings, Control Panels, Services.
2. Select the Netegrity SNMP Agent service.
3. Click Start.

   Note: When you restart the Windows SNMP service, also manually restart the Netegrity SNMP Agent service.

To stop the SOA Security Manager SNMP subagent on Windows Policy Servers

1. Open the Services control panel:
   - (Windows Server) Start, Settings, Control Panels, Administrative Tools, Services.
   - (Windows NT) Start, Settings, Control Panels, Services.
2. Select the Netegrity SNMP Agent service.
3. Click Stop.

   Note: If you stop the Windows SNMP service, the Netegrity SNMP Agent service is not generally available, but can then be accessed through port 801.

Start and Stop SNMP support on UNIX Policy Servers

On UNIX Policy Servers, the SOA Security Manager service can only be started or stopped by starting or stopping the Sun Solstice Enterprise Master agent (snmpdx) daemon.

To start the Netegrity SNMP Agent service on UNIX Policy Servers

1. Login as super user (root)
2. Type cd /etc/rc3.d
3. Type sh SXXsnmpdx (S76snmpdx) start

To stop the Netegrity SNMP Agent service on UNIX Policy Servers

1. Login as super user (root)
2. Type cd /etc/rc3.d
3. Type sh SXXsnmpdx (S76snmpdx) stop

   Note: Stopping the Sun Solstice Enterprise Master agent operation will disable all SNMP services on the UNIX host.

Troubleshooting the SiteMinder SNMP Module

This section provides some advice and describes some tools that SOA Security Manager provides to help you isolate the point of failure if you have trouble establishing a management connection to, or receiving SNMP traps from SOA Security Manager.

SNMP Traps Not Received After Event

Symptom:

I am not receiving SNMP traps when events that should have generated them occur.

Solution:

1. Check network connectivity between the NMS and monitored Policy Server.
2. Check that the SOA Security Manager SNMP subagent and SNMP master agent are running on the Policy Server.
3. Enable trap logging by setting the NETE_SNMPLOG_ENABLED system environment variable.

SOA Security Manager generates the following log files in sminstalldir/log:

Windows:

SmServAuth_snmptrap.log
SmServAz_snmptrap.log
SmServAcct_snmptrap.log
SmServAdm_snmptrap.log

UNIX:

smservauth_snmptrap.log
smservaz_snmptrap.log
smservacct_snmptrap.log
smservadm_snmptrap.log

Important! The log files generated can grow very rapidly. You should disable trap logging and delete the file as soon as you have resolved your trap receipt issues.

Chapter 16: Policy Server Tools

This section contains the following topics:

Policy Server Tools Overview

SOA Security Manager provides a number of administrative tools to help manage your SOA Security Manager environment. The list following describes the function of each tool.

smobjexport

Contains arguments that let you export an entire policy store; a specified policy domain; the specified policy domain and all system objects used by the policy domain, such as administrators, Agents, authentication schemes and user directories; Agent keys stored in the policy store along with the rest of the policy store data. By default, keys are not included in the export; only the Agent keys stored in the policy store; variables only.

smobjimport

Imports policy data into the SOA Security Manager policy store.

smkeyexport

Exports keys from the key store.

smkeyimport

Imports keys into the key store.

smldapsetup

Manages the SOA Security Manager policy store in an LDAP directory.

ODBC database SQL scripts

Removes SOA Security Manager policy store, token data, and log schema from ODBC databases.

smpatchcheck

Checks to make sure all of the required/recommended patches are installed on your Solaris machine.

smreadclog

Reads RADIUS log files generated by the Policy Server.

SiteMinder Token Tool

Preloads information about hardware tokens.

smreg

Lets you change the SOA Security Manager Super User password.

In addition, SOA Security Manager provides tools for working with policy data. The following list provides an overview of the XPS-family of tools. XPS tools are platform-independent command-line utilities that XPS administrators can use to manage policy store data. To learn about the options for a particular tool, enter the tool name followed by the -? parameter at the command line.

XPSConfig

Manages configuration data including vendors, products, and product parameters.

Note: To use XPSConfig, you must be an administrator with XPSConfig rights.

XPSEvaluate

Evaluates expressions and allows you to test performance.

Note: To use XPSEvaluate, you must be an administrator with XPSEvaluate rights.

XPSExplorer

Manages policy data including vendors, products, and applications.

Note: To use XPSExplorer, you must be an administrator with XPSExplorer rights.

XPSExport

Exports data from an XPS data store.

XPSImport

Imports data to an XPS data store.

XPSSecurity

Allows interactive creation and editing of XPS Administrators and their rights. To use this tool, copy it from either \win32\tools or /solaris/tools from the SOA Security Manager installation file (that you downloaded from CA) to the policy_server_home\bin directory.

policy_server_home

Specifies the Policy Server installation path.

Important! After you use XPSSecurity, delete it from *policy_server_home*\bin to prevent unauthorized use.

Note: To use XPSSecurity, you must be an administrator with XPSSecurity rights.

XPSSweeper

Synchronizes XPS and SiteMinder policy stores.

Note: To use XPSSweeper, you must be an administrator. No additional rights are required.

More information:

Reschedule SOA Security Manager Policy Data Synchronization (see page 45)

Requirement When Using the Policy Server Tools on Linux Red Hat

For the Policy Server tools (smreg, smobjimport, smobjexport) to work correctly on a Linux Red Hat operating system, you must define the Policy Server host name in /etc/hosts. The host name must be defined in this location because these utilities generate adminoids and OIDs. The operating system uses the gethostid() and gettimeofday() Linux functions when generating these OIDs.

Export Policy Data Using smobjexport

The smobjexport tool exports the entire policy store or a single policy domain by creating two files: an .smdif (SOA Security Manager Data Interchange Format) and a .cfg (environment configuration) file. The .smdif file standardizes SOA Security Manager data so you can import it to a different type of policy store. For example, you can export an .smdif file from an ODBC database and import it to an LDAP directory.

The environment configuration (.cfg) file contains environment-specific properties for the policy store such as IP Addresses, redirection URLs, shared secrets, agent names, logging settings, and .com extensions. Only the 5.0, 5.5, and 6.x versions of smobjexport create an environment configuration file, as this feature is not available for previous versions. Tabs separate the text in the .cfg file, and you can edit it as a tab-delimited file in any text editor or Microsoft Excel.

Note: Using the Command Line Interface, you can write Perl scripts to import and export particular objects rather than all the Policy Store objects. For more information, see the *API Reference Guide for Perl*.

The following table describes the four fields of a sample registration scheme entry from the .cfg file.

Object OID	Object Class	Property Type	Value
<reg scheme OID>	SelfReg	RegistrationURL	http://your.url.com

The Object OID column is represented only by the *OID* variable since OIDs such as the following are too long to fit:

reg_scheme_OID = 0d-6dc75be0-1935-11d3-95cc-00c04f7468ef

Each entry's fields--Object OID, Object Class, Property Type, Value--can be edited in a text editor or Excel.

Note: For backward compatibility, the smobjexport command line only references the .smdif file. As a result, the corresponding environment configuration file is created according to the following naming convention: if the output file you specify with the smobjexport command has an .smdif extension (for example, *file_name*.smdif), then the extension is replaced with .cfg (such as *file_name*.cfg) for the configuration file. However, if the output file you specify does not have an .smdif extension (for example, *file_name*.txt), then .cfg is appended to file name and extension (such as *file_name*.txt.cfg).

smobjexport uses the following arguments to supply information required to export the data:

-o*file_name*

Specifies the path and file name of the output .smdif file. If this argument is not specified, the default output file names are stdout.smdif and stdout.cfg. This filename should be a name other than the one used for smldapsetup ldgen -f*file_name*, otherwise the export will be overwritten.

-f

Overwrites an existing output file.

-s*domain-name*

Exports only the specified policy domain.

-e*domain-name*

Exports the specified policy domain and all system objects used by the policy domain, such as administrators, Agents, authentication schemes, and user directories.

Note: The -e option does not support exporting Affiliate domains.

-c

Exports sensitive data as clear-text. Exporting data as clear-text allows you to migrate policy data from a SOA Security Manager deployment that uses one encryption key to another SOA Security Manager deployment that uses a different encryption key. To use -c, you must enter the credentials of a SOA Security Manager administrator who can manage all SOA Security Manager domain objects. Enter credentials using the -d and -w arguments.

-cb

Exports sensitive data encrypted with backward-compatible cryptography.

-cf

Exports sensitive data encrypted with FIPS-140 compatible cryptography.

-d*admin-name*

Specifies the login name of a SOA Security Manager Administrator that can manage all SOA Security Manager objects in the policy store being exported.

-w*admin-pw*

Specifies the password of the SOA Security Manager Administrator specified using -d.

-k

Exports Agent keys stored in the policy store along with the rest of the policy store data. By default, keys are not included in the export.

-x

Exports only the Agent keys stored in the policy store.

-v

Enables verbose mode.

-t

Enables low level tracing mode. This mode can be used to troubleshoot the export process.

-u

Export variables only.

-l

Creates a log file. Make sure the *file_name*.smdif file ends with an .smdif and not a .txt or other extension. If the *file_name*.smdif file ends with an .smdif extension, smobjexport creates a log file with a .log extension. However, if the *file_name*.smdif file ends with a .txt extension, smobjexport creates a *file_name*.txt.log file, which is incorrect since the log file must be in the *file_name*.log format.

-m

Exports IdentityMinder objects only.

-i

Exports specific IdentityMinder objects and all relevant system objects.

-j

Exports a specific IdentityMinder directory and all relevant system objects.

-?

Displays the help message.

Note: If the arguments contain spaces, use double quotes around the entire argument. For example, if the name of the SOA Security Manager administrator is *SOA Security Manager Admin*, the argument for smobjexport would be -d" SOA Security Manager Admin"

To export data using smobjexport

1. Navigate to one of the following locations:
   - On Windows, *SOA Security Manager_installation*\bin
   - On UNIX, *SOA Security Manager_installation*/bin

   siteminder_installation

   Specifies the installed location of SOA Security Manager.

2. Enter the following command:

   smobjexport -o*file_name*.smdif -c -d*admin-name* -w*admin-pw* -v -t

   file-name

   Specifies the name of the .smdif output file that will contain the exported policy store data

   admin-name

   Specifies the name of a SOA Security Manager administrator that can manage all SOA Security Manager objects

   admin-password

   Specifies the password for the specified SOA Security Manager administrator.

   Note: Ensure the *file_name*.smdif file ends with a .smdif and not a .txt extension.

   Example: smobjexport -opstore.smdif -c -dSOA Security Manager -wpassword -v -t

   Note: The -o*file_name* argument should use a filename other than the one used for the smldapsetup ldgen -f*file_name*; otherwise the export may be overwritten.

Export Policy Store Objects With Dependencies

When exporting policy store objects with dependencies by either running smobjexport with the –e option or by using the migration methods in the Command Line Interface:

- If any of the object's dependencies is a Host Configuration Object, then all Host Configuration Objects are exported.
- If any of the object's dependencies is an Agent Configuration Object, then all Agent Configuration Objects are exported.
- If any of the object's dependencies is an affiliate (when Policy Server Option Pack is installed), then the entire affiliate domain to which the affiliate belongs is exported.

Note: The -e option does not support exporting Affiliate domains.

Import Policy Data Using smobjimport

The smobjimport tool imports the entire policy store or a single policy domain using two files--an .smdif (SOA Security Manager Data Interchange Format) and a .cfg (environment configuration) file--created by smobjexport. The .smdif file standardizes SOA Security Manager data so you can import it into an ODBC or LDAP directory. For example, you can export an .smdif file from an ODBC database and import it to an LDAP directory. The environment configuration (.cfg) file contains environment specific properties for the policy store such as the IP Addresses, redirection URLs, shared secrets, and logging settings. The text in the .cfg file is separated by tabs and you can read it in an Excel spreadsheet.

Using the Command Line Interface, you can write Perl scripts to import and export particular objects rather than all the Policy Store objects. For more information, see the *SOA Security Manager Programming Guide for Perl*.

Note: The naming convention for smobjimport is the same as smobjexport in that it supports an .smdif file and .cfg file. Using smobjexport as an example, if the output file you specified with the smobjexport command has an .smdif extension (that is, *file_name*.smdif), then the extension is replaced with .cfg (such as *file_name*.cfg) for the configuration file. However, if the output file you specify does not have an .smdif extension (that is, *file_name*.txt), then .cfg is appended to file name and extension (such as *file_name*.txt.cfg).

smobjimport uses the following arguments to supply information required to import data:

-4

Allows you to import policy store data from SOA Security Manager 4.51/4.61.

-i*file_name*

Specifies the path and file name of the input .smdif file.

-f

Indicates that duplicate information should be overwritten. Be careful using this argument as it enables you to overwrite default SOA Security Manager objects that may have been imported into a new policy store by using smpolicy.smdif.

-c

Indicates that the input file contains sensitive data in clear-text. This argument allows to you import policy data from a SOA Security Manager deployment that uses one encryption key to another SOA Security Manager deployment that uses a different encryption key. This option requires the credentials of a SOA Security Manager administrator who can manage all SOA Security Manager domain objects. Enter credentials using the -d and -w arguments.

-d*admin-name*

Specifies the login name of a SOA Security Manager Administrator that can manage all SOA Security Manager objects.

-w*admin-pw*

Specifies the password of the SOA Security Manager Administrator specified in -d.

-k

Imports Agent keys stored in the policy store. If you import using this argument, and the policy store to which you are importing already contains keys, single sign-on for existing users may be interrupted. Note that keys are created each time you start the Policy Server.

-v

Enables verbose mode.

-t

Enables low level tracing mode. This can be used to troubleshoot the import process.

-l

Creates a log file. Make sure the *file_name*.smdif file ends with an .smdif and not a .txt or other extension. If the *file_name*.smdif file ends with an .smdif extension, smobjimport creates a log file with a .log extension. However, if the *file_name*.smdif file ends with a .txt extension, smobjimport creates a *file_name*.txt.log file, which is incorrect since the log file must be in the *file_name*.log format.

-r

Turns off automatic renaming of objects. By default, when smobjimport attempts to import an object with a name that already exists in the target policy store, it creates a duplicate object with a name of *nameoid*, where *name* is the name of the object, and *oid* is the object ID of the new duplicate object. If you use this flag to turn off the automatic renaming feature, smobjimport returns errors messages for any objects that could not be created because of naming conflicts.

-u

Import variables only.

-m

Import IdentityMinder objects only.

+m

Import SOA Security Manager objects only.

-?

Displays the help message.

-a1

Disables object store validation and helps increase the speed at which objects are imported.

Important! This parameter should only be used when importing data into a new policy store and when the imported .smdif file is consistent with regards to policy store objects.

-a2

Disables object store auditing and helps increase the speed at which objects are imported.

-a3

Disables object store cache updates and helps increase the speed at which objects are imported.

Important! Do not use this parameter when importing data into an existing policy store with more than one policy store pointing at it. Using this parameter disables cache synchronization between the Policy Servers.

-a

Same as setting -a1, -a2, and -a3 together.

Important! This should only be used on a new policy store. Do not use this parameter when importing data into an existing policy store since it could corrupt the policy store.

Note: If any of the arguments contain spaces, use double quotes around the entire argument. For example, if the name of the SOA Security Manager administrator is *SOA Security Manager Admin*, the argument for smobjimport would be -d"SOA Security Manager Admin". If the description of a SOA Security Manager object specified in the Administrative UI is more than one line long, smobjimport will only import the first line of the description.

To import Policy data using smobjimport

1. Navigate to one of the following locations:
   - On Windows, *SOA Security Manager_installation*\bin

     SOA Security Manager_installation

     Specifies the installed location of SOA Security Manager.
   - On Unix, *SOA Security Manager installation*/bin

     SOA Security Manager_installation

     Specifies the installed location of SOA Security Manager.
2. Enter the following command:

   smobjimport -i*file_name* -d*admin-name* -w*admin-pw* -v -t

   Example: smobjimport -ipstore.smdif -dSOA Security Manager -wpassword -v -t

   Note: You only need to enter the .smdif file with the smobjimport command, since it automatically imports both the .smdif and .cfg files together if they are in the same directory. The environment properties stored in the .cfg file take precedence over the ones in the .smdif file. Thus, you can overwrite an environment's data by pairing the .smdif file with a different .cfg file when running smobjimport.

Overview of the XML-based Data Format

Enterprise environments can require policy store data to be moved from one environment to another, such as from a development environment to a staging environment. In releases prior to r12, policy objects are represented using the proprietary SiteMinder Data Interchange Format (SMDIF), using smobjimport and smobjexport for migrating the data. This export format and these tools have been replaced by an XML-based export format, using XPSExport and XPSImport to migrate the data.

The XML-based export format uses the following fundamental schemas:

XPSDeployment.xsd

Describes the top-level schema, which includes the other schemas. It defines the root element and sub-elements. An XML file conforming to this schema can contain an instance of Data Dictionary, Policy, and Security Data.

XPSDataDictionary.xsd

Describes meta-data information about object types and their properties.

XPSPolicyData.xsd

Describes the meta-data information about objects stored in the policy store, such as domains, policies, rules, applications, and the relationships between them.

XPSSecurityData.xsd

Describes meta-data used for representing policy store administrators and their access rights.

XPSGeneric.xsd

Contains definitions of the generic data types used in the other schema files.

This format supports not only exporting and importing policy data in its entirety, but also exporting and importing a subset of the policy data. A granular export presupposes knowledge of how the data will be imported. On export, you can specify the entire policy data, or a portion of the data using an object identifier and optionally one of these three export types:

- Add—specifies that only additions can be done during import.
- Replace—specifies an overwrite of existing policy data during import.
- Overlay—specifies that updates to policy data are done during import.

Note: The XPSExport and XPSImport tools encrypt sensitive data based on the FIPS mode the Policy Server is operating in. There are no additional parameters in these tools to set for data encryption.

Export Policy Data Using XPSExport

The XPSExport tool supports the following tasks for migrating Policy Store data:

- Export all the data dictionary.
- Export all the security data.
- Export all the policy data.

- Export all the configuration data.
- Export a portion of the policy data.

You can export a subset of policy data by specifying a root object's identifier in the command line or in a file (using the -xf parameter). Only objects that do not have a parent class can be exported. For example, to export a realm object, you specify the identifier (XID) of the realm's parent domain.

You can also create and edit a custom export file using the "shopping cart", or XCart, capability in XPSExplorer (xspexplorer -xf). You can set the import mode (ADD, OVERLAY, REPLACE, or DEFAULT) on a per object basis in the XCart file. You can then pass the XCart file to XSPExport using the -xf parameter.

Note: XSPExport does not export keys from the key store. You must use smkeyexport for this purpose.

Syntax

The syntax of the XPSExport is following:

XPSExport *output_file* [-xo *object_XID*] [-xo-add *object_XID*] [-xo-replace *object_XID*] [-xo-overlay *object_XID*] [-xf *file_name*] [-xa] [-xd] [-xs] [-xc] [-passphrase *phrase*] [-?] [-vT] [-vI] [-vW] [-vE] [-vF] [-l *log_file*] [-e *err_file*]

Parameters

output_file

The output XML file.

-xo *object_XID*

Specifies one or more objects for granular export. You can optionally specify one of the following export types:

-xo-add *object_XID*

Specifies only additions are done during import.

-xo-replace *object_XID*

Specifies policy data is overwritten during import.

-xo-overlay *object_XID*

Specifies policy data is updated during import.

-xf *file_name*

(Optional) Specifies the absolute name of a file that contains the list of XIDs of objects to be exported.

The entries in the file have the following format:

CA.SM::UserDirectory@0e-255e2456-556d-40fb-93cd-f2fed81f656e

ADD = CA.SM::AuthScheme@0d-4afc0e41-ae25-11d1-9cdd-006008aac24b

REPLACE = CA.SM::Agent@01-cb8b3401-a6aa-4794-964e-c569712269c0

OVERLAY = CA.SM::Domain@03-7bdf31f2-44d7-4d7b-a8f5-5de2eaa0b634

These entries correspond to the following command-line parameters:

-xo CA.SM::UserDirectory@0e-255e2456-556d-40fb-93cd-f2fed81f656e
-xo-add CA.SM::AuthScheme@0d-4afc0e41-ae25-11d1-9cdd-006008aac24b
-xo-replace CA.SM::Agent@01-cb8b3401-a6aa-4794-964e-c569712269c0
-xo-overlay CA.SM::Domain@03-7bdf31f2-44d7-4d7b-a8f5-5de2eaa0b634

-xa

(Optional) Exports entire policy data.

Note: This option cannot be used with -xo, -xo-add, -xo-replace, -xo-overlay, or -xf.

-xd

(Optional) Exports the entire data dictionary.

-xs

(Optional) Exports the entire security data.

-xc

(Optional) Exports the entire configuration data.

-passphrase *phrase*

(Optional) Specifies the passphrase required for encryption of sensitive data. This must be at least eight characters long and must contain at least one digit, one uppercase and one lowercase character. The passphrase can contain a space enclosed in quotes. If not specified as a command-line option, the export process prompts for a passphrase when sensitive data is being exported.

-?

Displays command-line help.

-vT

(Optional) Sets verbosity level to TRACE.

-vI

(Optional) Sets verbosity level to INFO.

-vW

(Optional) Sets verbosity level to WARNING (default).

-vE

(Optional) Sets verbosity level to ERROR.

-vF

(Optional) Sets verbosity level to FATAL.

-l log_file

(Optional) Outputs log to the specified file.

-e err_file

(Optional) Specifies the file to which errors and exceptions are logged. If omitted, stderr is used.

Example

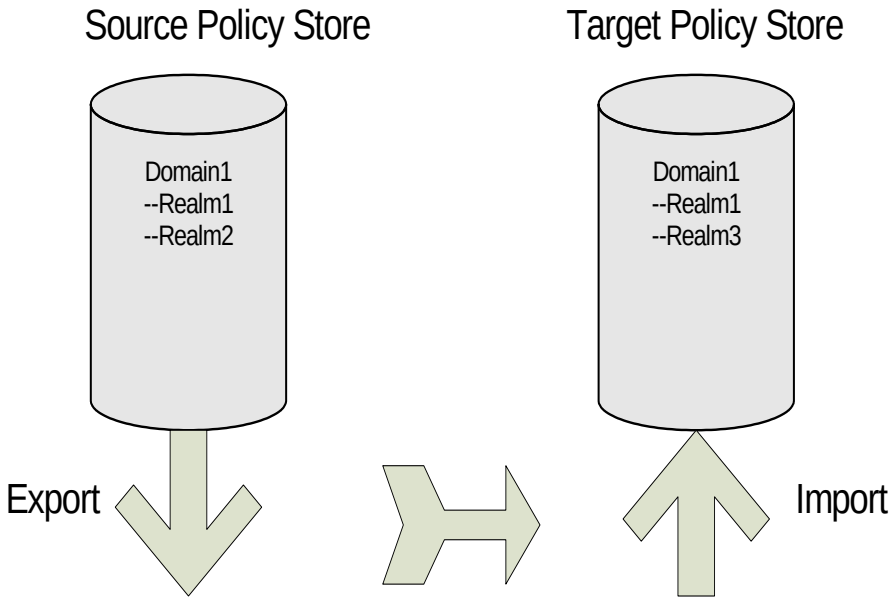
```
XPSExport PolicyData.xml -xo CA.SM::UserDirectory@0e-255e2456-556d-40fb-93cd-f2fed81f656e
-xo-overlay CA.SM::Domain@03-7bdf31f2-44d7-4d7b-a8f5-5de2eaa0b634 -xd -e C:\tmp\ExceptionLog.txt
```

Note: In case of granular export, the export type will either be specified explicitly on the command line or will be retrieved from the data dictionary in case it is not specified on the command line. For dump export, the export type attribute for all objects is Replace (whatever the data dictionary value for the object class is set to) because a load import of the policy data is effectively an overwrite of the entire policy data in the policy store.

During the execution of XPSExport, if any error is encountered during the parsing of the command line options, the export tool aborts and logs the errors encountered in the exception file (or stderr). Also, the export process aborts if the export of *any* object fails. In such a scenario, appropriate errors are logged to the exception file (or stderr) and the XML output file (if it has been created) is deleted.

Add Policy Data

The diagram following shows a SiteMinder policy domain named Domain1 in the source policy store that has to be exported and imported to the target policy store.



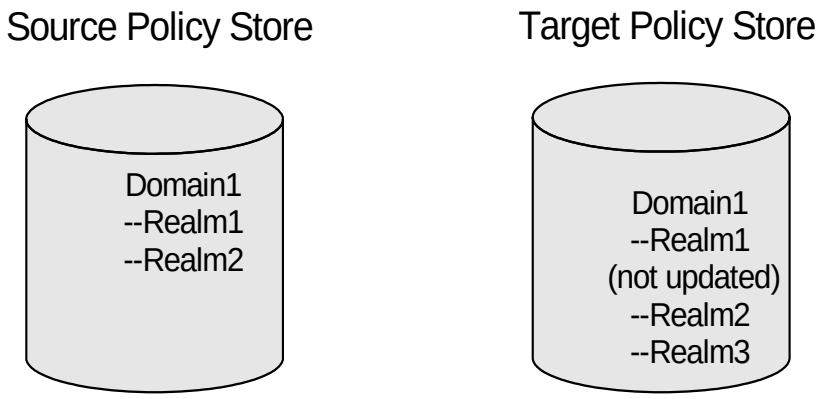
The target policy store already has a domain with the same name, but there are differences between the two:

- The properties of Realm1 have been updated in the source policy store and consequently have different values from their counterparts in the target policy store.
- There is a Realm2 in Domain1 that does not exist in the target policy store.

To specify a granular import of only one object (Realm2) into the target policy store, the command line on export would look like this:

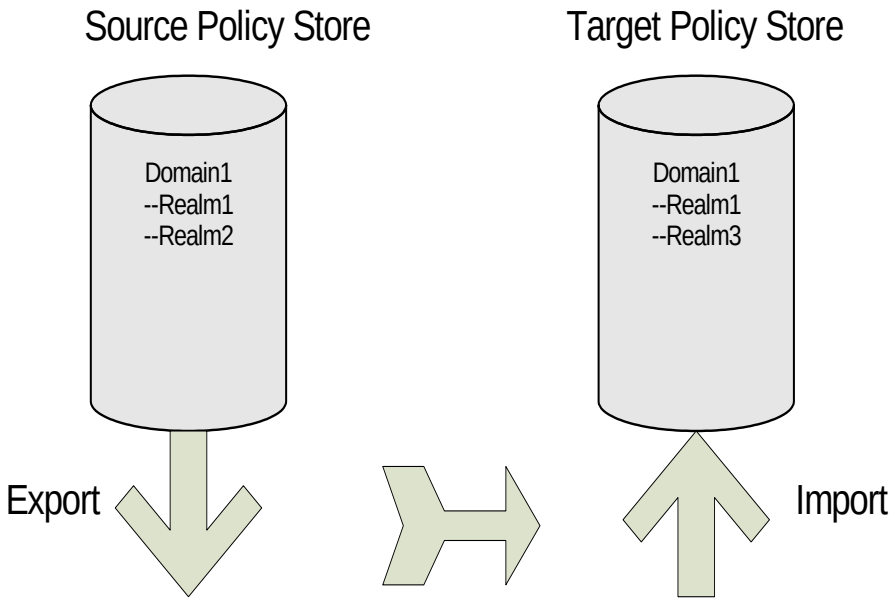
```
XPSExport gran-add.xml -xo-add CA.SM: :Domain@03-0fb7bd02-6986-4bb9-b240-c232358958b1
```

After a successful import Domain1 in the target policy store has three realms. The properties of Realm1 are not updated, as shown in the figure following.



Overlay Policy Data

The diagram following shows a SiteMinder policy domain named Domain1 in the source policy store that has to be exported and imported to the target policy store.



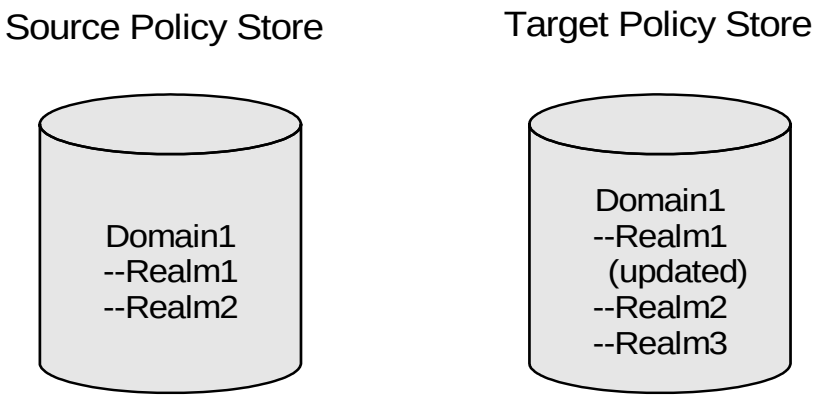
The target policy store already has a domain with the same name, but there are differences between the two:

- The properties of Realm1 have been updated in the source policy store and consequently have different values from their counterparts in the target policy store.
- There is a Realm2 in Domain1 that does not exist in the target policy store.

To specify a granular import where the target policy store is updated with the latest changes from the source policy store, the command line on export would look like this:

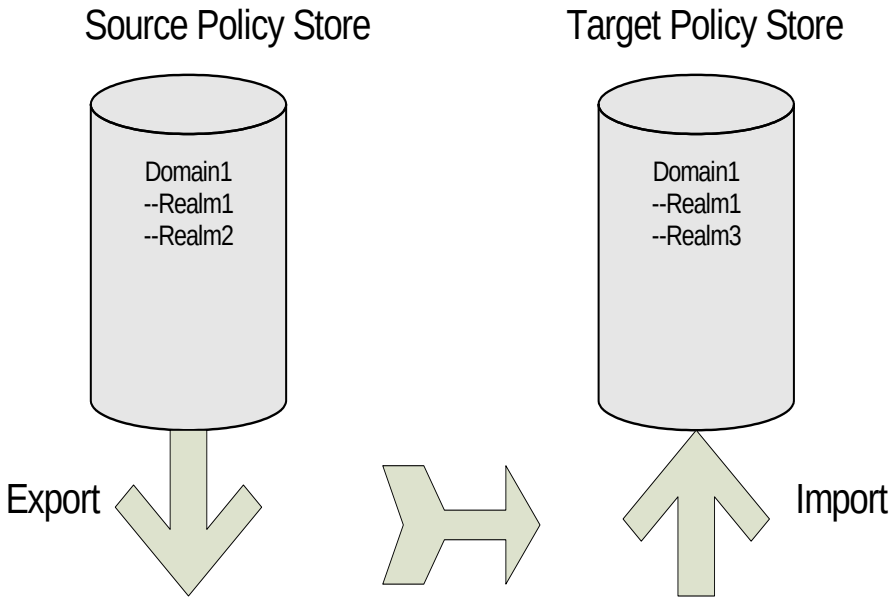
```
XPSExport gran-add.xml -xo-overlay CA.SM: :Domain@03-0fb7bd02-6986-4bb9-b240-c232358958b1
```

After a successful import the properties of Realm1 on the target policy store are updated, as shown in the figure following.



Replace Policy Data

The diagram following shows a SiteMinder policy domain named Domain1 in the source policy store that has to be exported and imported to the target policy store.



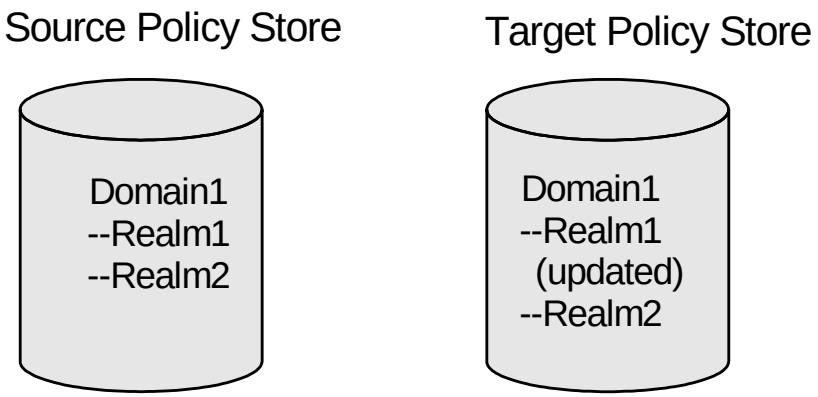
The target policy store already has a domain with the same name, but there are differences between the two:

- The properties of Realm1 have been updated in the source policy store and consequently have different values from their counterparts in the target policy store.
- There is a Realm2 in Domain1 that does not exist in the target policy store.

To duplicate the contents of the source policy store in the target policy store, the command line on export would look like this:

```
XPSExport gran-add.xml -xo-replace CA.SM: :Domain@03-0fb7bd02-6986-4bb9-b240-c232358958b1
```

After a successful import Domain1 in the target policy store is exactly the same as Domain1 in the source policy store, as shown in the figure following.



Import Policy Data Using XPSImport

The XPSImport tool supports the following tasks for migrating policy store data:

- Import the entire policy data.
- Import a portion of the policy data.
- Import configuration data.

Note: XPSImport does not import keys into the key store. You must use smkeyimport for this purpose.

Syntax

The syntax for XPSImport is:

XPSImport *input_file* [-passphrase *phrase*] [-validate] [-fo] [-vT] [-vI] [-vW] [-vE] [-vF] [-e *file_name*] [-l *log_path*] [-?]

Parameters

input_file

Specifies the input XML file.

-passphrase *phrase*

(Optional) Specifies the passphrase required for decryption of sensitive data. The phrase must be the same as the phrase specified during export, or the decryption will fail.

-validate

(Optional) Validates the input XML file without updating the database.

-fo

Allows force overwrite of existing policy store date for a dump load.

-vT

(Optional) Sets verbosity level to TRACE.

-vI

(Optional) Sets verbosity level to INFO.

-vW

(Optional) Sets verbosity level to WARNING (default).

-vE

(Optional) Sets verbosity level to ERROR.

-vF

(Optional) Sets verbosity level to FATAL.

-l *log_path*

(Optional) Outputs a log file to the specified path.

-e *file_name*

(Optional) Specifies the file to which errors and exceptions are logged. If omitted, stderr is used.

-?

Displays command-line help.

Example

```
XPSImport PolicyData.xml -e C:\\tmp\\ExceptionLog.txt
```

This example imports policy data objects as specified in the PolicyData.xml file. It is not immediately evident from the command line if the import is a dump load or a granular import. That information can however be retrieved by looking at the IsDumpExport attribute of <PolicyData> element in the input XML file. If this attribute is set to true, it indicates that the input XML file has to be used for dump load.

Troubleshooting Policy Data Transfer

The following factors might possibly be relevant when transferring policy store data:

- Errors are logged to the console (stdout/stderr) or directed to a file.
- The levels of logging are listed following:
  - Trace
  - Information
  - Warning
  - Error
  - Fatal
- An export fails if the file already exists.
- An import is rolled back if validation fails for an object in the XML file.
- Granular import fails if objects exported with Add type already exist in the target policy store.

Export and Import Stored Keys

XPSExport and XPSImport do not handle moving keys to and from the key store. For this purpose you must use smkeyexport and smkeyimport.

The smexportkey tool exports keys from the key store. The syntax for smkeyexport is following.

smkeyexport -d*adminname* -w*adminpw* [-o*output_filename*] [-f] [-c] [-cb] [-cf] [-l] [-v] [-t] [-?]

-d

Specifies the name of the SiteMinder administrator.

-w

Specifies the password of the SiteMinder administrator.

-o

(Optional). Specifies the output file; defaults to stdout.smdif.

-f

(Optional).Overwrites an existing output file.

-c

(Optional). Exports sensitive data unencrypted.

-cb

(Optional). Exports sensitive data encrypted with backward-compatible cryptography.

-cf

(Optional). Exports sensitive data encrypted with FIPS-compatible cryptography.

-l

(Optional). Creates and logs entries to the specified file (filename.log).

-v

(Optional). Specifies verbose messaging.

-t

(Optional). Enables tracing.

-?

(Optional). Displays command options.

The smkeyimport tool imports keys into the key store. The syntax of smkeyimport is following.

smkeyimport -i*input_file* -d*adminname* -w*adminpw* [-c] [-cb] [-cf] [-l] [-v] [-t] [-?]

-i

Specifies the input file name.

-d

Specifies the name of the SiteMinder administrator.

-w

Specifies the password of the SiteMinder administrator.

-c

(Optional). Specifies that the input file contains clear-text passwords.

-cb

(Optional). Imports clear-text passwords with backward-compatible cryptography.

-cf

(Optional). Imports clear-text passwords with FIPS-compatible cryptography.

-l

(Optional). Creates and logs entries to the specified file (file.log).

-v

(Optional). Specifies verbose messaging.

-t

(Optional). Enables tracing.

-?

(Optional). Displays command-line options.

Manage an LDAP Policy Store Using smldapsetup

The smldapsetup utility allows you to manage an LDAP policy store from the command line. Using smldapsetup, you can configure an LDAP policy store, generate an LDIF file, and remove policy store data and schema.

To use smldapsetup, specify a mode, which determines the action that smldapsetup will perform, and arguments, which contain the values that are used to configure the LDAP server.

The following table contains the modes you can use with smldapsetup and the arguments each mode uses:

Modes	Arguments
reg	-h*host*, -p*portnumber*, -d*userdn*, -w*userpw*, -r*root*, -ssl*1|0*, -c*certdb*, -k1
ldgen	-h*host*, -p*portnumber*, -d*userdn*, -w*userpw*, -r*root*, -m*n*, -ssl*1|0*, -c*certdb* -f*ldif*, -t*tool*, -s*suffix*, -e, -k
ldmod	-h*host*, -p*portnumber*, -d*userdn*, -w*userpw*, -r*root*, -ssl*1|0*, -c*certdb*, -f*ldif*, -s*suffix*, -e, -k, -i
remove	-h*host*, -p*portnumber*, -d*userdn*, -w*userpw*, -r*root*, -ssl*1|0*, -c*certdb*, -k
switch	none
revert	-v
status	-v

To use smldapsetup

1. Navigate to one of the following locations:
   - (Windows) *siteminder_home*\bin
   - (UNIX) *siteminder_home*/bin

   siteminder_home

   Specifies the installed location of SOA Security Manager.

2. Enter the following command:

   smldapsetup *mode arguments*

   Important! If you are running a SOA Security Manager utility or executable on Windows Server 2008, be sure to open the command–line window with Administrator permissions, even if you are logged into the system as an Administrator. For more information, see the release notes for your SOA Security Manager component.

   Example: smldapsetup reg -hldapserver.mycompany.com -d"LDAP User" -wMyPassword123 -ro=security.com

   Note: When running smldapsetup, make sure that the LDAP user you specify has the appropriate administrator privileges to modify schema in the LDAP Directory Server. If this user does not have the proper privileges, then the LDAP server will not allow you to generate the policy store schema. After running the smldapsetup command, this user appears in the Admin Username field on the Data tab of the Policy Server Management Console.

More Information:

Modes for smldapsetup (see page 166)
Arguments for smldapsetup (see page 167)

Modes for smldapsetup

The mode indicates the action that smldapsetup performs. You can specify a mode to connect to the LDAP server, generate an LDIF file, configure an LDAP policy store and remove policy data.

The modes for smldapsetup include:

reg

Tests the connection to the LDAP server. If the connection succeeds, smldapsetup configures the SOA Security Manager LDAP server as its policy store using the -h*host*, -p*portnumber*, -*duserdn*, -w*userpw*, -r*root*, -ssl*1/0* and -c*certdb* arguments.

ldgen

Automatically detects supported LDAP servers and generates an LDIF file with the SOA Security Manager schema. The generated file is used by smldapsetup ldmod to create the SOA Security Manager schema. If the -e argument is specified, smldapsetup ldgen creates an LDIF file that can be used with ldmod to delete the SOA Security Manager schema. Use the -m switch to skip automatic detection of LDAP servers. The ldgen mode requires the -f switch unless previously configured in reg mode.

ldmod

Connects to the LDAP server and the SOA Security Manager schema without populating the policy store with any data. It requires the LDAP modify program and the LDIF file, specified with the *-fldif* argument. If you specify the -h*host*, -p*port_number*, -d*userdn*,-w*userpw*, -r*root*, -ssl*1/0* and -c*certdb* arguments, smldapsetup ldmod will modify the LDAP directory specified using these arguments. If you do not specify -h*host*, -p*portnumber*, -d*userdn*, -*wuserpw*, -r*root*, -ssl*1/0* and -c*certdb*, smldapsetup ldmod uses the LDAP directory previously defined using smldapsetup reg or the Policy Server Management Console.

remove

Connects to the LDAP server, then removes all policy data stored under the SOA Security Manager LDAP node that corresponds to the current version of smldapsetup. If you specify the *-hhost*, -p*ort_number*, -d*userdn*,-w*userpw*, -r*root*, -ssl*1/0* and -c*certdb* arguments, smldapsetup remove will remove policy data from the LDAP directory specified by these arguments. If you do not specify -h*host*, -p*port*, -d*userdn*, -w*userpw*, -r*root*, *-ssl1/0* and -c*certdb*, smldapsetup remove will remove the policy data from the LDAP directory previously defined using smldapsetup reg or the Policy Server Management Console.

switch

Reconfigures the Policy Server to use LDAP rather than ODBC. It does not prepare the LDAP store or the LDAP connection parameters before making the change.

revert

Reverts to ODBC policy store from LDAP. The only argument used with this mode is -v.

status

Verifies that the LDAP policy store connection parameters are configured correctly. It requires the -v argument. If you specify the -h*host*, -p*port_number*, -d*userdn*, -w*userpw*, -r*root*, -ssl*1/0* and -c*certdb* arguments, smldapsetup status tests the connection to the LDAP directory specified using these arguments. If you do not specify -h*host*, -p*port_number*, -*duserdn*, -w*userpw*, -r*root*, -ssl*1/0* and -c*certdb*, smldapsetup status verifies the connection to the LDAP directory previously defined using smldapsetup reg or the Policy Server Management Console.

From the Data tab in the Policy Server Management Console, you can view or change the settings you configured with the reg, switch and revert functions using a GUI interface. You must use smldapsetup to perform the ldgen, ldmod, remove, and status functions.

Arguments for smldapsetup

Arguments allow you to specify the information used by the modes to manage the LDAP policy store. If you do not specify arguments, smldapsetup uses the values configured in the Policy Server Management Console.

Note: smldapsetup does not allow spaces between an argument and its value. For example, the -h argument should be specified as follows:
smldapsetup ldmod -hldapserver.mycompany.com

The arguments you can specify in an smldapsetup call are listed below:

-h*host*

Specifies the fully qualified name of the LDAP server; the relative name, if the machines are in the same domain (-hldapserver); or the IP address (-h123.12.12.12). If you do not specify a host, smldapsetup uses the previously configured value as the default.

Example: -hldapserver.mycompany.com

-p*port_number*

Specifies a non-standard LDAP port. The LDAP port must be specified if the LDAP server is using a non-standard port or if you are moving a server to a new server that uses a different port, such as moving from a server using SSL to one that is not. If a port is not specified, the previous configuration values are used. If no previous port configuration has been specified, smldapsetup uses the default ports 389, if SSL is not being used, or 636, if SSL is being used.

-d*userdn*

Specifies the LDAP user name of a user with the power to create new LDAP directory schema and entries. This is not necessarily the user name of the LDAP server administrator. If you do not specify a user name, smldapsetup uses the previously configured name as the default.

-w*userpw*

Specifies the password for the user identified in the -d argument. If you do not specify a password, smldapsetup uses the previously configuration value.

Example: -wMyPassword123

-r*root*

Specifies the distinguished name of the node in the LDAP tree where SOA Security Manager will search for the policy store schema. If you do not specify a root, smldapsetup uses the previously configured root.

Example: -ro=security.com

-e

When specified with smldapsetup ldgen, generates an LDIF file that can delete the SOA Security Manager schema. The generated file must be used with smldapsetup ldmod to remove the schema.

-m*n*

Skips automatic detection of LDAP servers and specify type of LDAP policy store where *n* is one of the following:

2

iPlanet v4 LDAP servers.

3

Active Directory LDAP servers.

4

Oracle Internet Directory.

5

iPlanet v5.

6

Sun Directory Servers.

9

Active Directory Application Mode (ADAM).

-f*ldif*

Specifies the absolute or relative path to an LDIF file from the directory in which smldapsetup is being executed.

Example: -f../siteminder/db/smldap.ldif

Default: if you do not specify a path, smldapsetup uses the current directory as the default.

-t*tool*

Specifies the absolute or relative path, including filename and extension, of the ldapmodify command line utility. Ldapmodify is used to configure the server schema using the LDIF format commands. LDAP servers and SOA Security Manager provide a copy of ldapmodify. If the utility is not in the default location, use this argument to specify its location.

-ssl*1_or_0*

Specify -ssl1 to use an SSL-encrypted connection to the LDAP server, and -ssl0 to use a non-SSL connection. If you do not specify a value for -ssl, smldapsetup uses the previously configured value. If the LDAP connection has not been configured before, the initial default value is 0.

-c*cert*

This argument must be specified when using an SSL encrypted (-ssl1) LDAP connection. Specifies the path of the directory where the SSL client certificate database file, which is usually called cert7.db for the Netscape Navigator Web browser, exists.

Example: If cert7.db exists in /app/siteminder/ssl, specify -c/app /siteminder/ssl when running smldapsetup ldmod -f/app/siteminder/pstore.ldif -p81 -ssl1 -c/app/siteminder/ssl.

Note: For policy stores using an SSL-encrypted connection to Sun Java System LDAP, make sure the key3.db file exists in the same directory as cert7.db.

-k-k1

Enables you to use smldapsetup to set up or modify a key store if you are storing key information in a different LDAP directory. If you specify -k, smldapsetup checks to see if the Policy Server is pointing to the key store before performing any functions. If the Policy Server is not pointing to the key store, smldapsetup issues a warning. If you specify -k1, in conjunction with smldapsetup ldgen and the other arguments for a new policy store, smldapsetup creates a separate key store in the location you specify. If you do not specify -k or -k1, smldapsetup will modify the policy store.

-v

Enables verbose mode for troubleshooting. With -v, smldapsetup logs its command-line arguments and configuration entries as it performs each step in the LDAP migration.

-i*userDN*

Specifies the distinguished name of an account that should be used by SOA Security Manager to make modifications to the policy store. This argument allows an administrator account to retain control of the SOA Security Manager schema while enabling another account that will be used for day-to-day modifications of SOA Security Manager data. When a change is made using the Administrative UI, the account specified by this argument is used. Be sure to enter the entire DN of an account when using this argument.

-q

Enables quiet mode for no questions to be asked.

-u

Creates a 6.x upgrade schema file (LDIF).

-x

Use the -x argument with ldmod to generate replication indexes for another 5.x Sun Java System Directory Server Enterprise Edition (formerly Sun ONE/iPlanet) LDAP directory server.

-s*suffix*

This option allows you to specify a suffix other than the default parent suffix when configuring the 6.x Policy Server's schema in a Sun Java System Directory Server Enterprise Edition (formerly Sun ONE/iPlanet) LDAP directory server.

Example: assume the following:

ou=Apps,o=test.com is the Policy Store root.

o=test.com is the root suffix.

ou=netegrity,ou=Apps,o=test.com is the sub suffix.

If you do not use the -s parameter with smldapsetup, the Policy Server assigns ou=Apps,o=test.com as a parent suffix of ou=netegrity,ou=Apps,o=test.com. To change this and have the appropriate parent suffix set, run smldapsetup using the -s parameter while specifying o=test.com.

-?

Displays the help message.

Note: If the arguments contain spaces, you must enter double quotes around the entire argument. For example, if the name of the SOA Security Manager administrator is LDAP user, the argument for smldapsetup would be: -d”LDAP user".

smldapsetup and Sun Java System Directory Server Enterprise Edition

In a Sun Java System Directory Server Enterprise Edition (formerly Sun ONE/iPlanet) directory server, smldapsetup creates the ou=Netegrity, *root* sub suffix and PolicySvr4 database.

root

The directory root you specified in the Root DN field on the Data tab of the Policy Server Management Console. This variable has to be either an existing root suffix or sub suffix.

Example: If your root suffix is dc=netegrity,dc=com then running smldapsetup produces the following in the directory server:

- A root suffix, dc=netegrity,dc=com, with the corresponding userRoot database.
- A sub suffix, ou=Netegrity,dc=netegrity,dc=com, with the corresponding PolicySvr4 database.

Example: If you want to place the policy store under ou=apps,dc=netegrity,dc=com, then ou=apps,dc=netegrity,dc=com has to be either a root or sub suffix of the root suffix dc=netegrity,dc=com.

If it is a sub suffix, then running smldapsetup produces the following:

- A root suffix, dc=netegrity,dc=com, with the corresponding userRoot database.
- A sub suffix, ou=apps,dc=netegrity,dc=com, with the corresponding Apps database.
- A sub suffix, ou=Netegrity,ou=apps,dc=netegrity,dc=com, with the corresponding PolicySvr4 database.

Note: For more information about root and sub suffixes, see the Sun Microsystems documentation.

Remove the SiteMinder Policy Store using smldapsetup

To remove the SOA Security Manager policy store data and schema from an LDAP directory, you must first delete the data, then remove the schema.

Important!

- Before removing the SOA Security Manager policy store data, be sure that the Policy Server is pointing to the policy store that contains the data you want to delete. smldapsetup will remove the data from the policy store to which the Policy Server is pointing. Additionally, export the policy store data to an output file and create a backup of the file before removing the data.
- If you are running a SOA Security Manager utility or executable on Windows Server 2008, be sure to open the command–line window with Administrator permissions, even if you are logged into the system as an Administrator. For more information, see the release notes for your SOA Security Manager component.

To remove the policy store using smldapsetup

1. Navigate to the following location:
   - (Windows) *siteminder_home*\bin
   - (UNIX) *siteminder_home*/bin

   siteminder_home

   Specifies the installed location of SOA Security Manager.
2. Remove the policy store data by entering the following command:

   smldapsetup remove -h*LDAP_IP_Address* -p*LDAP_Port*
   -d *LDAP_Admin* -w*LDAP_Admin_Password* -r*LDAP_Base_DN*
   -v

   Example: smldapsetup remove -h192.169.125.32 -p552 -d"cn=directory manager" -wfirewall -rdc=ad,dc=test,dc=com -v

   Note: Removing the policy store data may take a few moments.
3. Generate the LDIF file you will use to delete the schema by entering the following:

   smldapsetup ldgen -e -f*ldif*

   ldif

   Specifies the name of the LDIF file you are generating.

   Example: smldapsetup ldgen -e -fdelete.ldif

4. Remove the SOA Security Manager schema by executing the following command:

   smldapsetup ldmod -f*ldif*

   ldif

   Specifies the name of the LDIF file you generated using smldapsetup ldgen
   -e.

   Example: smldapsetup ldmod -fdelete.ldif

Delete SiteMinder Data in ODBC Databases

SOA Security Manager provides SQL scripts that delete the SOA Security Manager schema from ODBC databases. The following list describes each SQL script:

sm_oracle_ps_delete.sql

Removes the SOA Security Manager 6.x policy store and data from an Oracle database.

sm_oracle_logs_delete.sql

Removes SOA Security Manager 6.x logs stored in an Oracle database if the database was created using sm_oracle_logs.sql.

sm_oracle_ss_delete.sql

Removes the SOA Security Manager 6.x Session Server tables and data from an Oracle database.

sm_mssql_ps_delete.sql

Removes the SOA Security Manager 6.x policy store and data from an SQL database.

sm_mssql_logs_delete.sql

Removes SOA Security Manager 6.x logs stored in an SQL database if the database was created using sm_mssql_logs.sql.

sm_mssql_ss_delete.sql

Removes the SOA Security Manager 6.x Session Server tables and data from a SQL database.

sm_db2_ps_delete.sql

Removes the SOA Security Manager 6.x policy store and data from a DB2 database.

sm_db2_logs_delete.sql

Removes SOA Security Manager 6.x logs stored in a DB2 database if the database was created using sm_db2_logs.sql.

sm_db2_ss_delete.sql

Removes the SOA Security Manager 6.x Session Server tables and data from a DB2 database.

The ODBC database SQL scripts are in the following location:

- (Windows) *siteminder_home*\db

  siteminder_home

  Specifies the Policy Server installation path.

- (UNIX) *siteminder_home*/db

  siteminder_home

  Specifies the Policy Server installation path.

Delete the database objects by running the appropriate SQL script using DB2, SQL Plus for Oracle, or SQL Server Query Analyzer.

Note: For more information about running SQL scripts, see your database documentation.

Check Solaris Patches with smpatchcheck

SOA Security Manager provides a utility, called smpatchcheck, that checks whether or not you have the Solaris patches required for the Policy Server and Web Agent installed on your system. Smpatchcheck can be run on the Solaris versions listed on the SOA Security Manager Platform Matrix. To access this matrix, go to Technical Support and search for the SOA Security Manager Platform Support Matrix.

To use smpatchcheck

1. Navigate to *siteminder_home*/bin

   siteminder_home

   Specifies the Policy Server installation path.

2. Enter smpatchcheck.

   Smpatchcheck looks for each required/recommended patch and then displays its status.

   For example:

```
Testing for Required Patches:
  Testing for Patch: 106327-09 ... NOT Installed
Testing for Recommended Patches:
  Testing for Patch: 106541-08 ... Installed
  Testing for Patch: 106980-00 ... Installed
SiteMinder Patch Check: Failed
```

Smpatchcheck returns one of the following messages:

Failed

One or more of the required patches is not installed.

Partially Failed

One or more of the recommended patches is not installed.

Success

All of the required and recommended patches are installed.

Import Tokens Using the SiteMinder Token Tool

SOA Security Manager supports hardware–based security cards or tokens. Tokens use a dynamically generated password to provide an additional level of security.

All tokens require a data file provided by the vendor. Some tokens, such as ACE, access the token data file remotely on the server of the vendor. Most tokens access the token database locally through the SOA Security Manager Token Tool.

The administrator must import a token data file before assigning tokens to users. This file, which the token vendor provides, contains the identification or serial number for each token you are licensed to install.

To import the token data file

1. Before using this tool, be sure that the Policy Server is running and configured with policy store.
2. From the Windows Start menu, select Programs, SOA Security Manager, SOA Security Manager Token Tool.
3. (Optional) If you want to overwrite existing tokens, select Overwrite duplicate tokens.

4. Specify the type of token in the Pick field and click Import.

   The Open dialog appears.

5. Select the location from which to import the token data file and click Open.

   You can either import this file from your hard drive or directly from an installation disk. The Token Tool displays a list of all the serial numbers installed in the database.

6. Click Exit to close and exit the token utility.

SiteMinder Test Tool

The SOA Security Manager Test Tool is a utility that simulates the interaction between Agents and Policy Servers. It tests the functionality of the Policy Server. During testing, the Test Tool acts as the Agent, making the same requests to the Policy Server as a real Agent. This allows you to test your SOA Security Manager configuration before deploying it.

Note: For further information about this tool, see the *Policy Server Configuration Guide*.

Change the SiteMinder Super User Password Using smreg

To change the super user password

1. Be sure that Policy Server is running and configured with a policy store.
2. Change the SOA Security Manager super user password by completing the following steps:
   a. Copy the smreg utility (smreg.exe) from the Policy Server installation kit to *siteminder_home*\bin.
   b. Execute the following command:

      smreg -su *super_user_password*

      Important! If you are running a SOA Security Manager utility or executable on Windows Server 2008, be sure to open the command–line window with Administrator permissions, even if you are logged into the system as an Administrator. For more information, see the release notes for your SOA Security Manager component.

      Note: Be sure that there is a space between -su and the password.

   c. Delete smreg.

      Deleting smreg prevents someone from changing the super user password.

How to Count the Users in your SOA Security Manager Environment

To comply with the terms of your SOA Security Manager license, you can count the number of users in your SOA Security Manager environment. The following process describes how to configure your directories and count the SOA Security Manager users stored within them:

1. Make the following changes to each user directory you want to count:

   Note: For more information, see the *SOA Security Manager Policy Server Configuration Guide*.

   - Require the use of Administrator Credentials by entering the user name and password of the directory administrator in the Administrative UI.
   - Define a Universal ID and other user attribute mappings using the Administrative UI.

2. For Microsoft Active Directory user stores, map the inetOrgPerson attribute using the Administrative UI.
3. Determine the number of users associated with SOA Security Manager policies.

Map the Active Directory inetOrgPerson Attribute

If any of your SOA Security Manager user stores are on Microsoft Active Directory servers, you need to map the inetOrgPerson in each Active Directory server before counting the SOA Security Manager users in it.

To map the inetOrgPerson attribute

1. Open the Administrative UI.
2. Click Infrastructure, Directory, User Directory, Modify User Directory.

   The search screen appears.
3. Click the Directory you want and click Select.

   The Modify User Directory: *Directory_Name* window opens.
4. In the Attribute Mapping List group box, click Create.

   The Create Attribute Mapping dialog appears.
5. Click Create a new object of type Attribute Mapping, and then click OK.

   The Create Attribute Mapping: dialog appears.
6. Click the Name field and type the following:

   inetOrgPerson
7. (Optional) We recommend clicking the Description Field and enter the following:

   Custom Mapping to Count Active Directory Users (with XPSCounter)
8. In the properties group box, do the following:
   a. Make sure the Alias radio button is selected.
   b. Click the Definition field and type the following:

      User
9. Click OK.

   The Modify User Directory window appears.
10. Click Submit.

    Your changes are saved and the inetOrgPerson attribute is mapped.

Determine the Number of Users Associated with SOA Security Manager Policies

To comply with the SOA Security Manager licensing terms, you can determine how many users in your organization are associated with SOA Security Manager policies.

Note: If you do *not* have write access to the SOA Security Manager binary files (XPS.dll, libXPS.so, libXPS.sl), an Administrator must grant you permission to use the related XPS command line tools using the Administrative UI or the XPSSecurity tool.

To determine the number of users

1. Open a command window on the Policy Server, and then enter the following command:

   XPSCounter

   The tool starts and displays the name of the log file for this session, and the License Parameters menu opens.

2. Enter 1.

   The Parameter menu appears.

3. Enter C.

   The Counter menu appears.

4. Enter I.

5. Enter ? to search for a user directory XID. Only those user directories that are defined in your policy store appear in the list.

6. Enter the number of the directory that contains the users you want to count.

   Note: This tool counts the number of user *objects* in each directory that you specify. It does *not* account for the same user object being listed in multiple directories or multiple user objects for the same user in a directory. You must consider this when interpreting the results provided by this tool.

7. (Optional) Enter a comment to describe the results.

   The users are counted and a confirmation message appears.

8. (Optional) Repeat Steps 5 through 8 to count the users in another directory.

9. Enter V.

   The following information appears for *each* directory counted:

   XID

   Displays the unique identifier for the specified user directory.

   Example:
   CA.SM::UserDirectory@0e-50ea30f0-b5c0-450c-a135-1e317dd25f11

   Name

   Displays the name of the specified user directory (as defined in the Administrative UI).

   : *count*

   Displays the most-recent user count of the specified user directory. You do *not* have to delete any previous values stored in the counter because this value is updated automatically every time the counter is run.

   Example: : 23

   Total

   Displays the total of number of users from all of the user directories you counted. For example, if you counted number of users for two different directories, and each directory has 23 users, the total shown will be 46.

Appendix A: General SOA Security Manager Troubleshooting

This section contains the following topics:

Command Line Troubleshooting of the Policy Server

You can run the Policy Server process interactively in a separate window with debugging options turned on to troubleshoot problems. The following server executable may be run from the command line:

install_dir/siteminder/bin/smpolicysrv

Note: On Windows systems, do *not* run the smpolicysrv commands from a remote desktop or Terminal Services window. The smpolicysrv command depends on inter-process communications that do not work if you run the smpolicysrv process from a remote desktop or Terminal Services window.

Use the following options with the smpolicysrv command:

-t*port_number*

This option is used to modify the TCP port that the server binds to for Agent connections. If this switch is not used, the server defaults to the TCP port specified through the Policy Server Management Console.

-u*port_number*

This option is used to modify the UDP port that the server binds to for RADIUS connections. If this switch is not used, the server defaults to the UDP port specified through the Policy Server Management Console. This switch is applicable to the authentication and accounting servers only.

-stop

This switch stops the server in the most graceful manner possible. All database and network connections are closed properly using this method.

-abort

This switch stops the server immediately, without first closing database and network connections.

-stats

This switch produces current server runtime statistics such as thread pool limit, thread pool message, and the number of connections.

-resetstats

This switch resets the current server runtime statistics without restarting the Policy Server. This switch resets the following counters:

- Max Threads is reset to the Current Threads value.
- Max Depth of the message queue is reset to the Current Depth of the message queue.
- Max Connections is reset to Current Connections.
- Msgs, Waits, Misses, and Exceeded limit are reset to zero.

This switch does not reset the following counters:

- Thread pool limit
- Current Threads
- Current Depth of the message queue
- Current Connections
- Connections Limit

-publish

Publishes information about the Policy Server.

-tadm*port_number*

Sets the TCP port for the administration service.

-uac*port_number*

Sets the UDP port for Radius accounting.

-uadm*port_number*

Sets the UDP port for the administration service.

-uauth*port_number*

Sets the UDP port for Radius authentication.

-ac

Enables the servicing of Agent API requests.

-noac

Disables the servicing of Agent API requests.

-adm

Enables the servicing of administration requests.

-noadm

Disables the servicing of administration requests.

-radius

Enables the servicing of RADIUS requests.

-noradius

Disables the servicing of RADIUS requests.

-onlyadm

Combines the following options into a single option:

- -adm
- -noac
- -noradius

–starttrace

The command:

- starts logging to a trace file and does not affect trace logging to the console.
- issues an error if the Policy Server is not running.

If the Policy Server is already logging trace data, running the –starttrace command causes the Policy server to:

- rename the current trace file with a time stamp appended to the name in the form: *file_name*.YYYYMMDD_HHmmss.*extension*
- create a new trace file with the original name

  For example, if the trace file name in Policy Server Management Console's Profiler tab is C:\temp\smtrace.log, the Policy Server generates a new file and saves the old one as c:\temp\smtrace.20051007_121807.log. The time stamp indicates that the Policy Server created the file on October 7, 2005 at 12:18 pm. If you have not enabled the tracing of a file feature using the Policy Server Management Console's Profiler tab, running this command does not do anything.

-stoptrace

The command:

- stops logging to a file and does not affect trace logging to the console.
- issues an error if the Policy Server is not running.

You can use two smpolicysrv command line options, -dumprequests and -flushrequests, to troubleshoot and recover more quickly from an overfull Policy Server message queue. Only use these options in the following case:

1. Agent requests waiting in the Policy Server message queue time out.
2. One or more Agents resend the timed-out requests, overfilling the message queue.

!Important Do not use -dumprequests and -flushrequests in normal operating conditions.

-dumprequests

Outputs a summary of each request in the Policy Server message queue to the audit log.

-flushrequests

Flushes the entire Policy Server message queue, so that no requests remain.

Start or Stop Debugging Dynamically

You can start or stop the debugging function of certain components at any time *without* restarting the Policy Server.

Note: We recommend using this feature only when directed to do so by CA technical support personnel.

To start or stop debugging dynamically

1. Open a command window on the machine hosting the Policy Server.
2. Type the following command:

   ```
   smcommand -i SiteMinder
   ```

   A list of options appears.
3. Select one of the following debugging options according to the instructions given by your CA support representative.

   CA.EPM::EPMObjects_Debug

   Toggles the debugging state of the SOA Security Manager EPM component.

   CA.XPS::Debug

   Toggles the debugging state of the SOA Security Manager XPS component.

   CA.XPS::XPSEval_Debug

   Toggles the debugging state of the SOA Security Manager XPSEvaluate component.

Start or Stop Tracing Dynamically

You can start or stop the tracing functions of certain components at any time *without* restarting the Policy Server.

To start or stop tracing dynamically

1. Open a command window on the machine hosting the Policy Server.
2. Type the following command:

   smcommand -i SiteMinder

3. A list of options appears. The tracing options display the *opposite* of their current states. For example, if tracing for CA XPS is currently disabled, the option to turn it on appears as follows:

   item_number - CA.XPS::TraceOn

4. Select one of the following options by typing the number of the option you want:

   CA.EPM::EPMObjects_Trace*State*

   Toggles tracing for the EPM Objects components on or off.

   CA.XPS::Trace*State*

   Toggles tracing for the CA XPS components on or off.

   CA.XPS::XPSEval_Trace*State*

   Toggles tracing for the XPS Expression Evaluator components on or off.

   A confirmation message appears. The list of options is re-displayed with your changes.

5. (Optional) Repeat Step 4 to start or stop tracing on another component.
6. Type Q to quit.

   Tracing has been changed dynamically.

Check the Installed JDK Version

If a Policy Server fails to start, check that the correct version of the JDK is installed.

Override the Local Time Setting for the Policy Server Log

The Policy Server log file, *install_dir*/siteminder/log/smps.log, displays time in local timezone as identified by the operating system of the machine on which the Policy Server is installed.

To display the time in this log file in GMT time:

1. Locate the following registry setting:

   HKEY_LOCAL_MACHINE\SOFTWARE\Netegrity\SiteMinder\CurrentVersion\LogConfig\LogLocalTime

2. Change the value from 1 (which is the default) to 0.

Review System Application Logs

If the Policy Server fails to start, review the event log (on Windows) or the syslog (on UNIX) for information about the Policy Server.

- On Windows, view the event log using the Event Viewer. From the Log menu of the Event Viewer, select Application.
- On UNIX, view the syslog using a text editor.

LDAP Referrals Handled by the LDAP SDK Layer

Enhancements have been made to SOA Security Manager's LDAP referral handling to improve performance and redundancy. Previous versions of SOA Security Manager supported automatic LDAP referral handling through the LDAP SDK layer. When an LDAP referral occurred, the LDAP SDK layer handled the execution of the request on the referred server without any interaction with the Policy Server.

SOA Security Manager now includes support for non-automatic (enhanced) LDAP referral handling. With non-automatic referral handling, an LDAP referral is returned to the Policy Server rather than the LDAP SDK layer. The referral contains all of the information necessary to process the referral. The Policy Server can detect whether the LDAP directory specified in the referral is operational, and can terminate a request if the appropriate LDAP directory is not functioning. This feature addresses performance issues that arise when an LDAP referral to an offline system causes a constant increase in request latency. Such an increase can cause SOA Security Manager to become saturated with requests.

Disable LDAP Referrals

If LDAP referrals are causing errors, you can disable all LDAP referrals. Note that disabling LDAP referrals will cause any referrals in your directory to return errors.

To disable LDAP referral handling for Policy Servers on Windows

1. From the Windows Start menu, select Run.
2. Enter regedit in the Run dialog box and click OK.
3. In the Registry Editor, navigate to:

   HKEY_LOCAL_MACHINE\SOFTWARE\Netegrity\SiteMinder\CurrentVersion\Ds\LDAPProvider

4. Modify the following registry value:

   Note: The value is shown in hexadecimal notation.
   "EnableReferrals"=dword:00000001

   Determines if any LDAP referrals are handled by the Policy Server. If set to 0, no LDAP referrals will be accepted by the Policy Server. If set to 1, the Policy Server accepts LDAP referrals.

   LDAP referrals are enabled by default. This setting may only be modified by editing the Registry.

5. Restart the Policy Server.

To disable LDAP referral handling for a Policy Server on Solaris

1. Navigate to:

   install_dir/siteminder/registry

2. Open sm.registry in a text editor.
3. Locate the following text in the file:

   HKEY_LOCAL_MACHINE\SOFTWARE\Netegrity\SiteMinder\CurrentVersion\Ds\LDAPProvider

4. Locate the line that follows the line from step 3 and begins with:

   EnableReferrals

5. Modify the value that comes just before the semicolon as follows.

   Note: The value must be converted to hexadecimal notation.

   Determines if any LDAP referrals are handled by the Policy Server. If set to 0, no LDAP referrals will be accepted by the Policy Server. If set to 1, the Policy Server accepts LDAP referrals.

6. Restart the Policy Server.

Handle LDAP Referrals on Bind Operations

To configure LDAP referrals on bind operations for Policy Servers on Windows

1. From the Windows Start menu, select Run.
2. Enter regedit in the Run dialog box and click OK.
3. In the Registry Editor, navigate to:

   HKEY_LOCAL_MACHINE\SOFTWARE\Netegrity\SiteMinder\
   CurrentVersion\Ds\LDAPProvider

4. Modify the following registry value:

   Note: The value is shown in hexadecimal notation.

   "ChaseReferralsOnBind"=dword:00000001

   Determines if LDAP referrals on a bind operation should be chased. Most LDAP directory servers handle LDAP referrals on binds. If your directory server handles referrals on binds, ChaseReferralsOnBind has no effect. However, if your directory does not, this setting allows the Policy Server to handle bind referrals.

   If your server does handle referrals on bind operations you can change this setting to 0, disabling the Policy Server's ability to handle bind referrals.

   Referral chasing on binds is enabled by default. This setting may only be modified by editing the Registry.

5. Restart the Policy Server.

To configure LDAP referrals on bind operations for a Policy Server on Solaris

1. Navigate to:

   install_dir/siteminder/registry

2. Open sm.registry in a text editor.
3. Locate the following text in the file:

   HKEY_LOCAL_MACHINE\SOFTWARE\Netegrity\SiteMinder\
   CurrentVersion\Ds\LDAPProvider

4. Locate the line that follows the line from step 3 and begins with:

   ChaseReferralsOnBind

5. Modify the value that comes just before the semicolon as follows.

   Note: The value must be converted to hexadecimal notation.

   Determines if LDAP referrals on a bind operation should be chased. Most LDAP directory servers handle LDAP referrals on binds. If your directory server handles referrals on binds, ChaseReferralsOnBind has no effect. However, if your directory does not, this setting allows the Policy Server to handle bind referrals.

   If your server does handle referrals on bind operations you can change this setting to 0, disabling the Policy Server's ability to handle bind referrals.

6. Restart the Policy Server.

Idle Timeouts and Stateful Inspection Devices

Stateful inspection devices, such as firewalls, generally have an idle timeout setting. SOA Security Manager connections from Policy Servers to Agents also have idle timeout settings.

The Policy Server polls the services at a regular interval. The polling interval has a 5-minute cap. This means the idle connections will time out within 5 minutes of the configured value. For example, if the value 55 minutes is specified as the timeout, then the connections will time out between 55 and 60 minutes.

By default, connections created between a Policy Server and a Web Agent expire after 10 minutes of inactivity. If a firewall or other stateful network device exists between a Policy Server and a Web Agent and connections are idle for longer that the device's idle timeout, then the device ends those connections without notifying either the Policy Server or the Web Agent.

When the Web Agent attempts to use a connection that has been terminated by a network device, it receives a network error, resets the connection, and reports a 500 error (20-0003) to the browser. The Agent also closes all other connections in the connection pool that are the same age or older than the one that received the error. On the Policy Server side, however, the sockets for those connections remain established. Depending on the load patterns for the site, connection growth can occur to a point that it interferes with the proper operation of the Policy Server.

To prevent a firewall or other stateful network device from terminating Policy Server – Web Agent connections, you must configure an idle timeout for Policy Server. When the Policy Server closes a TCP/IP connection, it will wait for a specified period of inactivity and then send RESET, closing the server and client ends of the connection cleanly. The period of inactivity is specified in the Idle Timeout (minutes) field on the Settings tab of the Policy Server Management Console.

Note: The Idle Timeout (minutes) field can also be used to limit the amount of time an administrator may be connected.

At installation, the Idle Timeout value is set to 10 minutes. To work with a stateful network device, set the value to a shorter time period than the TCP/IP idle timeout of the device that is located between the web agent and the policy server. It is recommended that the TCP Idle Session Timeout be set to 60% of the idle timeout of any stateful device(s) to ensure that the Policy Server's timeout occurs first.

Error -- Optional Feature Not Implemented

When the Policy Server attempts to use an ODBC data source, but cannot connect to the database, the following error message may appear:

Optional feature not implemented.. Error code -1

Often this message indicates a component mismatch, a misconfiguration or invalid credentials.

Note: CA's configuration of the Intersolv or Merant drivers differs from the default configuration.

If you receive the above message, and you are using an ODBC data source as your policy store, or for logging, see the sections that describe the configuration of ODBC data sources in the *Policy Server Installation Guide*.

Errors or Performance Issues When Logging Administrator Activity

On the Audit tab of the Policy Server Management Console, if you have set Administrator Changes to Policy Store Objects to Log All Events, and you are logging to an ODBC data source, you may encounter one of the following:

- Substantial delays when saving objects in the Administrative UI
- The error message:

  Exception occurred while executing audit log insert.

If either of these conditions occur, log to a text file instead.

Troubleshoot Policy Server Console Help on Netscape Browsers

If Netscape 4.7 (or earlier) is your default browser on Windows, you may have a problem starting the help. If you start the help while no Netscape window is open, you receive an error message.

However, the correct help still appears and works properly. If you start the help while a Netscape window is already open, the Help does not appear.

Both symptoms can be addressed by upgrading Netscape to a more recent version or by making Internet Explorer the default browser.

The problems do not occur for Netscape on UNIX.

Event Handlers List Settings Warning when Opening Policy Server Management Console

Symptom:

When I log into the Policy Server Management Console for the first time after upgrading to SOA Security Manager r12.1, a warning message appears saying that the event handlers list should be set to XPSAudit.

Solution:

For SOA Security Manager r12.1, you can no longer add custom event handler libraries using the Policy Server Management Console. Use the XPSConfig command-line tool to add any custom event-handler libraries.

More information:

Add Event Handler Libraries (see page 84)

SOA Security Manager Policy Server Startup Event Log

Symptom:

My Policy Server crashed while it was starting up. I want to know what SOA Security Manager startup events occurred before the Policy Server crashed.

Solution:

If the Policy Server crashes on startup, a log of the startup events is stored in the following file:

policy_server_home/audit/SmStartupEvents.audit

Appendix B: Scaling Your SOA Security Manager Environment

This section contains the following topics:

Manage Agent Keys in Large Environments

Agent keys are used by Web Agents to encrypt and decrypt cookies passed to a user's browser. The value of an Agent key is initially set by the Policy Server when the Policy Server receives its first request from a Web Agent. The key is then used by the Web Agent to encrypt the contents of cookies it passes to the user's browser. All Web Agents in a SiteMinder deployment must be set to the same value to participate in a single sign-on environment.

Changing the value of Agent keys on a regular basis provides the strongest security. If keys are updated on a regular basis, a key that may have lost its integrity would only be in use for a minimal amount of time.

The challenge of managing Agent keys in large organizations is that all Agent keys must be updated simultaneously. If the Agent keys in a SiteMinder installation are not all identical, communication between multiple Web Agents using single sign-on cookies cannot take place.

To address the challenge of changing all keys simultaneously, the Policy Server provides dynamic Agent key rollover. When the Policy Server is configured to use this feature, the Policy Server generates an Agent key dynamically and distributes the key to associated Web Agents. If the Web Agents are configured to work with multiple Policy Servers, new Agent keys are pushed out to these other Policy Servers in the SiteMinder installation, as well.

Note: Session timeouts must be less than two times the interval between Agent key rollovers. If a session timeout is not less than twice the interval, users may be challenged for credentials before their sessions terminate. For information about session timeouts, see the *Web Agent Configuration Guide*.

How to Determine When to Add Policy Servers

Each Policy Server in the SOA Security Manager environment must have adequate resources to perform its tasks. As user populations grow and resources are added to the environment, the demands placed on each Policy Server within the environment grow. If the demands placed on the Policy Server exceed the capabilities of the server, performance suffers.

By default, the Policy Server provides 256 sockets for port 44443 (authorization, authentication, and accounting) when installed on either Windows NT or UNIX. Each socket can remain open for an unlimited period of time.

Two general factors can help you determine when to add Policy Servers to your environment:

- Determining the number of sockets a Web Agent opens to the Policy Server
- Determining the number of Web Agents a Policy Server supports

Determine the Number of Sockets Opened to a Policy Server

The Policy Server combines the following functions into one service:

- Authentication
- Authorization
- Accounting

By default this Policy Server service listens for Web Agent requests on port 44443.

Note: The Policy Server Management Console lists the default ports of 44442, 44443, and 44441 for Authentication, Authorization, and Accounting, respectively, for 5.x Web Agent mixed-mode compatibility with the Policy Server. A 5.x Web Agent can open sockets across all three ports to communicate with a Policy Server service.

The number of sockets a Web Agent opens to the Policy Server port is dependent on the following:

- The socket configuration settings in the Web Agent's host configuration object
- The web server's mode of operation and configuration
  - single-process/multi-threaded
  - multi-process/single-threaded
  - multi-process/multi-threaded

    Note: Refer to your vendor-specific documentation to determine the mode of operation in which your web server is operating.
- The Web Agent version

Host Configuration Object Socket Parameters

The number of sockets a Web Agent opens to a Policy Server is defined in the Host Configuration Object (HCO). The settings include:

MaxSocketsPerPort

Specifies the total number of sockets that a Web Agent can open to the port on which the Policy Server service is listening.

Default: 20

MinSocketsPerPort

Specifies, on start up, the minimum number of sockets that a Web Agent opens to the port on which the Policy Server service is listening.

Default: 2

NewSocketSetup

Specifies the increment to which new sockets are created. New sockets are created up to the number specified by MaxSocketsPerPort.

Default: 2

Single-Process/Multi-Threaded Web Server

A single-process/multi-threaded web server creates multiple threads to handle client requests. Each thread requires the Web Agent to open a socket to the Policy Server port on which the service is listening.

Note: You configure the maximum number of threads a process creates in the web server's configuration file. Consider the expected load on the web server when configuring this setting. Refer to your vendor-specific documentation for more information.

All three HCO parameters, MaxSocketsPerPort, MinSocketsPerPort, and NewSocketSetup, apply to a Web Agent installed on a single-process/multi-threaded web server.

Example: 5.x Web Agent

Using the default socket settings in the HCO on startup, a 5.x Web Agent opens two sockets to each port, 44441, 44442, and 44443, as specified by MinSocketsPerPort. As needed, the Web Agent opens additional sockets on each port as specified by NewSocketSetup up to the number specified by MaxSocketsPerPort.

The maximum number of sockets a 5.x Web Agent opens to communicate with each Policy Server listed in its HCO is 60:

(**MaxSocketsPerPort**)	x	(**Number of Ports on which Service Listens**)	=	(**Max Sockets**)
20	x	3	=	60

Example: 6.x Web Agent

Using the default socket settings in the HCO on startup, a 6.x Web Agent opens two sockets to port 44443, as specified by MinSocketsPerPort. As needed, the Web Agent opens additional sockets on port 44443 as specified by NewSocketSetup up to the number specified by MaxSocketsPerPort.

The maximum number of sockets a 6.x Web Agent opens to communicate with each Policy Server listed in its HCO is 20.

(**MaxSocketsPerPort**)	x	(**Number of Ports on which Service Listens**)	=	(**Max Sockets**)
20	x	1	=	20

Multi-Process/Single-Threaded Web Server

A multi-process/single-threaded web server creates multiple, concurrent single-threaded processes to handle client requests. Each thread requires the Web Agent to open a socket to the port on which the Policy Server service is listening.

Note: You configure the maximum number of processes the web server creates in the web server's configuration file. Consider the expected load on the web server when configuring this setting. Refer to your vendor-specific documentation for more information.

The MinSocketsPerPort setting in the HCO is the only applicable socket parameter to a Web Agent installed on a multi-process/single-threaded web server because the web server handles each request with a separate process. A Web Agent never has to handle more than one thread per process. As such, the Web Agent only needs to open one socket on start-up and does not need to open further sockets.

Note: CA recommends changing the MaxSocketsPerPort, MinSocketsPerPort, and NewSocketSetUp default settings to 1 to prevent Web Agents from opening unnecessary sockets. More information on modifying the default HCO settings exist in the *Policy Server Configuration Guide*.

Example: 5.x Web Agent

In this example, the Web Server is configured for 150 concurrent processes. Your environment may differ.

Using a MinSocketsPerPort setting of 1 on startup, a 5.x Web Agent opens one socket to each Policy Server port: 44441, 44442, and 44443. The maximum number of sockets a 5.x Web Agent opens to communicate with each Policy Server listed in its HCO is 450.

(**Max Processes**)	x	(**MinSocketsPerPort**)	x	(**Number of Ports on which Service Listens**)	=	(**Max Sockets**)
150	x	1	x	3	=	450

Example 6.x Web Agent

In this example, the Web Server is configured for 150 concurrent processes. Your environment may differ.

Using a MinSocketsPerPort setting of 1 on start-up, a 6.x Web Agent opens one socket to port 44443. The maximum number of sockets a 6.x Web Agent opens to communicate with each Policy Server listed in it HCO is 150:

(**Max Processes**)	x	(**MinSocketsPerPort**)	x	(**Number of Ports on which Service Listens**)	=	(**Max Sockets**)
150	x	1	x	1	=	150

Multi-Process/Multi-Threaded Web Server

A multi-process/multi-threaded web server creates multiple, concurrent multi-threaded processes to handle client requests. Each thread requires the Web Agent to open a socket to the port on which the Policy Server service is listening.

Note: You configure the maximum number of processes the web server creates and the maximum number of child threads for each process in the web server's configuration file. Consider the expected load on the web server when configuring these setting. Refer to your vendor-specific documentation for more information.

All three HCO parameters, MaxSocketsPerPort, MinSocketsPerPort, and NewSocketSetup, apply to a Web Agent installed on a multi-process/multi-threaded web server.

Example: 5.x Web Agent

In this example, the web server is configured for 150 concurrent processes. Your environment may differ.

Using the default socket settings in the HCO on startup, a 5.x Web Agent opens two sockets to each port, 44441, 44442, and 44443, as specified by MinSocketsPerPort. As needed, the Web Agent opens additional sockets on each port as specified by NewSocketSetup up to the number specified by MaxSocketsPerPort. The maximum number of sockets a 5.x Web Agent opens to communicate with each Policy Server listed in its HCO is 9000.

(MaxSocketsPerPort)	x	(Number of Ports on which Service Listens)	x	(Max Processes)	=	(Max Sockets)
20	x	3	x	150	=	9000

Example: 6.x Web Agent

In this example, the web server is configured for 150 concurrent processes. Your environment may differ.

Using the default socket settings in the HCO on startup, a 6.x Web Agent opens two sockets to port 44443, as specified by MinSocketsPerPort. As needed, the Web Agent opens additional sockets as specified by NewSocketSetup up to the number specified by MaxSocketsPerPort. The maximum number of sockets a 6.x Web Agent opens to communicate with each Policy Server listed in its HCO is 3000:

(MaxSocketsPerPort)	x	(Number of Ports on which Service Listens)	x	(Max Processes)	=	(Max Sockets)
20	x	1	x	150	=	3000

Determine the Number of Web Agents a Policy Server Can Support

The load requirements of the Policy Server depend upon how many Web Agents are configured to use the Policy Server, and how many requests each Web Agent supports. The sockets required by the Web Agents that the Policy Server serves must not exceed the maximum number of sockets that Policy Server provides. Socket requests are fulfilled by the Policy Server on a first come, first served basis.

For example, by default, the Policy Server provides a maximum of 256 sockets. By default, a Web Agent uses a maximum of 20 sockets. Therefore, if you do not modify the default values of either the Policy Server or the Web Agent, the Policy Server can support 12 Web Agents:

12(agents) x 20(sockets) = 240(sockets)

This configuration is acceptable because the total sockets required (240) is less than the 256 maximum default threshold. Adding another Web Agent would increase the socket requirement to 260, which the Policy Server could not support.

If you increase the sockets per port parameter for the Web Agent, the Policy Server would support fewer Web Agents, unless you modified the number of sockets the Policy Server provided.

For example, if the Policy Server provided 256 sockets, it would also support the following configuration:

4(agents) x 25(sockets) +
10(agents) x 15(sockets) = 250(sockets)

The total number of sockets used (250) would be less than the maximum number of sockets provided by the Policy Server. The four Web Agents configured to use 25 sockets could protect heavily used sites, where as the ten Web Agents using only 15 sockets could protect sites that experience lower traffic.

If the number of sockets required by the Web Agents exceeds the maximum provided by the Policy Server, you must do one of the following:

- Increase the number sockets provided by the Policy Server, as described in the following section, or
- Add another Policy Server to the configuration

Modify the Number of Connections Provided by Policy Servers

Modify the number of connections the Policy Server supports by changing the Max Connections value on the Settings tab of the Policy Server Management Console for each of the Policy Server.

Generally, there is no reason to decrease the default number of connections (256). You should only increase the value if the Web Agents served by the Policy Server require additional connections.

The maximum number of connections that the Policy Server can support is determined by the following settings:

- On UNIX: the kernel limit on open file descriptors. For more information about how to set this parameter, see the Policy Server installation instructions for UNIX in the Policy Server Installation Guide.
- On Windows: the number of open handles

A proper nofiles(descriptors) setting is required on Solaris Policy Servers to accommodate the sockets being opened by the Web Agents. This configures the ulimit or the number of file descriptors available to each Policy Server service. The ulimit should be set to at least 1024, and may be higher depending on the system needs and the version of Solaris being used. To set nofiles(descriptors) to 1024, for example, run ulimit –n 1024; this command usually is placed in smuser's .profile file so that it runs whenever smuser logs in (su – smuser). The nofiles(descriptors) value determines the maximum number of sockets and files which may be used at the same time by the process, which may include, besides connections to the agent, connections to such objects as the user directory and log files.

The Maximum Connections value may be increased up to just below the ulimit.

Note: There is a theoretical MaxConnections maximum of 32,000. However, CA recommends setting MaxConnections no higher than 10,000, which is the maximum tested value.

Note that some room must be left when setting Maximum Connections. For example, if it is calculated that there could be up to 1024 Web Agent connections, you should use the Settings Tab to set Maximum Connections to a slightly higher value, such as 1256.

Sample Calculations for Sockets and Maximum Connections

The following sections provide examples of how to calculate the needed number of sockets for Agents and the maximum connections for Policy Servers.

IIS and Sun Java Systems Examples

If there is one Web Agent, and thus one trusted host, connecting to the Policy Server, and the MaxSocketsPerPort setting is 20, then there will be a maximum of 20*1 = 20 open sockets. Even if multiple Agent identities are created within that Web Agent, as long as there is only one smhost.conf file, only one set of sockets will be opened to the Policy Server. If there are any Web Agents using the Policy Server for failover, then MinSocketsPerPort for each trusted host must also be added (except for Apache – see below). You should also calculate the total number of sockets needed on the Policy Server if all of the Agents failover completely.

By default, the maximum number of Agent connections is 256. If the number of client connections exceeds the number that the Policy Server can accept, the Policy Server will refuse additional connections. If this occurs, then with debug tracing enabled on the Policy Server, the following message appears in the debug log for the affected service:

"Rejected connection request. Too many server threads (256) or server is shutting down."

In addition, 500 errors appear in the browser making the request.

Apache Examples

In Apache, the number of connections is calculated as one connection per Apache child process, per trusted host. For example, if you have a maximum of 150 child processes (value of MaxClients in httpd.conf) and 1 trusted host, then there will be a maximum of 150 * 1 = 150 connections from that Agent. The maximum number of child processes (Apache agents) / MinSocketsPerPort (other agents) for other Web Agents using the Policy Server for failover must also be added to that total.

If this occurs, then with debug tracing enabled on the Policy Server, the following message appears in the debug log for the affected service:

"Rejected connection request. Too many server threads (256) or server is shutting down."

In addition, 500 errors appear in the browser making the request.

IIS and Sun Java Systems Recommendations

For IIS and Sun Java Systems Web Agents, if all sockets in the connection pool are being used, then this usually indicates that there is a bottleneck in the back end (Policy Server, user directory, and so on). For that reason, and to limit the number of connections to the Policy Server, CA recommends against increasing MaxSocketsPerPort above the default of 20. With the default MaxSocketsPerPort (Web Agent) and Maximum Connections (Policy Server) settings, 10-15 Agent identities may connect to a single Policy Server. You must ensure that the maximum number of sockets that can be opened does not exceed the capacity of the Policy Server to accept those connections.

Apache Recommendations

For Apache Web Agents, the suggested ratio of Web Agents to Policy Servers is of 2-4 Agent identities per Policy Server, depending on the Maximum Connections setting on the Policy Server and the MaxClients setting on each Apache instance, and the number of agent identities. You must ensure that the maximum number of sockets that can be opened does not exceed the capacity of the Policy Server to accept those connections.

How the Policy Server Threading Model Works

The Policy Server worker thread pool consists of two separate thread pools that independently process High Priority and Normal Priority messages. A reactor thread receives all incoming Web Agent requests and depending on the message type, passes them to either the High Priority or Normal Priority queue. High Priority messages include Agent connection requests. Normal Priority messages include user messages, such as authentication and authorization requests.

- **High Priority messages**—the default number of worker threads in the thread pool available for High Priority messages is five and the maximum number is 20. You can change the default value by adding and setting the PriorityThreadCount registry key.
- **Normal Priority messages**—the default number of worker threads in the thread pool available for Normal Priority messages is eight. You can add additional worker threads by modifying the Maximum Threads setting field on the Data tab in the Policy Server Management Console.

Note: For more information, see the Policy Server Management Console Reference in this guide.

The maximum number of worker threads available to Normal Priority messages depends on the operating system on which the Policy Server is installed and on the amount of memory available to the system. See your vendor-specific documentation for more information about thread usage.

Varying the size of the thread pool to improve performance is an iterative process that is largely dependent on the specific environment in use.

How to Configure Policy Servers Under Heavy Loads

If the load requirements of the Policy Server serving your site are large (any number that requires a great deal of CPU usage), you can:

- Turn Off Logging—Unless you are tracking log information for a specific reason, such as troubleshooting or monitoring usage, turn off logging. Logging may have an adverse affect on performance.
- Add Memory—Add more memory to the servers hosting the Policy Server. This will enable you to set a higher number of maximum sockets for the Policy Server.
- Add Additional Policy Servers—Adding additional Web servers for more Policy Servers enables the site to support more users and resources. Each Policy Server can be configured to use the same policy store. The Web Agents in the site can then be configured to use different Policy Servers, which spreads the load requirements among the multiple Policy Servers and improves performance.

Netscape LDAP Directory Tuning

When using a Netscape LDAP directory for the policy store or user directory, follow these guidelines:

- Configure a primary and secondary directory, and configure the Policy Server to failover to the secondary directory. Configuring a backup directory ensures that if the primary directory fails, the secondary directory can be used in its place.
- Modify the LDAP directory timeout value to a number that is less than the Web Agent request timeout. For example, if the Web Agent request timeout is 60 seconds, set the LDAP timeout to 50 seconds. Setting a smaller timeout for the LDAP directory will avoid waiting for the LDAP directory to respond.
- Increase the size limit in entries. Specifies the maximum number of entries to return from a search operation.
- Increase the look thru limit entries. Specifies the maximum number of entries that are checked in response to a candidate search request.
- Increase max entries in cache. Specifies the number of entries the directory server will maintain in cache. Increasing this number uses more memory but can substantially improve search performance.
- Increase the DB cache size in bytes. Specifies the size in bytes of the in-memory cache. Increasing this number uses more memory but can substantially improve server performance, especially during modifications or when the indexes are being built. However, do not increase this number beyond the available resources for your machine.

For more information, see your LDAP documentation.

Replication Considerations

Replicating databases is a process of creating and managing duplicate versions of a directory or database. Replicating databases and directories enables you to make changes to one directory, such as importing a policy store, and mirror the changes in the replicated database or directory.

Replicate databases and directories to:

- Improve performance in geographically distributed environments. For example, if there is a Policy Server in London, England and a Policy Server in Boston, Massachusetts, and the policy store is in Boston, you could replicate the policy store database and provide the London office with the replica. By replicating the policy store, both Policy Servers would be accessing the same data. However, the Policy Server in London could now access the replicated policy data faster, while creating less network traffic.
- Safeguard data. Replicating databases enables you to configure failover. If one database is taken off-line to be backed up or fails to respond to a request, the replicated database can be used in its place.

UNIX Server Tuning

To improve the performance of a UNIX server, follow these guidelines:

- Minimize the paging of memory to disk. Server performance often suffers if paged memory is used.
- Decrease size of buffers servicing requests. HTTP traffic found at Web sites is typically smaller than default buffer sizes.

nofiles Parameter

The nofiles parameter defines the total number of sockets and file descriptors that the shell and its descendants have been allocated. By default, this parameter is set to 64 on UNIX servers. Increasing this value increases the number of sockets you can use. For more information, see the *Web Agent Installation Guide*.

File Descriptors

The maximum number of file descriptors available to a Policy Server must match or exceed the sum of the maximum numbers of connections configured for each Web Agent talking to this Policy Server. However, in the case of Apache Web Agents, each child process may potentially use up to the maximal number of connections as well.

Therefore, it is recommended that the maximum number of file descriptors is set to unlimited on the Policy Server side. The maximum number of file descriptors can be configured by running the ulimit -n <value> command, where <value> is a positive integer or the word "unlimited".

Timezone Considerations

Policy and rule time restrictions are based on the local time defined on the server hosting the Policy Server. For example, if the Policy Server resides in Portland, Oregon, and a rule is configured to fire between 9 am and 5 pm, the rule would actually fire in Boston, Massachusetts between noon and 8 pm.

However, to configure Agent key rollovers, you must specify the time using Greenwich Mean Time (GMT). Using GMT ensures that all the keys rollover at the same time, regardless of the geographical location.

Note: For more information, see the *Web Agent Configuration Guide.*

Appendix C: Log File Descriptions

This section contains the following topics:

smaccesslog4

The following table describes the logging that appears in smaccesslog4, which logs authentication and authorization activity.

Field Name	Description	Null?	Field Type
sm_timestamp	This marks the time at which the entry was made to the database.	NOT NULL	DATE
sm_categoryid	The identifier for the type of logging. It may be one of the following ■ 1 = Auth ■ 2 = Az ■ 3 = Admin ■ 4 = Affiliate	NOT NULL	NUMBER(38)
sm_eventid	This marks the particular event that caused the logging to occur. It may be one of the following: ■ 1 = AuthAccept ■ 2 = AuthReject ■ 3 = AuthAttempt ■ 4 = AuthChallenge ■ 5 = AzAccept ■ 6 = AzReject ■ 7 = AdminLogin ■ 8 = AdminLogout ■ 9 = AdminReject ■ 10 = AuthLogout ■ 11 = ValidateAccept ■ 12 = ValidateReject	NOT NULL	NUMBER(38)

Field Name	Description	Null?	Field Type
	■ 13 = Visit		
sm_hostname	The machine on which the server is running.		VARCHAR2(255)
sm_sessionid	This is the session identifier for this user's activity.		VARCHAR2(255)
sm_username	The username for the user currently logged in with this session.		VARCHAR2(512)
sm_agentname	The name associated with the agent that is being used in conjunction with the policy server.		VARCHAR2(255)
sm_realmname	This is the current realm in which the resource that the user wants resides.		VARCHAR2(255)
sm_realmoid	This is the unique identifier for the realm.		VARCHAR2(64)
sm_clientip	This is the IP address for the client machine that is trying to utilize a protected resource.		VARCHAR2(255)
sm_domainoid	This is the unique identifier for the domain in which the realm and resource the user is accessing exist.		VARCHAR2(64)
sm_authdirname	This not used by the reports generator.		VARCHAR2(255)
sm_authdirserver	This not used by the reports generator.		VARCHAR2(512)
sm_authdir-namespace	This not used by the reports generator.		VARCHAR2(255)

Field Name	Description	Null?	Field Type
sm_resource	This is the resource, for example a web page, that the user is requesting.		VARCHAR2(512)
sm_action	This is the HTTP action. Get, Post, and Put.		VARCHAR2(255)
sm_status	This is some descriptive text about the action.		VARCHAR2(1024)
sm_reason	These are the motivations for logging. 32000 and above are user defined. They are as follows: ■ 0 = None ■ 1 = PwMustChange ■ 2 = InvalidSession ■ 3 = RevokedSession ■ 4 = ExpiredSession ■ 5 = AuthLevelTooLow ■ 6 = UnknownUser ■ 7 = UserDisabled ■ 8 = InvalidSessionId ■ 9 = InvalidSessionIp ■ 10 = CertificateRevoked ■ 11 = CRLOutOfDate ■ 12 = CertRevokedKeyCompromised ■ 13 = CertRevokedAffiliationChange ■ 14 = CertOnHold ■ 15 = TokenCardChallenge ■ 16 = ImpersonatedUserNotInDi ■ 17 = Anonymous ■ 18 = PwWillExpire ■ 19 = PwExpired ■ 20 = ImmedPWChangeRequired ■ 21 = PWChangeFailed ■ 22 = BadPWChange	NOT NULL	NUMBER(38)

Field Name	Description	Null?	Field Type
	■ 23 = PWChangeAccepted ■ 24 = ExcessiveFailedLoginAttempts ■ 25 = AccountInactivity ■ 26 = NoRedirectConfigured ■ 27 = ErrorMessageIsRedirect		

Field Name	Description	Null?	Field Type
sm_reason (continued)	■ 28 = Tokencode ■ 29 = New_PIN_Select ■ 30 = New_PIN_Sys_Tokencode ■ 31 = New_User_PIN_Tokencode ■ 32 = New_PIN_Accepted ■ 33 = Guest ■ 34 = PWSelfChange ■ 35 = ServerException ■ 36 = UnknownScheme ■ 37 = UnsupportedScheme ■ 38 = Misconfigured ■ 39 = BufferOverflow		
sm_transactionid	This is not used by the reports generator.		VARCHAR2(255)
sm_domainname	This is the name of the domain in which the realm and resource the user is accessing exist.	NULL	VARCHAR2(255)
sm_impersonator-name	This is the login name of the administrator that is acting as the impersonator in an impersonated session.	NULL	VARCHAR2(512)
sm_impersonator-dirname	This is the name of the directory object that contains the impersonator.	NULL	VARCHAR2(255)

smobjlog4

The following table describes the logging that appears in smobjlog4, which logs administrative events.

Field Name	Description	Null?	Type
sm_timestamp	This marks the time at which the entry was made to the database.	NOT NULL	DATE
sm_categoryid	The identifier for the type of logging. It may be one of the following: ■ 1 = Auth ■ 2 = Agent ■ 3 = AgentGroup ■ 4 = Domain ■ 5 = Policy ■ 6 = PolicyLink ■ 7 = Realm ■ 8 = Response ■ 9 = ResponseAttr ■ 10 = ResponseGroup ■ 11 = Root ■ 12 = Rule ■ 13 = RuleGroup ■ 14 = Scheme ■ 15 = UserDirectory ■ 16 = UserPolicy ■ 17 = Vendor ■ 18 = VendorAttr ■ 19 = Admin ■ 20 = AuthAzMap ■ 21 = CertMap ■ 22 = ODBCQuery ■ 23 = SelfReg ■ 24 = PasswordPolicy	NOT NULL	NUMBER(38)

Field Name	Description	Null?	Type
	■ 25 = KeyManagement ■ 26 = AgentKey ■ 27 = ManagementCommand ■ 28 = RootConfig		
sm_categoryid (continued)	■ 29 = Variable ■ 30 = VariableType ■ 31 = ActiveExpr ■ 32 = PropertyCollection ■ 33 = PropertySection ■ 34 = Property ■ 35 = TaggedString ■ 36 = TrustedHost ■ 37 = SharedSecretPolicy	NOT NULL	NUMBER(38)

Field Name	Description	Null?	Type
sm_eventid	This marks the particular event that caused the logging to occur. It may be one of the following: ■ 1 = Create ■ 2 = Update ■ 3 = UpdateField ■ 4 = Delete ■ 5 = Login ■ 6 = Logout ■ 7 = LoginReject ■ 8 = FlushAll ■ 9 = FlushUser ■ 10 = FlushUsers ■ 11 = FlushRealms ■ 12 = ChangeDynamicKeys ■ 13 = ChangePersistentKey ■ 14 = ChangeDisabledUserState ■ 15 = ChangeUserPassword ■ 16 = FailedLoginAttemptsCount ■ 17 = ChangeSessionKey	NOT NULL	NUMBER(38)
sm_hostname	This is not used by the reports generator for administrative logging.		VARCHAR2(255)
sm_sessionid	This is the session identifier for this user's activity.		VARCHAR2(255)
sm_username	The username for this administrator.		VARCHAR2(512)
sm_objname	This is the object in the administrator that is being accessed.		VARCHAR2(512)
sm_objoid	This is the unique identifier for the object being accessed in the administrator. This is not used by the reports generator.		VARCHAR2(64)
sm_fielddesc	This is some descriptive text for the action being taken by the administrator.		VARCHAR2(1024)

Field Name	Description	Null?	Type
sm_domainoid	This is the unique identifier for the domain that has an object being modified in the administrator. This is not used by the reports generator.		VARCHAR2(64)
sm_status	This is some descriptive text about the action. This is not used by the reports generator.		VARCHAR2(1024)

Appendix D: Publishing Diagnostic Information

This section contains the following topics:

Diagnostic Information Overview

The Policy Server includes a command line tool for publishing diagnostic information about a SOA Security Manager deployment. Using the tool, you can publish information about Policy Servers, policy stores, user directories, Agents, and custom modules.

Use the Command Line Interface

The Policy Server includes a command that can be executed at the command line to publish information. The command is located in the *installation_dir*/siteminder/bin directory.

To publish information, use smpolicysrv command, followed by the -publish switch. For example:

smpolicysrv -publish <*optional file_name*>

Note: On Windows systems, do *not* run the smpolicysrv command from a remote desktop or Terminal Services window. The smpolicysrv command depends on inter-process communications that do not work if you run the smpolicysrv process from a remote desktop or Terminal Services window.

Important! If you are running a SOA Security Manager utility or executable on Windows Server 2008, be sure to open the command–line window with Administrator permissions, even if you are logged into the system as an Administrator. For more information, see the release notes for your SOA Security Manager component.

Specify a Location for Published Information

Published information is written in XML format to a specified file. The specified file name is saved in the following registry key:

HKEY_LOCAL_MACHINE\SOFTWARE\Netegrity\SiteMinder\CurrentVersion\Publish

This key is located in the system registry on Windows systems, and in the *install_dir*/registry/sm.registry file on UNIX. The default value of the registry setting is:

policy_server_install_dir>\log\smpublish.xml

If you execute **smpolicysrv -publish** from a command line, and you do not supply a path and file name, the value of the registry setting determines the location of the published XML file.

Note: On Windows systems, do *not* run the smpolicysrv command from a remote desktop or Terminal Services window. The smpolicysrv command depends on inter-process communications that do not work if you run the smpolicysrv process from a remote desktop or Terminal Services window.

Important! If you are running a SOA Security Manager utility or executable on Windows Server 2008, be sure to open the command–line window with Administrator permissions, even if you are logged into the system as an Administrator. For more information, see the release notes for your SOA Security Manager component.

To specify a location and generate output in an XML file

1. From a command line, navigate to:

   installation_dir/siteminder/bin

2. Type the following command:

   smpolicysrv -publish *path_and_file_name*

   For example, on Windows:

   smpolicysrv -publish c:\netegrity\siteminder\published-data.txt

   For example, on UNIX:

   smpolicysrv -publish /netegrity/siteminder/published-data.txt

   The Policy Server generates XML output in the specified location and updates the value of the HKEY_LOCAL_MACHINE\SOFTWARE\Netegrity\SiteMinder\CurrentVersion\Publish registry key to match the location you specified.

Published Data

This section outlines the information that may be published for the following:

- Policy Servers
- Policy/Key Stores
- User Directories
- Agents
- Custom Modules

Published Policy Server Information

The Policy Server information includes the server name, platform, configuration, and server versions information. In addition, any registry settings used to configure the Policy Server may be published.

Published Policy Server information includes:

- Basic Information:
  - Name
  - Versioning
  - Platform
  - Thread Pool statistics
- Server Configuration (those values set in the Policy Server Management Console):
  - Key Management
  - Journaling
  - Caching
  - Event Handlers
  - Trace Logging
  - Audit Logging

Published Policy Server XML Output Format

The following example shows how Policy Server information is formatted:

```
<SERVER>
   < SHORT_NAME>  smpolicysrv </SHORT_NAME>
   <FULL_NAME>   SiteMinder Policy Server </FULL_NAME>
   <PRODUCT_NAME> SiteMinder(tm) </PRODUCT_NAME>
   <VERSION>  6.0 </VERSION>
   <UPDATE>  01 </UPDATE>
   <LABEL>   283 </LABEL>
   <PLATFORM> Windows (Build 3790)
  </PLATFORM>
   <SERVER_PORT>    44442 </SERVER_PORT>
   <RADIUS_PORT> 0 </RADIUS_PORT>
   <THREADPOOL>
      <MSG_TOTALS>   15011 </MSG_TOTALS>
      <MSG_DEPTH>    2 </MSG_DEPTH>
      <THREADS_LIMIT> 8 </THREADS_LIMIT>
      <THREADS_MAX>  3 </THREADS_MAX>
      <THREADS_CURRENT> 3 </THREADS_CURRENT>
   </THREADPOOL>
   <CRYPTO> 128 </CRYPTO>
   <KEYMGT>
      <GENERATION> enabled </GENERATION>
      <UPDATE>    disabled </UPDATE>
   </KEYMGT>
   <JOURNAL>
      <REFRESH> 60 </REFRESH>
      <FLUSH>  60 </FLUSH>
   </JOURNAL>
   <PSCACHE>
      <STATE>        enabled </STATE>
      <PRELOAD>      enabled </PRELOAD>
   </PSCACHE>
   <USERAZCACHE>
      <STATE>   enabled </STATE>
      <MAX>     10 </MAX>
      <LIFETIME> 3600 </LIFETIME>
   </USERAZCACHE>
</SERVER>
```

The following table defines the Policy Server information that is published.

TAG	Contains	Description	Parent Tag	Required
SERVER	Elements	Denotes server information	SMPUBLSIH	Required
SHORT_NAME	Text	Abbreviated name of the server	SERVER	Required
FULL_NAME	Text	Full name of the running server	SERVER	Required
PRODUCT_NAME	Text	Name of the Product	SERVER	Required
VERSION	Text	Version of the server	SERVER	Required
UPDATE	Text	Service Pack version	SERVER	Required
LABEL	Text	Build or CR number	SERVER	Required
PLATFORM	Text	OS platform identifying data	SERVER	Required
THREAD_POOL	Elements	Information about the thread pool	SERVER	Required
MSG_TOTAL	Int	Number of thread pool messages handled	THREAD_POOL	Required
MSG_DEPTH	Int	Max number of messages in thread pool	THREAD_POOL	Required
THREADS_LIMIT	Int	Ceiling on number of threads	THREAD_POOL	Required
THREADS_MAX	Int	Max number of threads used	THREAD_POOL	Required
THREADS_CURRENT	Int	Current number of threads used	THREAD_POOL	Required
PSCACHE	Elements	Denotes information on policy server cache settings	SERVER	Required
PRELOAD	Text	Indicates if enabled/disabled	PSCACHE	Required
JOURNAL	Empty,	Indicates the journaling settings, refresh rate and time values to flush	SERVER	Required
FLUSH	Int	Value at which to flush	JOURNAL	Required
REFRESH	Int	Refresh rate	JOURNAL	Required

TAG	Contains	Description	Parent Tag	Required
KEYMGT	Empty,	Indicates Key Management settings (Generation: if automatic key generations is enable) (Update: if automatic updating of agent keys is done.)	SERVER	Required
GENERATION	Enabled or disabled	Enabled or disabled indicates the automatic key generation is enabled	KEYMGT	Required
UPDATE	Enabled or disabled	Indicates that automatic update of agent keys is enabled	KEYMGT	Required
USERAZCACHE	Elements	Information about the User AZ cache settings	SERVER	Required
MAX	Int	Maximum number of cache entries	USERAZCACHE	Required
LIFETIME	int	Life time of cached object	USERAZCACHE	Required
PORT	Int	Port Number	SERVER	Required
RADIUS_PORT	Int	Radius Port number (if enabled)	SERVER	Required
STATE	text, enabled or disabled	Indicates if something is enabled or disabled	Many tags	Various

Published Object Store Information

The Policy Server can store information in the following types of object stores:

- policy store
- key store
- audit log store
- session server store

Published object store information includes the type of object store is being used, back-end database information, configuration, and connection information.

Published Policy/Key Store XML Output Format

The following example shows how policy/key store information is formatted:

```
<POLICY_STORE>

  <DATASTORE>
    <NAME> Policy Store   </NAME>
    <USE_DEFAULT_STORE>  false </USE_DEFAULT_STORE>
    <LOADED> true </LOADED>
    <SERVER_LIST>
      <CONNECTION_INFO>
        <TYPE> ODBC</TYPE>
        <SERVICE_NAME> sm </SERVICE_NAME>
        <USER_NAME> sa </USER_NAME>
        <DBMS_NAME> Microsoft SQL Server </DBMS_NAME>
        <DRIVER_NAME> Microsoft SQL Server </DRIVER_NAME>
        <DBMS_VERSION> 08.00.0760 </DBMS_VERSION>
      </CONNECTION_INFO>
   </SERVER_LIST>
  </DATASTORE>

  <DATASTORE>
    <NAME>  Key Store </NAME>
    <USE_DEFAULT_STORE> true </USE_DEFAULT_STORE>
    <LOADED> true </LOADED>
  </DATASTORE>

  <DATASTORE>
    <NAME> Audit Log Store </NAME>
    <USE_DEFAULT_STORE> true </USE_DEFAULT_STORE>
    <LOADED> true </LOADED>
  </DATASTORE>

  <DATASTORE>
    <NAME> Session Server Store </NAME>
    <USE_DEFAULT_STORE>  false </USE_DEFAULT_STORE>
    <LOADED> false </LOADED>
  </DATASTORE>

</POLICY_STORE>
```

The following table defines the policy/key store information that is published.

TAG	Contains	Description	Parent Tag	Required
POLICY_STORE	Elements	Denotes all the Data Store information	SMPUBLISH	Required
DATASTORE	Elements	Denotes information about a particular Object Store. ■ Type is the type of data store. ■ Use defaults indicates if default objectstore is being used for that type. ■ Loaded indicates if that type is loaded.	POLICY_STORE	Required
NAME	Text	Name/Type of Data Store	DATASTORE	Required
USE_DEFAULT_STORE	Text	Indicates (True/false) if storage is within the default 'Policy Store'	DATASTORE	Required
LOADED	Text	Indicates (true/false) if the data store has been loaded and initialized	DATASTORE	Required
TYPE	Text	Type of policy store, that is, ODBC/LDAP	DATASTORE	Required
SERVER_ LIST	Elements	List of fail over servers used for data store (ODBC)	DATASTORE	Optional
CONNECTION_INFO	Elements	Type of Server Connection	SERVER_LIST	Optional
DRIVER_NAME	Text	Name of the ODBC driver name	CONNECTION	Optional
IP	Text	IP address	DATASTORE	Optional
LDAP_VERSION	Text	LDAP version	DATASTORE	Optional
API_VERSION	Text	LDAP API version	DATASTORE	Optional
PROTOCOL_VERSION	Text	LDAP protocol version	DATASTORE	Optional
API_VENDOR	Text	API Vendor	DATASTORE	Optional

TAG	Contains	Description	Parent Tag	Required
VENDOR_VERSION	Text	Vendor version	DATASTORE	Optional

Published User Directory Information

For each user directory that has been loaded and accessed by the Policy Server, the following information can be published:

- Configuration
- Connection
- Versioning

Published User Directory XML Output Format

The user directory information will be formatted like the following example:

Note: The published information will vary depending on the type of user directory.

```
< USER_DIRECTORIES>

  <DIRECTORY_STORE >
    <TYPE> ODBC </TYPE>
    <NAME> sql5.5sample </NAME>
    <MAX_CONNECTIONS> 15 </MAX_CONNECTIONS>
      <SERVER_LIST>
        <CONNECTION_INFO>
          <TYPE> ODBC</TYPE>
          <SERVICE_NAME> sql5.5sample </SERVICE_NAME>
          <USER_NAME> sa </USER_NAME>
          <DBMS_NAME> Microsoft SQL Server </DBMS_NAME>
          <DRIVER_NAME> Microsoft SQL Server </DRIVER_NAME>
          <DBMS_VERSION> 08.00.0760 </DBMS_VERSION>
        </CONNECTION_INFO>
      </SERVER_LIST>
  </DIRECTORY_STORE >
  <DIRECTORY_STORE>
    <TYPE> LDAP:  </TYPE>
    <NAME> LDAPsample </NAME>
    <FAILOVER_LIST> 172.26.14.101:12002 </FAILOVER_LIST>
    <VENDOR_NAME> Netscape-Directory/4.12 B00.193.0237
    </VENDOR_NAME>
    <SECURE_CONNECTION> disabled </SECURE_CONNECTION>
    <CREDENTIALS>      required </CREDENTIALS>
    <CONNECTION_INFO>
      <PORT_NUMBER> 12002 </PORT_NUMBER>
      <DIR_CONNECTION> 172.26.14.101:12002 </DIR_CONNECTION>
      <USER_CONNECTION> 172.26.14.101:12002 </USER_CONNECTION>
    </CONNECTION_INFO>
    <LDAP_VERSION>    1 </LDAP_VERSION>
    <API_VERSION>     2005 </API_VERSION>
    <PROTOCOL_VERSION> 3 </PROTOCOL_VERSION>
    <API_VENDOR>      mozilla.org </API_VENDOR>
    <VENDOR_VERSION>  500 </VENDOR_VERSION>
  </DIRECTORY_STORE>
</USER_DIRECTORIES>
```

The following table defines the user directory information that will be published.

TAG	Contains	Description	Parent Tag	Required
USER_DIRECTORIES	Elements	Denotes a collection of loaded directory stores	SMPUBLISH	Required
DIRECTORY_STORE	Elements	Denotes a particular directory store.	USER_DIRECTORIES	Optional
TYPE	Text	Type of Directory Store	DIRECTORY_STORE	Required
NAME	Text	Defined name of the Directory store	DIRECTORY_STORE	Required
MAX_CONNECTIONS	Int	Maximum number of connections defined	DIRECTORY_STORE	Optional
SERVER_LIST	Elements	Collection of servers (ODBC)	DIRECTORY_STORE	Optional
FAILOVER_LIST	Text			

Published Agent Information

Published Agent information lists the agents currently connected to policy server, including their IP address and name.

Published Agent XML Output Format

The Agent information will be formatted as in the following example:

```
< AGENT_CONNECTION_MANAGER>
  <CURRENT>     4 </CURRENT>
  <MAX>         4 </MAX>
  <DROPPED>     0 </DROPPED>
  <IDLE_TIMEOUT> 0 </IDLE_TIMEOUT>
  <ACCEPT_TIMEOUT> 10 </ACCEPT_TIMEOUT>

  <AGENT_CONNECTION>
    <NAME> agent1 </NAME>
    <IP>   172.26.6.43 </IP>
    <API_VERSION> 1024 </API_VERSION>
    <LAST_MESSAGE_TIME> 0x05705E0C </LAST_MESSAGE_TIME>
  </AGENT_CONNECTION>
  <AGENT_CONNECTION>
    <NAME> agent1 </NAME>
    <IP>   172.26.6.43 </IP>
    <API_VERSION> 1024 </API_VERSION>
    <LAST_MESSAGE_TIME> 0x05705E0C </LAST_MESSAGE_TIME>
  </AGENT_CONNECTION>
  <AGENT_CONNECTION>
    <NAME> agent1 </NAME>
    <IP>   172.26.6.43 </IP>
    <API_VERSION> 1024 </API_VERSION>
    <LAST_MESSAGE_TIME> 0x05705E0C </LAST_MESSAGE_TIME>
  </AGENT_CONNECTION>
  <AGENT_CONNECTION>
    <NAME> 940c0728-d405-489c-9a0e-b2f831f78c56 </NAME>
    <IP>   172.26.6.43 </IP>
    <API_VERSION> 1482282902 </API_VERSION>
    <LAST_MESSAGE_TIME> 0x05705E0C </LAST_MESSAGE_TIME>
  </AGENT_CONNECTION>
</AGENT_CONNECTION_MANAGER>
```

Note: The Agent connections information is contained within the <AGENT_CONNECTION_MANAGER>tag.

The following table defines the Agent information that will be published.

TAG	Contains	Description	Parent Tag	Required
AGENT_CONNECTION-_MANAGER	Elements	Defines data for the agent connections	SM_PUBLISH	Required
CURRENT	Int	Number of current connections	AGENT_CONNECTION-_MANAGER	Required
MAX	Int	Maximum number of connections	AGENT_CONNECTION-_MANAGER	Required
DROPPED	Int	Maximum number of connections	AGENT_CONNECTION-_MANAGER	Required
IDLE_TIMEOUT	Int	Time after which an idle connection is timed out.	AGENT_CONNECTION-_MANAGER	Required
ACCEPT_TIMEOUT	Int	Time after which an attempted connection is timed out	AGENT_CONNECTION-_MANAGER	Required
AGENT_CONNECTION	Elements	Denotes data about an active agent connection	AGENT_CONNECTION-_MANAGER	Optional
IP	Text	IP address of agent	AGENT_CONNECTION	Required
API_VERSION	Int	Version of the API used by the connected agent	AGENT_CONNECTION	Required
NAME	Text	Name of the agent	AGENT_CONNECTION	Required
LAST_MESSAGE_TIME	Int	Time since last message from agent	AGENT_CONNECTION	Required
AGENT_CONNECTION-_MANAGER	Elements	Defines data for the agent connections	SM_PUBLISH	Required

Published Custom Modules Information

Custom modules are DLLs or libraries that can be create to extend functionality of an existing Policy Server. These come in several types: event handlers, authentication modules, authorization modules, directory modules, tunneling modules, and DMS modules. Authentication modules are generally referred to as custom Authentication schemes and the Authorization modules are known as Active Policies. Tunnel modules are used to define a secure communication with an Agent. Event modules provide a mechanism for receiving event notifications. Information about which custom modules have been loaded by a Policy Server can be published. Each type of custom module is defined in its own XML Tag

Published Custom Modules XML Output Format

The following table defines the custom module information that will be published.

TAG	Contains	Description	Parent Tag	Required
EVENT_LIB	Elements	Indicates data about Event API custom Modules	SMPUBLISH	Optional
AUTH_LIB	Elements	Indicates data about Authentication API custom Modules	SMPUBLISH	Optional
DS_LIB	Elements	Indicates data about Directory API custom Modules	SMPUBLISH	Optional
DMS_LIB	Elements	Indicates data about DMS workflow API custom Modules	SMPUBLISH	Optional
TUNNEL_LIB	Elements	Indicates data about Tunnel API custom Modules	SMPUBLISH	Optional
AZ_LIB	Elements	Indicates data about Authorization API custom Modules	SMPUBLISH	Optional

There following are common to every type of custom module:

TAG	Contains	Description	Parent Tag	Required
FULL_NAME	Text	Full name of library or DLL include path.		Required
CUSTOM_INFO	Text	Information provided by the custom library.		Optional
LIB_NAME	Text	Library or DLL name		Optional

VERSION	Int	Version of the API supported	Optional

The following are specific to certain types of modules:

TAG	Contains	Description	API Type	Required
ACTIVE_FUNCTION	Text	Name of function loaded to be callable as an active expression	Authorization API	Optional

Appendix E: Error Messages

This section contains the following topics:

Authentication

Message	Function	Description
1) Sending a new PIN to ACE/Server for validation.	SmLoginLogoutMessage::Send-NewPinForValidation1	Information only. If you are experiencing problems with your ACE/SecurID authentication scheme(s), please provide this message to Technical Support.
2) Sending a new PIN to ACE/Server for validation %1s	SmLoginLogoutMessage::Send-NewPinForValidation2	Information only. If you are experiencing problems with your ACE/SecurID authentication scheme(s), please provide this message to Technical Support.
Ace Server --- couldn't get PIN policies	SmLoginLogoutMessage::Sm-AuthAceGetPinPoliciesFail	The message is given in the SecurID authentication scheme when ACE server backend PIN policy cannot be retrieved using SecurID/ACE API call.
Ace Server --- couldn't get PIN params	SmLoginLogoutMessage::Sm-AceHtmlPinParamFail	The message is given in the SecurID authentication scheme when ACE PIN parameters cannot be retrieved using SecurID/ACE API call.
ACE State not ACM_NEXT_CODE_ REQUIRED. State = %1i	SmLoginLogoutMessage::Ace-NextTokenCodeState	The message in given in HTML SecurID authentication scheme when token code value is expired and the user is required to wait for the next code before attempting a

Message	Function	Description
		new authentication.
Ace/Server - new PIN is required, AceAPI returned ambiguous value for isselectable PIN attribute. Cannot complete Ace authentication.	SmLoginLogoutMessage::Sm-AceHtmlPinRequired	Information only. If you are experiencing problems with your ACE/SecurID authentication scheme(s), please provide this message to Technical Support.
Ace/Server - new PIN is required, can choose or accept system PIN , returning Sm_AuthApi_Reject, Sm_Api_Reason_New_PIN_ Select.	SmLoginLogoutMessage::Sm-AceHtmlChooseNewOrSysPin	The message is given in the SecurID authentication scheme when ACE user is configured to use either self-chosen or system-generated PIN.
Ace/Server - new PIN is required, Must accept system PIN, returned Sm_Api_Reason_New_PIN_ Sys_Tokencode	SmLoginLogoutMessage::Sm-AceHtmlCannotChoosePin	The message is given in the SecurID authentication scheme when ACE user is configured to always use system-generated PIN.
Ace/Server - new PIN is required, must choose PIN, returning Sm_AuthApi_Reject, Sm_Api_Reason_New_User_-PIN_Tokencode.	SmLoginLogoutMessage::Sm-AceHtmlChooseNewPin	The message is given in the SecurID authentication scheme when ACE user is configured to always use self-chosen PIN.
ACE/Server: ACM_NEW_PIN_ACCEPTED failed with aceRetVal %1i	SmLoginLogoutMessage::Ace-ServerNewPinAcceptedFailed	Used in HTML SecurID authentication scheme. Given when the new user PIN was not accepted by ACE server.
ACE/Server: ACM_NEW_PIN_ACCEPTED failed with aceRetVal %1i, ACE status %2i	SmLoginLogoutMessage::Not-WinAceServerNewPinAccepted-Failed	Used in HTML SecurID authentication scheme. Given when the new user PIN was not accepted by ACE server.
ACE/Server: ACM_NEW_PIN_ACCEPTED failed.	SmLoginLogoutMes-sage::NewPinAcceptedFailed	Used in HTML SecurID authentication scheme. Given when the new user PIN was not accepted by ACE server.

Message	Function	Description
AceCheck Access denied by ACE/Server.	SmLoginLogoutMessage::Ace-CheckAccessDenied	The message is given in the SecurID authentication scheme when authentication request is rejected by ACE server.
AceCheck not processed aceRetVal = %1i	SmLoginLogoutMessage::Ace-CheckNotProcessed	The error message is given in the SecurID authentication scheme if ACE authentication process through the ACE/SecurID API cannot be completed.
AceCheck returned not ACM_NEW_PIN_REQUIRED but %1i	SmLoginLogoutMessage::Acm-NewPinRequiredFail	Information only. If you are experiencing problems with your ACE/SecurID authentication scheme(s), please provide this message to Technical Support.
AceCheck returned not ACM_NEW_PIN_REQUIRED but %1i	SmLoginLogoutMessage::Invalid-ReturnAceCheckNewPin	Information only. If you are experiencing problems with your ACE/SecurID authentication scheme(s), please provide this message to Technical Support.
AceCheck:Denied---aceRetVal = %1i	SmLoginLogoutMessage::Sm-AuthAceCheck-Denial	The message is given in the SecurID authentication scheme when authentication request is rejected by ACE server.
AceGetMaxPinLen failed	#REF!	Used in HTML SecurID authentication scheme. Given when the scheme fails to retrieve max length of user PIN allowed by ACE server.
AceSendPin failed	SmLoginLogoutMessage::Ace-SendPinFailed	The error message is given by HTML SecurID authentication scheme when it fails to send user PIN using to the RSA ACE server ACE/SecurID API. The authentication scheme rejects the request.
AceServer - CANNOT_CHOOSE_PIN	SmLoginLogoutMessage::Ace-ServerCannotChoosePin	Information only. If you are experiencing problems with your ACE/SecurID authentication scheme(s), please provide this message to Technical Support.

Message	Function	Description
AceServer - MUST_CHOOSE_PIN	SmLoginLogoutMessage::Ace-ServerMustChoosePin	Information only. If you are experiencing problems with your ACE/SecurID authentication scheme(s), please provide this message to Technical Support.
AceServer :: Sm_Api_Reason_New_PIN_ Select	SmLoginLogoutMessage::Sm-ApiNewPinSelectReason	Information only. If you are experiencing problems with your ACE/SecurID authentication scheme(s), please provide this message to Technical Support.
AceServer returning Sm_Api_Reason_New_PIN_ Accepted	SmLoginLogoutMessage::Sm-ApiSuccessReason	Used in HTML SecurID authentication scheme. Given when the user PIN is successfully changed by the user.
AceServer:: returning Sm_AuthApi_Reject Sm_Api_Reason_New_PIN_ Accepted, but not success message can be given, don't know the target.	SmLoginLogoutMessage::Sm-ApiRejectReasonMessage	Information only. If you are experiencing problems with your ACE/SecurID authentication scheme(s), please provide this message to Technical Support.
AceSetPasscode = %1s	SmLoginLogoutMessage::Sm-AuthAceSetPassCode	The message is given when the SecurID authentication scheme is making attempt to register passcode for ACE authentication with ACE/SecurID API.
AceSetPasscode failed with aceRetVal = %1i	SmLoginLogoutMessage::Ace-SetPasscodeFailed	The error message is given by SecurID authentication schemes when it fails to register passcode for ACE authentication with ACE/SecurID API. The authentication scheme rejects the request.
AceSetPin failed	SmLoginLogoutMessage::Ace-SetPinFailed	The error message is given by HTML SecurID authentication scheme when it fails to set user PIN using ACE/SecurID API. The authentication scheme rejects the request.
AceSetSelectionCode DECRYPT = %1s	SmLoginLogoutMessage::-SelectioncodeDecrypt	Information only. If you are experiencing problems with your ACE/SecurID authentication scheme(s), please provide this message to Technical Support.

Message	Function	Description
AceSetUsername failed with aceRetVal = %1i	SmLoginLogoutMessage::Ace-SetUserNameFailed	The message is given by SecurID authentication schemes when it fails to register username for ACE authentication with ACE/SecurID API. The authentication scheme rejects the request.
AddCurrentPWToHistory - Can't set password history info.	SmLoginLogoutMes-sage::Error SettingPassword-History	Failed to add current password to the list of most recent passwords.
AuthenticateUserDir - Can't update user blob data	SmLoginLogoutMessage::Blob-UpdateFailed	Failed to update Password Blob Data during Authentication process.
Cannot get AceAlphanumeric	SmLoginLogoutMessage::Get-AceAlphanumericFail	Failed to find method in ACE client library.
Cannot get AceCancelPin	SmLoginLogoutMessage::Get-AceCancelPinFail	Failed to find method in ACE client library.
Cannot get AceCheck	SmLoginLogoutMessage::Get-AceCheckFail	Failed to find method in ACE client library.
Cannot get AceClientCheck	SmLoginLogoutMessage::Get-AceClientCheckFail	Failed to find method in ACE client library.
Cannot get AceClose	SmLoginLogoutMessage::Get-AceCloseFail	Failed to find method in ACE client library.
Cannot get AceGetAuthenticationStatus	SmLoginLogoutMessage::Ace-GetAuthenticationStatusFail	Failed to find method in ACE client library.
Cannot get AceGetMaxPinLen	SmLoginLogoutMessage::Null-AceGetMaxPinLen	Failed to find method in ACE client library.
Cannot get AceGetMinPinLen	SmLoginLogoutMessage::Null-AceGetMinPinLen	Failed to find method in ACE client library.
Cannot get AceGetPinParams	SmLoginLogoutMessage::Get-AcePinParamFail	Failed to find method in ACE client library.
Cannot get AceGetShell	SmLoginLogoutMessage::Ace-GetShellFail	Failed to find method in ACE client library.
Cannot get AceGetSystemPin	SmLoginLogoutMessage::Ace-GetSystemPinFail	Failed to find method in ACE client library.
Cannot get AceGetTime	SmLoginLogoutMessage::Ace-GetTimeFail	Failed to find method in ACE client library.

Message	Function	Description
Cannot get AceGetUserData	SmLoginLogoutMessage::Ace-GetUserDataFail	Failed to find method in ACE client library.
Cannot get AceGetUserSelectable	SmLoginLogoutMessage::Ace-GetUserSelectable-Fail	Failed to find method in ACE client library.
Cannot get AceInit	SmLoginLogoutMessage::Get-AceInitFail	Failed to find method in ACE client library.
Cannot get AceInitialize	SmLoginLogoutMessage::Ace-InitializeFail	Failed to find method in ACE client library.
Cannot get AceLock	SmLoginLogoutMessage::Ace-LockFail	Failed to find method in ACE client library.
Cannot get AceSendNextPasscode	SmLoginLogoutMessage::Ace-SendNextPasscodeFail	Failed to find method in ACE client library.
Cannot get AceSendPin	SmLoginLogoutMessage::Null-AceSendPin	Failed to find method in ACE client library.
Cannot get AceSetNextPasscode	SmLoginLogoutMessage::Ace-SetNextPasscodeFail	Failed to find method in ACE client library.
Cannot get AceSetPasscode	SmLoginLogoutMessage::Ace-SetPasscodeFail	Information only. If you are experiencing problems with your ACE/SecurID authentication scheme(s), please provide this message to Technical Support.
Cannot get AceSetPin	SmLoginLogoutMessage::Null-AceSetPin	Failed to find method in ACE client library.
Cannot get AceSetUserClientAddress	SmLoginLogoutMessage::Ace-SetUserClientAddressFail	Failed to find method in ACE client library.
Cannot get AceSetUsername	SmLoginLogoutMessage::Ace-SetUsernameFail	Failed to find method in ACE client library.
Cannot load aceclnt.dll	SmLoginLogoutMessage::Ace-IntDllLoadFail	Failed to load ACE client library.
Cannot retrieve new password from password message	SmLoginLogoutMessage::New-PasswordRetrieveFail	When processing Login request, and breaking up password for New and Old, failed to retrieve New Password.

Message	Function	Description
Cannot retrieve old password from password message	SmLoginLogoutMessage::Old-PasswordRetrieveFail	When processing Login request, and breaking up password for New and Old, failed to retrieve Old Password.
Cannot retrieve token from password message	SmLoginLogoutMessage::Token-RetrieveFail	When processing Login request, and breaking up password for New and Old, failed to retrieve password token.
ChangePassword - Can't change password via the provider	SmLoginLogoutMessage::Pwd-ChangeFailViaProvider	Failed to change password in User Directory during Change Password request.
ChangePassword - Can't validate the new password	SmLoginLogout-Message::ChangePwdValidation-Fail	Failed to validate password in User Directory during Change Password request.
CheckPasswordPolicies - authentication status changed to failure due to password policy misconfiguration.	SmLoginLogout-Message::CheckPwdFailCause-Misconfig	When checking password policies, failed to validate login attempt. Probably because password policy is misconfigured.
Could not find the Variable to delete %1s	SmLoginLogout-Message::VariableFindErrorTo-Delete	Session Variable flag were passed as part of Request before Session Variable name.
CSmAuthUser - ChangePassword - Can't update user blob data	SmLoginLogoutMes-sage::ChangePwdBlobUpdateFail	Failed to update Password Blob Data during Change Password request.
DB error reading CRYPTOcard data.	SmLoginLogoutMes-sage::UnknownException-ReadingCryptocard	The Encotone authentication scheme is not supported.
DB error reading CRYPTOcard data. %1s	SmLoginLogoutMessage::DB-ErrorReadingCryptocard	The Encotone authentication scheme is not supported.
DB error reading Encotone data.	SmLoginLogout-Message::UnknownException-ReadingEncotoneData	The Encotone authentication scheme is not supported.
DB error reading Encotone data. %1s	SmLoginLogout-Message::DBErrorReading-EncotoneData	The Encotone authentication scheme is not supported.
DB error updating CRYPTOcard data.	SmLoginLogout-Message::UnknownException-UpdatingCryptocard	The Encotone authentication scheme is not supported.

Message	Function	Description
DB error updating CRYPTOcard data. %1s	SmLoginLogout-Message::DBErrorUpdating-Cryptocard	The Encotone authentication scheme is not supported.
DB error updating Encotone data.	SmLoginLogoutMes-sage::UnknownException-UpdatingEncotoneData	The Encotone authentication scheme is not supported.
DB error updating Encotone data. %1s	SmLoginLogout-Message::DBErrorUpdating-EncotoneData	The Encotone authentication scheme is not supported.
DelVariable :Internal Error : Could not find the Variable	SmLoginLogoutMessage::Del-VariableFindError	Variable name is empty when trying to delete it from Session Store.
DelVariable Returned Error %1i for Variable %2s	SmLoginLogoutMessage::Del-VariableReturnError	Failed to delete this variable from Session Store.
Did not set AceSetUsername = %1s	SmLoginLogoutMessage::Sm-AuthNotSetUserId	The message is given by SecurID authentication schemes when it fails to register username for ACE authentication with ACE/SecurID API. The authentication scheme rejects the request.
Error finding the name of variable to be deleted %1s:Invalid Index %2i	SmLoginLogout-Message::VariableNameFind-InvalidIndexError	Session Variable flag were passed as part of Request for Session Variable with empty name.
Error in scheme configuration parameter lpszServerParam corrupted.	SmLoginLogoutMessage::Error-SchemeConfigServerParam	Used in SecurID authentication schemes. Same as above.
Error in scheme configuration parameter: Empty String	SmLoginLogoutMessage::Error-SchemeConfigParam	Both basic and form based SecurID authentication schemes require "ACE User ID Attribute Name in Directory" parameter. The error in displayed when this parameter is missing of misconfigured.
Failed to authenticate user '%1s' using scheme '%2s'. Unsupported API version.	SmLoginLogoutMessage::User-AuthFail	Failed to authenticate because of old version of authentication provider library.
Failed to find authentication realm '%1s	SmLoginLogoutMessage::Auth-RealmFindFail	When processing Radius Authentication request, failed to find Realm protected by given Agent / Agent Group.

Message	Function	Description
FindApplicablePassword Policies - error fetching Root	SmLoginLogoutMessage::Error-FetchingApplicablePolicyRoot	Failed to fetch Root object while validating Logging attempt.
FindApplicablePassword Policies - error finding Matching Password Policies	SmLoginLogoutMessage::Error-FindingMatchingPolicies	Failed to fetch PasswordPolicy object while validating Logging attempt.
FindApplicablePassword Policies - No Password Data attribute defined for user dir %1s	SmLoginLogout-Message::PasswordDataAttrib-NotDefined	User Directory that we are using has not defined the appropriate attributes for the blob.
FindApplicablePassword Policies - user or directory is NULL	SmLoginLogoutMessage::Null-ApplicablePwdPolicyDir	Both User and Directory objects are NULL when looking for Applicable Password Polices while validating Logging attempt.
GetRandomPassword - Shortest Length greater than Longest Length	SmLoginLogoutMessage::Long-PwdLength	Created random password exceeds maximum allowed length.
GetRedirect - Can't find applicable password policies.	SmLoginLogoutMessage::Error-FindingPasswordPolicy	Failed to Find Applicable Policies while looking for the first applicable password policy that contains redirect information.
GetRedirect - Can't retrieve password policy.	SmLoginLogoutMessage::Error-RetrievePasswordPolicy	Failed to fetch PasswordPolicy object while validating New Password.
GetVariable : Internal Error:DelVar %1s does not match Var: %2s	SmLoginLogoutMessage::Get-VariableMatchError	Variable to be deleted when fetched, has different names for fetching and deleting.
GetVariable(Del) Returned Error %1i for Variable %2s	SmLoginLogoutMessage::Get-VariableDelReturnError	Failed to delete this variable from Session Store.
GetVariable(Fetch) Returned Error %1i for Variable %2s	SmLoginLogoutMessage::Get-VariableFetchReturnError	Failed to find this variable in Session Store.
GetVariable: Internal Error :Could not find variable	SmLoginLogoutMessage::Get-VariableFindError	Variable name is empty when trying to get Session Variables.
Invalid format for SOA Security Manager generated user attribute %1s	SmLoginLogoutMessage::Invalid-SmUserAttribFormat	ApplcationRole User property has wrong format.

Message	Function	Description
New PIN was accepted = %1s	SmLoginLogoutMessage::New-PinAccepted	Used in HTML SecurID authentication scheme. Given when the user PIN is successfully changed by the user.
Nonstandard SelectionCode = %1s	SmLoginLogoutMessage::Ace-ServerNonStandard-Selectioncode	Information only. If you are experiencing problems with your ACE/SecurID authentication scheme(s), please provide this message to Technical Support.
Passcode not allocated.	SmLoginLogout-Message::PasscodeNot-Allocated	Used in SecurID authentication scheme. Failure to allocate buffer for use passcode.
PassCode1 not Allocated	SmLoginLogoutMessage::Mem-AllocPasscode1Fail	Used in SecurID authentication scheme. Failure to allocate buffer for user passcode.
PassCode1 not Allocated	SmLoginLogout-Message::Passcode1Not-Allocated	Used in SecurID authentication scheme. Failure to allocate buffer for next user passcode.
PassCode1 not checked, Error = %1i	SmLoginLogoutMes-sage::PassCode1NotChecked	The error message is given in the SecurID authentication scheme if ACE authentication process through the ACE/SecurID API cannot be completed.
PassCode1 not set, Error = %1i	SmLoginLogoutMessage::Pass-Code1NotSet	The message is given when the SecurID authentication scheme is making attempt to register passcode for ACE authentication with ACE/SecurID API.
PassCode1 not set, Error = %1i	SmLoginLogoutMessage::Pass-Code2NotSet	The error message is given by HTML SecurID authentication scheme when it fails to register next passcode for ACE authentication with ACE/SecurID API. The authentication scheme rejects the request.
PassCode2 not Allocated	SmLoginLogoutMessage::Mem-AllocPasscode2Fail	Used in SecurID authentication scheme. Failure to allocate buffer for user passcode.

Message	Function	Description
PassCode2 not Sent as NextPasscode, Error = %1i	SmLoginLogoutMessage::Pass-Code2NotSentAsNextPasscode	The error message is given by HTML SecurID authentication scheme when it fails to send next passcode to ACE server through ACE/SecurID API. The authentication scheme rejects the request.
Password Message could not be parsed	SmLoginLogout-Message::PasswordMessage-ParseFail	When processing Login request, and breaking up password for New and Old, failed to parse password string.
PIN allocation failed	SmLoginLogoutMessage::Pin-AllocationFailed	Used in HTML SecurID authentication scheme. Failure to allocate buffer for user PIN.
pszBuf allocation failed	SmLoginLogoutMessage:pszBuf-AllocFail	Used in SecurID authentication scheme. Failure to allocate buffer for RSA SecurID user ID attribute name in SOA Security Manager user directory.
Returning encrypted System PIN in Cookie via UserMsg %1s	SmLoginLogoutMes-sage::ReturningEncrypted-SystemPin	Information only. If you are experiencing problems with your ACE/SecurID authentication scheme(s), please provide this message to Technical Support.
SelectionCode not allocated.	SmLoginLogout-Message::SelectionCodeNot-Allocated	Information only. If you are experiencing problems with your ACE/SecurID authentication scheme(s), please provide this message to Technical Support.
Server exception occurred while authenticating user '%1s' using scheme '%2s	'SmLoginLogoutMessage::User-AuthException	Unknown error happened during Authentication process. Most likely in authentication provider library.
Server exception occurred while validating authentication for user '%1s	'SmLoginLogoutMessage::Valid-AuthException	Error occurred in advanced password services shared library when called during Authentication process.
Set Username Error = %1i	SmLoginLogoutMessage::Set-UserNameError	The message is given by SecurID authentication schemes when ti fails to register username for ACE authentication with ACE/SecurID API. The authentication scheme rejects the request.

Message	Function	Description
SetVariable :Internal Error: Could not find Variable	SmLoginLogoutMessage::Set-VariableFindError	Variable name is empty when trying to set it into Session Store.
SetVariable :Internal Error: NULL Value found for Variable %1s	SmLoginLogoutMessage::Set-VariableNullValueFound	Variable value is empty when trying to set it into Session Store.
SetVariable Returned Error %1i for Variable %2s	SmLoginLogoutMessage::Set-VariableReturnError	Failed to add/update this variable into Session Store.
SmAuthenticate: AceInitialization failed	SmLoginLogoutMessage::Sm-AuthAceInitFail	Failed to Initialize ACE client library.
SmAuthenticate: Cannot create Event.	SmLoginLogoutMessage::Create-EventFail	Used in SecurID authentication scheme. Failure to create event object in SecurID authentication scheme.
SmAuthenticate: Couldn't get allocate memory for PIN	SmLoginLogoutMessage::Sm-AceHtmlPinMemAllocFail	Used in SecurID authentication scheme. Failure to allocate buffer for ACE system-generated PIN.
SmAuthenticate: Did not set AceSetPasscode = %1s	SmLoginLogoutMessage::Sm-AuthAceDidNotSetPassCode	The error message is given by SecurID authentication schemes when it fails to register passcode for ACE authentication with ACE/SecurID API. The authentication scheme rejects the request.
SmAuthenticate: No numeric value found for SM_ACE_FAILOVER_ATTEMPTS environment variable, proceeding with default value.	SmLoginLogoutMessage::Zero-SmAuthAceFailover	To support RSA ACE/SecurID failover, SOA Security Manager Policy Server has an environment variable SM_ACE_FAILOVER_ATTEMPTS. By default, it set to 3. The error message is given when the value of SM_ACE_FAILOVER_ATTEMPTS is 0. In this case RSA ACE/SecurID failover may not work properly with SOA Security Manager.
SmAuthenticate:Cannot allocate storage for EventData	SmLoginLogoutMessage::Event-DataMemAllocFail	Used in SecurID authentication scheme. Failure to allocate memory for RSA SecurID API structure.

Message	Function	Description
SmAuthenticate:Cannot proceed to AceInit--NOT ACE_PROCESSING. aceRetVal= %1i	SmLoginLogoutMessage::Sm-AuthAceInitProcessingFail	The message is given by SecurID authentication schemes when it fails to initialize ACE/SecurID API. The authentication scheme rejecting the request and the authentication fails.
SmAuthenticate:Did not continue to AceCheck. aceRetVal= %1i	SmLoginLogoutMessage::Sm-AuthAceCheckDidNotContinue	The error message is given in the SecurID authentication scheme if ACE authentication process through the ACE/SecurID API cannot be completed.
SmAuthenticate:Did not continue to AceInit completion. pEventData->asynchAceRet= %1i	SmLoginLogoutMessage::Sm-AuthAceInitCompletionFail	The message is given by SecurID authentication schemes when it fails to initialize ACE/SecurID API. The authentication scheme rejecting the request and the authentication fails.
SmAuthenticate:Name Lock Request has been denied by ACE/Server communication failure.	SmLoginLogoutMessage::Sm-AuthNameLockReqDenied	The message is given by SecurID authentication schemes when it fails to initialize ACE/SecurID API. The authentication scheme rejecting the request and the authentication fails.
SmAuthenticate:Thread Sync failed. wRet= %1ul	SmLoginLogoutMessage::Sm-AuthThreadSyncFail	The message is given on Windows platform by SecurID authentication schemes when the call to asynchronous ACE API call fails.
SmAuthenticate:Unable to Lock the UserName. aceRetVal= %1i	SmLoginLogoutMessage::Sm-AuthUserNameLockFail	The message is given by SecurID authentication schemes when it fails to lock username for ACE server. In this case SOA Security Manager authentication scheme rejects the authentication requests. The name lock feature is available in RSA ACE product of version 5.0 and above.see RSA ACE product documentation for additional information on name lock feature.
SmAuthUser - Failed to fetch Az Realm.	SmLoginLogoutMessage::Fetch-AzRealmFailed	Failed to find user Realm when getting Application Role User property.

Message	Function	Description
SmAuthUser - Failed to fetch Domain object.	SmLoginLogoutMessage::Fetch-DomainObjFailed	Failed to find user Domain when getting Application Role User property.
The new PIN can contain alpha-numeric characters only.	SmLoginLogoutMessage::Alpha-NumericOnlyNewPin	The message is used in HTML SecurID authentication scheme when user was required to change a PIN, and user enters a PIN that contains non-alphanumeric characters.
The new PIN can contain digits only.	SmLoginLogoutMessage::Digit-OnlyNewPin	The message is used in HTML SecurID authentication scheme when user was required to change a PIN, and user enters a PIN that contains non-digits.
The new PIN is too long	SmLoginLogoutMessage::Long-NewPin	The message is used in HTML SecurID authentication scheme when user was required to change a PIN and a new PIN is too long.
The new PIN is too short	SmLoginLogoutMessage::Short-NewPin	The message is used in HTML SecurID authentication scheme when user was required to change a PIN and a new PIN is too short.
Unable to proceed PIN change, unknown PIN type.	SmLoginLogoutMessage::Ace-ServerUnableToProceedPin-Change	Information only. If you are experiencing problems with your ACE/SecurID authentication scheme(s), please provide this message to Technical Support.
Unexpected Message ID found while looking for SmPasswordMsg_Change Password: %1ul	SmLoginLogout-Message::UnexpectedMessage-ID	When processing Login request, and breaking up password for New and Old, message ID stored in password field is unknown.
Usage: %1s[:AppName]	SmLoginLogoutMessage::Usage-SmUserAttribFormat	Help string for correct Application Role User property formatting.
UserPIN not allocated.	SmLoginLogoutMessage::User-PinNotAllocated	Used in SecurID authentication scheme. Failure to allocate buffer for user PIN.
ValidateLoginAttempt - Error Applying Password Policy	SmLoginLogoutMessage::Error-ApplyingPasswordPolicy	Failed when tried to Apply Password Policy while validating Logging attempt.

Message	Function	Description
ValidateLoginAttempt - Error Fetching Password Policy	SmLoginLogoutMessage::Error-FetchingPasswordPolicy	Failed to fetch PasswordPolicy object while validating Logging attempt.
ValidateLoginAttempt - Error Finding Applicable Policies	SmLoginLogoutMessage::Error-FindingApplicablePolicy	Failed to Find Applicable Policies while validating Logging attempt.
ValidateNewPassword - Can't set password change info.	SmLoginLogoutMessage::Error-PasswordChange	Failed to set password info while trying to Update Password Blob Data.
ValidateNewPassword - Error fetching Match regular expressions	SmLoginLogoutMessage::Match-ExprFetchError	Failed to get the desired regular expressions for the password policy.
ValidateNewPassword - Error fetching NoMatch regular expressions	SmLoginLogoutMessage::No-MatchExprFetchError	Failed to get the desired regular expressions for the password policy.
ValidateNewPassword - Error fetching password policy	SmLoginLogoutMessage::Err-FetchingValidPwdPolicy	Failed to fetch PasswordPolicy object while validating New Password.
ValidateNewPassword - Error finding applicable password policies.	SmLoginLogoutMessage::Err-FindingValidPwdPolicy	Failed to Find Applicable Policies while validating New Password.
ValidateNewPassword could not load callout '%1s	'SmLoginLogoutMessage::Load-CalloutFail	Failed to Load external library to check password.
ValidateNewPassword failed to resolve function '%1s' in '%2s'. Error: %3s	SmLoginLogoutMessage::Err-ResolveFuncValidPwd	Failed to find method in external library to check password.

Authorization

Error Message	Function	Description
Bad %1s request detected	SmIsAuthorizedMessage::Bad-RequestDetected	The Authorization Request message failed to conform to the proper format.
Cannot process active expression with variables without licensed eTelligent Options	SmIsAuthorizedMessage::CanNot-ProcessActiveExpr	The license for the eTelligent Rules feature is not found. The Active Expression will not be processed.

Error Message	Function	Description
Caught exception while adding variable	SmIsAuthorizedMessage::Exc-AddingVar	A software exception was raised while resolving eTelligent Rules variables.
Exception in IsOk.	SmIsAuthorizedMessage::Unk-ExcInIsOK	An unknown exception occurred while performing an Authorization.
Exception in IsOk. %1s	SmIsAuthorizedMessage::ExcIn-IsOK	An exception occurred while performing an Authorization.
Failed to Fetch Active Expression %1s	SmIsAuthorizedMessage::Failed-FetchActiveExpr	Could not fetch the Active Expression object from the object store.
Failed to Load Active Expression %1s	SmIsAuthorizedMessage::Failed-LoadActiveExpr	The Active Expression could not be loaded.
Failed to Load Domain %1s	SmIsAuthorizedMessage::Failed-LoadDomain	Failed to retrieve the Domain object during eTelligent Rules variable processing.
Failed to Load Variable %1s	SmIsAuthorizedMessage::Failed-LoadVar	Failed to get the specified eTelligent Rules variable.
Failed to Load Variable Type %1s	SmIsAuthorizedMessage::Failed-LoadVarType	Failed to get the type of the specified variable.
Failed to Load Variables for Active Expression %1s	SmIsAuthorizedMessage::Failed-LoadVarActiveExpr	There was a problem resolving Variables, therefore the Active Expression will not be invoked.
Failed to Load Variables for active expression %1s	SmIsAuthorizedMessage::Failed-LoadVarsForActiveExpr	Failed to load eTelligent Rules Variables for an Active Expression
Failed to resolve attribute %1s	SmIsAuthorizedMes-sage::FailedToResolveAttr	Could not fetch the Response Attribute object from the object store.
Failed to resolve dictionary vendor attribute %1s	SmIsAuthorizedMes-sage::FailedToResolveDictVendAttr	Could not find the specified Vendor Attribute in the Vendor Attribute Dictionary.
Failed to resolve response %1s	SmIsAuthorizedMes-sage::FailedToResolveResponse	Could not fetch the Response object from the object store.
Failed to resolve response group %1s	SmIsAuthorizedMes-sage::FailedToResolveResponseGp	Could not fetch the Response Group object from the object store.

Error Message	Function	Description
Failed to resolve user policy %1u	SmIsAuthorizedMes-sage::FailedToResolveUserPolicy	Could not fetch the User Policy object from the object store.
Ignoring variable response - no license for eTelligent Options	SmIsAuthorizedMessage::No-eTelligentLicense	The license for the eTelligent Rules feature was not found. Variables will not be processed.
Invalid response attribute %1s. Dictionary conflict - attribute may not be in the response	SmIsAuthorizedMessage::Invalid-ResponseAttr	An invalid Response Attribute was not included in the Authorization response.
IsOk failed. %1s	SmIsAuthorizedMessage::IsOK-Failed	The Authorization check failed

Server

Message	Function	Description
Failed to initialize TCP server socket: Socket error:%1i	SmServerMessage::TCP-ServerSocketInitFail	see the operating system documentation for the specifics of the socket error. (The most common errors are attempting to open a socket already in use on the system or not having sufficient privilege for the socket.)
Failed to initialize UDP server socket on port: %1ul. Socket error:%2i	SmServerMessage::UDP-ServerSocketInitFailOnPort	see the operating system documentation for the specifics of the socket error. (The most common errors are attempting to open a socket already in use on the system or not having sufficient privilege for the socket.)
Failed to initialize WinSock library	SmServerMessage::WinSock-LibInitFail	(Windows systems.) The Windows Sockets library could not be initialized. Verify the library is installed and that its version is supported.

Message	Function	Description
Failed to listen on TCP server socket. Socket error %1i	SmServerMessage::TCP-ServerSocketListenFail	see the operating system documentation for the specifics of the socket error. (The most common errors are attempting to open a socket already in use on the system or not having sufficient privilege for the socket.)
Failed to load event handler	SmServerMessage::Event-HandlerLoadFail	An Event Handler library could not be loaded. Verify the pathnames and access permissions of the configured Event Handlers.
Failed to load library '%1s'. Error: %2s	SmServerMessage::FailedTo-LoadLib	The reported Authentication Scheme library could not be loaded. If the accompanying error text does not explain the problem, verify that the named library exists and that the file system protections allow access.
Failed to locate required entry point(s) in event provider '%1s'	SmServerMessage::Req-EntryPointInEventProvider-LocateFail	The named library is not a valid Event/Audit Log provider.
Failed to write audit log record. Record dropped.	CSmReports::LogAccess	The Policy Server could not write to the audit log. Verify the status of the audit log store.
Failed to obtain host name. Socket error %1i	SmServerMessage::Host-NameObtainError	The Audit Logger provider could not retrieve the local system's network hostname, probably due to a network error. The accompanying error code (an errno for UNIX systems, a SOCKET_ERROR for Windows systems) may provide more detail.

Message	Function	Description
Failed to obtain host name. Socket error %1i	SmServerMessage::Host-NameObtainFail	The local system's network hostname could not be retrieved, probably due to a network error. The accompanying error code (an errno for UNIX systems, a SOCKET_ERROR for Windows systems) may provide more detail.
Failed to open Audit log file for append '%1s'	SmServerMessage::Audit-LogFileAppendFail	The Audit Logger provider could not open the named file for appending entries. Verify that the pathname provided is valid and that file access permissions are correct.
Failed to open RADIUS log file (no file defined)	SmServerMessage::Radius-LogFileNotDefined	The registry does not have an entry for the RADIUS log file's name, or the name was an empty string,
Failed to open RADIUS log file: %1s	SmServerMessage::Radius-LogFileOpenFail	A RADIUS log file with the given name could not be opened for overwriting (if it already exists) or be created (if it does not exist). Check access permissions to the directory and to the file (if it exists).
Failed to query authentication scheme '%1s'	SmServerMessage::Fail-QueryAuthScheme	The Policy Server's query of the given Authentication Scheme failed, so the Authentication Scheme could not be initialized.
Failed to read on UDP socket. Socket error %1i	SmServerMessage::UDP-SocketReadFail	The Policy Server detected an unexpected network error while trying to read a UDP packet carrying either an Admin service connection request or a RADIUS message. The accompanying error code (an errno for UNIX systems, a SOCKET_ERROR for Windows systems) may provide more detail.

Message	Function	Description
Failed to receive request on session # %1i : %2s/%3s:%4i. Socket error %5s	SmServerMessage::Request-ReceiveOnSessionFail	The Policy Server detected an unexpected network error while trying to read the agent request in the given session, so it closed the connection. The accompanying error code (an errno for UNIX systems, a SOCKET_ERROR for Windows systems) may provide more detail.
Failed to resolve agent key '%1s'	SmServerMessage::Unresolved-AgentKey	The reported Agent Key could not be found in the Policy Store when Agent Keys were being updated.
Failed to resolve agent keys	SmServerMessage::FailTo-ResolveAgentKeys	No Agent keys could be accessed in the Policy Store for Agent Key Update.
Failed to resolve agent keys	SmServerMessage::Agent-Keys ResolveFail	No Agent keys could be accessed in the Policy Store for Agent Key Update.
Failed to resolve agent keys '%1s'	SmServerMessage::Fail-ToResolveAgentKey	The reported Agent Key could not be found in the Policy Store when Agent Keys were being updated.
Failed to resolve Agent or AgentGroup %1s	SmServerMessage::Agent-OrAgentGroupResolveFail	The given Agent or Agent Group does not exist or its Policy Store record has become corrupted.
Failed to resolve all domains	SmServerMessage::Domain-ResolutionFailed	The Domain root object record in the Policy Store is missing or has become corrupted.
Failed to resolve all vendors. No vendor dictionary will be created.	SmServerMessage::Failed-ToResolveVendors	The Vendors root object record in the Policy Store is missing or has become corrupted.
Failed to resolve auth-az mapping %1s	SmServerMessage::Fail-ToResolveAuthAzMap	The given Auth-Az Map does not exist or its Policy Store record has become corrupted.

Message	Function	Description
Failed to resolve function '%1s' in '%2s' . Error: %3s	SmServerMessage::Failed-ToResolveFunc	The reported entry point in the given Authentication Scheme library could not be resolved (see the accompanying error text), so the library was not loaded.
Failed to resolve function '%1s' in '%2s'. Error: %3s	SmServerMessage::Function-ResolveFail	The reported entry point in the given TransactEMS library could not be resolved (see the accompanying error text), so the library was not loaded.
Failed to resolve function '%1s' in '%2s'. Error: %3s	SmServerMessage::Fail-ToResolveFunction	The reported entry point in the given library which reports system configuration information could not be resolved (see the accompanying error text), so the library was not loaded.
management object	SmServerMessage::Key-ManagementObjResolveFail	The Policy Server detected an error when it attempted to read the Key Management Object from the Policy Store.
Failed to resolve key management object	SmServerMessage::Resolve-KeyMgmtObjFail	The Agent Key Management Object could not be read from the Policy Store.
Failed to resolve key management object '%1s'	SmServerMessage::Key-ManagementObjResolve-FailwithVal	The Agent Key Management Thread detected an error when it attempted to read the given Agent Key Management Object from the Policy Store.
Failed to resolve list of auth-az mappings	SmServerMessage::Fail-ToResolveAuthAzMapList	The Auth-Az Map root object record in the Policy Store is missing or has become corrupted.
Failed to resolve log file name	SmServerMessage::Log-FileNameRosolveFail	The Audit Logger provider could not retrieve the name for the log file from the registry. Verify that a file name has been configured.

Message	Function	Description
Failed to resolve shared secret policy object	SmServerMessage::Shared-SecretResolveFail	The Shared Secret Rollover Policy object record in the Policy Store is missing or has become corrupted.
Failed to resolve user directory %1s	SmServerMessage::Fail-ToResolveUserDir	The given User Directory object does not exist or its Policy Store record has become corrupted.
Failed to resolve user identity. Denying access.	SmServerMessage::User-IdentityFail	Because there was a failure while searching the policies of the applicable realms, the user's identity could not be resolved and access was denied.
Failed to resolve Version 6 function '%1s' in '%2s' . Error: %3s	SmServerMessage::Failed-ToResolveVer6Func	The reported entry point in the given Version 6 Authentication Scheme library could not be found (see the accompanying error text), so the library will not be used. Verify that the Auth Scheme is not an older version.
Failed to retrieve audit log flush interval. Setting to infinite	SmServerMessage::Audit-LogFlushIntervalRetrieveFail	The Audit Logger ODBC provider could not retrieve the flush interval from the registry. Verify that an interval has been configured.
Failed to retrieve audit log provider library for namespace '%1s'	SmServerMessage::AuditLog-ProviderLibRetrieveFail	The registry does not have a library name entry for the given Audit Log Provider namespace.
Failed to retrieve audit log row flush count. Setting to 1000	SmServerMessage::Audit-LogRowFlushCountRetrieveFail	The registry does not have an entry for the ODBC Audit Log Provider's row flush count for asynchronous logging, so the default of 1000 will be used.
Failed to retrieve message from the message queue	SmServerMessage::Retrieve-FromMessageQueueFail	(Windows) An error occurred when the Policy Server process attempted to retrieve a message on its Windows Application Queue.

Message	Function	Description
Failed to rollover trusted host shared secrets	SmServerMessage::Trusted-HostSharedSecretsRolloverFail	An error occurred while attempting to roll over trusted host shared secrets. Verify that the rollover policy is valid.
Failed to save key management object	SmServerMessage::Save-NewMgmtKeyObjFail	The Agent Key Management Object could not be read from the Policy Store when a new Persistent Key was to be saved.
Failed to save key management object after key update	SmServerMessage::Save-NewMgmtKeyObjAfter-KeyUpdateFail	The Policy Server generated new Agent Keys for roll over but could not record that they are available for use.
Failed to save key management object after persistent key update	SmServerMessage::Save-NewMgmtKeyObjAfter-PersistentKeyUpdateFail	The new Persistent Key could not be saved in the Agent Key Management Object in the Policy Store.
Failed to save key management object after session key update	SmServerMessage::Save-NewMgmtKeyObjAfterSession-KeyUpdateFail	The new Agent Session Key could not be saved in the Policy Store.
Failed to save new 'current' agent key '%1s'	SmServerMessage::Save-NewCurrentAgentKeyFail	The given Agent Session Key could not be saved as the Agent's "current" key.
Failed to save new key management object	SmServerMessage::Agent-KeyManagementObjSaveFail	The Agent Key management thread generated new Agent Keys for roll over but could not record that they are available for use.
Failed to save new 'last' agent key '%1s'	SmServerMessage::Save-NewLastAgentKeyFail	The given Agent Session Key could not be saved in the Policy Store as the Agent's "last" key.
Failed to save new 'next' agent key '%1s'	SmServerMessage::Save-NewNextAgentKeyFail	The given Agent Session Key could not be saved in the Policy Store as the Agent's "next" key.
Failed to save new persistent agent key '%1s'	SmServerMessage::Failed-ToSaveNewPersistentAgentKey	The given Persistent Agent Key could not be saved in the Policy Store.

Message	Function	Description
Failed to send response on session # %1i : %2s/%3s:%4i. Socket error %5i	SmServerMessage::Response-SendOnSessionFail	The response to an agent request in the given session could not be sent due to a network error (or possibly the Agent failing). The accompanying error code (an errno for UNIX systems, a SOCKET_ERROR for Windows systems) may provide more detail.
Failed to start agent command management watchdog thread	SmServerMessage::Agent-CommandManagementThread-CreationFail	The "watchdog" thread which ensures that the Agent Command Management Thread is running failed to start. Check the operating system's configured per-process limits for maximum number of threads and for maximum open file descriptors.
Failed to start journal management thread	SmServerMessage::Journal-ThreadCreateFail	The "watchdog" thread could not [re-]start the Policy Store Journal Cleanup Management Thread. Check the operating system's configured per-process limits for maximum number of threads and for maximum open file descriptors.
Failed to start journal management watchdog thread	SmServerMessage::Journal-ManagementThreadFail	The "watchdog" thread which ensures that the Policy Store Journal Management Cleanup Thread is running failed to start. Check the operating system's configured per-process limits for maximum number of threads and for maximum open file descriptors.
Failed to start key management thread	SmServerMessage::AgentKey-ThreadCreateFail	The "watchdog" thread could not [re-]start the Agent Key Management Thread. Check the operating system's configured per-process limits for maximum number of threads and for maximum open file descriptors."

Message	Function	Description
Failed to start key management watchdog thread	SmServerMessage::Key-ManagementThreadCreateFail	The "watchdog" thread which ensures that the Agent Key Management Thread is running failed to start. Check the operating system's configured per-process limits for maximum number of threads and for maximum open file descriptors.
Failed to start main reactor thread	SmServerMessage::Main-ReactorThreadStartFail	The Network IO Dispatcher Thread failed to start. Check the operating system's configured per-process limits for maximum number of threads and for maximum open file descriptors.
Failed to start object store journal thread	SmServerMessage::Journal-StartFailed	The "watchdog" thread could not [re-]start the Policy Store Journal Management Thread. Check the operating system's configured per-process limits for maximum number of threads and for maximum open file descriptors.
Failed to start object store watchdog thread	SmServerMessage::Watchdog-Failed	The "watchdog" thread which ensures that the Policy Store Journal Management Thread is running failed to start. Check the operating system's configured per-process limits for maximum number of threads and for maximum open file descriptors.
Failed to stat management command channel	SmServerMessage::Stat-MangmCmdChannelFail	(Unix/Linux) The stat() of an already-existing Server Command Management pipe/file unexpectedly failed. If also the Server Command Management Thread fails to start, verify that another Policy Server process is not running and delete the pipe/file manually.
Failed to update agent keys	SmServerMessage::FailTo-UpdateAgentKeys	The Administrator command that Agents update their keys could not be saved in the Policy Store.

Message	Function	Description
Failed to update agent keys from server command	SmServerMessage::Failed-ToUpdateAgentKeys	An Agent's new "current" or "next" Session Key could not be saved in the Policy Store.
Failed to update changes agent keys	SmServerMessage::Fail-ToUpdateChangesToAgentKeys	The command that Agents update their keys could not be saved in the Policy Store.
Failed to update persistent key	SmServerMessage::Failed-ToUpdatePersistentKey	An Agent's Persistent Key could not be saved in the Policy Store.
Failed to write on UDP socket. Socket error %1i	SmServerMessage::UDP-SocketWriteFail	An Admin GUI initialization packet or a RADIUS response packet could not be sent due to a network error (or possibly the Agent failing). The accompanying error code (an errno for UNIX systems, a SOCKET_ERROR for Windows systems) may provide more detail.
file not found	SmServerMessage::File-NotFound	(Windows systems.) The service to start the One View Monitor could not read the bin\smmon.bat file.
Getting processor affinity failed	SmServerMessage::Get-ProcessorAffinityFail	(Windows) The performance tuning parameter for processor affinity could not be processed, so the existing affinity setting will be unchanged.
Handshake error: Unknown client name '%1s' in hello message	SmServerMessage::Handshake-ErrorUnknownClient	A client provided the reported name when attempting to connect, but an Agent with that name could not be found in the Policy Store. Also caused by the agent using the wrong shared secret.
Inconsistent agent key marker (%1i)	SmServerMes-sage::InconsistentAgent-KeyMarker	An Agent Key record in the Policy Store has the given unrecognized key type.
Inconsistent number of agent keys (%1i)	SmServerMes-sage::InconsistentNumberOf-AgentKeys	The Policy Store contains the given incorrect number of keys for an Agent.

Message	Function	Description
Internal error computing realm list. Denying access.	SmServerMessage::Realm-Corrupt	An unexpected Policy Store failure occured while attempting to fetch the realm list to perform access authorization, so access is denied.
Invalid agent key marker (%1i)	SmServerMessage::Invalid-AgentKeyMarker	An Agent Key record in the Policy Store has the given unrecognized key type.
IP address resource filter not yet suppported by IsOk	SmServerMessage::IPAddr-ResourceFilterNotSupported	Action rules matching in realms does not support matching IP addresses or ranges.
IsInDictionary - Could not add Password Dictionary to holder %1s	SmServerMessage::Add-PasswordDictToHolderFailed	The named password dictionary could not be cached, probably because no more than 100 dictionaries may be cached. Passwords to be matched against entries in the dictionary are assumed to match.
IsInDictionary - Could not create Password Dictionary %1s	SmServerMessage::Create-PasswordDictFailed	An unexpected error (probably an out-of-memory condition) occurred while preparing to cache the named password dictionary. Passwords to be matched against entries in the dictionary are assumed to match.
IsInDictionary - Could not set the Password Dictionary %1s	SmServerMessage::Set-PasswordDictFailed	An error occurred while caching the named password dictionary. Passwords to be matched against entries in the dictionary are assumed to match.
IsInDictionary - Password Dictionary not open %1s	SmServerMessage::Open-PasswordDictFailed	The given password dictionary has been loaded but unexpectedly is not open. Passwords to be matched against entries in the dictionary are assumed to not match.

Message	Function	Description
IsInProfileAttributes - Error fetching property names	SmServerMessage::Fetching-PropertyNameFail	While comparing a password to user profile attribute values, the user attribute names could not be retrieved, so the password is assumed to match.
IsInProfileAttributes - Error fetching property values	SmServerMessage::Fetching-PropertyValueFail	While comparing a password to user profile attribute values, an attribute value could not be retrieved, so the password is assumed to match.
Monitor request for unrecorded data, Null values returned	SmServerMessage::MonReq-UnrecordedDataNullValue	The Policy Server did not recognize the name passed it in a request for monitored data.
No agent encryption keys found	SmServerMessage::Agent-EncryptionKeyNotFound	When an Agent's set of keys was fetched from the Policy Store, a complete set was not found.
No agent keys in key store	SmServerMessage::AgentKey-NotFoundInKeyStore	While attempting to update the Agent Keys in the Policy Store, none were found.
No initial agent keys	SmServerMessage::Empty-AgentKeys	The Policy Store holds no Agent Keys and Key Generation has not been enabled.
No initial key management object found. This policy server is configured in read-only key management mode. Unable to proceed	SmServerMessage::Key-ManagementObjNotFound	The Policy Store does not hold an initial Agent Key Management object and Key Generation has not been enabled.
No namespace available for the audit log provider	SmServerMessage::No-NamespaceAvailForAudit-LogProvider	The registry does not have an entry for the Audit Log Provider namespace.
No Root Config object found, Please run smobjimport to import smpolicy.smdif!	SmServerMessage::Root-ConfigObjNotFound	The Policy Store has not been successfully initialized.
No session pointer while processing request %1s	SmServerMessage::Null-SessionPointer	The given Agent request was received but the corresponding Agent Session object was not found or valid, so the request packet was returned without

Message	Function	Description
		processing.
Please check file permissions or path for validity	SmServerMessage::File-PermissionOrPathCheck	A file could not be opened. An error message giving the file's path name should precede this message.Verify that the pathname provided is valid and that file access permissions are correct.
Policy Server caught exception in ProcessMessage. (no message text)	SmServerMessage::Unknown-PolSrvExcpCaught	The Policy Server had an unexpected exception while processing an Agent request, so an empty response was returned.
Policy Server caught exception in ProcessMessage. Text: %1s	SmServerMessage::PolSrv-ExcpCaught	The Policy Server had an unexpected exception while processing an Agent request, so an empty response was returned. The accompanying text may recommend corrective action.
Policy store failed operation '%1s' for object type '%2s' . %3s	SmServerMessage::Policy-StoreOperFail	The Policy Store object layer caught the described exception.
Processor affinity left at default setting, cannot set affinity to zero	SmServerMessage::Processor-AffinitySetZeroFail	(Windows) Zero is an invalid value for the performance tuning parameter for processor affinity, so the existing affinity setting will be unchanged.
Reject %1s : Failed to write access log	SmServerMessage::Write-FailInAccessLog	Audit logging failed for the given rejected Authentication or Authorization request.
Saw agent name in DoManagement() command %1s, request %2s	SmServerMessage::Agent-NameInDoManagement	The "Do Management" Agent command was rejected.
Saw agent name in Logout() command %1s , request %2s	SmServerMessage::Agent-NameInLogout	The Logout request was rejected.

Message	Function	Description
Setting processor affinity failed	SmServerMessage::Set-ProcessorAffinityFail	(Windows) The performance tuning parameter for processor affinity could not be processed, so the existing affinity setting will be unchanged.
SM exception caught during initialization (%1s)	SmServerMessage::SMExcp-DuringInit	During the Policy Server startup "GlobalInit" phase, an exception was caught and startup failed. The accompanying text may provide more detail.
SM exception caught during server shutdown (%1s)	SmServerMessage::SMExcp-DuringServerShutdown	During the Policy Server shutdown "GlobalRelease" phase, an exception was caught. The accompanying text may provide more detail.
TCP port initialization failure	SmServerMessage::TCP-PortInitFail	During Policy Server startup the TCP ports enabled for Access Control or Administration requests could not be initialized, so startup was terminated.
The service loader failed to start %1s. Error %2i %3s	SmServerMes-sage::SZSERVER_StartFail	(Windows) The service loader could not be started (see error text), so it could not start the Policy Server or One View Monitor.
This policy server does not have a session encryption key	SmServerMessage::Session-EncryptKeyNotFound	The Policy Server does not have an initial Session Key and Key Generation is not enabled. If Access Control Requests or Administration Requests are configured to be served, startup is terminated.
Thread Pool thread caught exception	SmServerMessage::ExcpIn-ThreadPool	A Policy Server Worker Thread terminated due to an unexpected condition. A replacement thread will be added to the Thread Pool.

Message	Function	Description
UDP port initialization failure	SmServerMessage::UDPPort-InitFail	During Policy Server startup the UDP ports enabled for Administration or RADIUS requests could not be initialized, so startup was terminated.
UDP processing exception.	SmServerMessage::UDP-ProcessingExcp	While an Admin GUI initialization packet or a RADIUS response packet was being processed an unexpected error occurred. No response is sent.
Unable to create console output collector. Tracing will not be enabled	SmServerMessage::Trace-NotEnableConsoleOutput-CollecCreateFail	The Policy Server process could not access the console (or terminal window) as output for the Profiler (trace) log output. Verify that it has appropriate access permission to open the console.
Unable to create file output collector. Tracing will not be enabled	SmServerMessage::Trace-NotEnableFileOutput-CollecCreateFail	A Profiler (trace) log file could not be opened for overwriting (if it already exists) or be created (if it does not exist). Check access permissions to the directory and to the file (if it exists).
Unable to create shared secret rollover policy object	SmServerMessage::Shared-SecretCreateFail	During Policy Server startup no Shared Secret policy object was found in the Policy Store, then creation of an initial policy object failed so startup was terminated.
Unable to enable tracing	SmServerMessage::Trace-NotEnable	The initial setup of Profiler (trace) logging was successful but the remainder was not.
Unable to reset logger options dynamically	SmServerMessage::Dynamic-LoggerResetFail	The thread which detects that logger configuration options were changed while the Policy Server is running could not start, so such changes will not be acted upon unil the Policy Server has been restarted.

Message	Function	Description
Unable to resolve agent for request %1s	SmServerMessage::Unresolved-AgentIdentity	The Agent request is required to include the Agent identity but it could not be verified. The request is rejected.
Unable to resolve agent name %1s , request %2s	SmServerMessage::AgentName-UnResolved	The Agent request is required to include the Agent identity but it could not be verified for the named Agent. The request is rejected.
Unable to update password blob data	SmServerMessage::Blob-Update Failed	A user's "Password Blob" data for Password Services could not be updated in the User Store. If it is so configured, the Policy Server rejected the user's authentication attempt.
Unexpected exception while publishing AZ Libs	SmServerMes-sage::Unexpected Exception-PublishingAzLibs	An unexpected exception occurred while querying information about loaded custom authorization modules for diagnostic "Publish" information, so information regarding custom authorization libraries will not be published.
Unknown agent key type %1i	SmServerMessage::Agent-KeyT ypeUnknown	While Processing a "Do Management" request, An Agent Key record in the Policy Store was found with the given unrecognized key type, and the request was rejected.
Unknown Exception caught while publishing Auth Libs	SmServerMessage::Unknown-Ex cpPublishAuthLibs	An unexpected exception occurred while querying custom authentication scheme libraries for diagnostic "Publish" information, so information regarding loaded custom authentication schemes will not be published.

Message	Function	Description
Unknown exception caught while publishing Event Lib info	SmServerMessage::Unknown-ExcpWhilePublishEventLibInfo	An unexpected exception occurred while querying a custom event handler library for diagnostic "Publish" information, so information regarding custom event libraries loaded by SOA Security Manager will not be published.
Socket Error 104	104 - A call to bind() function failed.	This message is returned due to an error occurring when the message is sent across the TLI layer.

Java API

Error Message	Function	Description
%1s could not fetch administrator directory	SmJavaApiMes-sage::AdministratorDirectory-FetchFail	Unable to fetch the Registration Administrator User Directory. Check Policy Store.
%1s could not fetch registration directory	SmJavaApiMes-sage::RegistrationDirectory-FetchFail	Unable to fetch the Registration User Directory. Check Policy Store.
%1s could not fetch registration domain	SmJavaApiMes-sage::RegistrationDomain-FetchFail	Unable to fetch the Registration domain. Check Policy Store.
%1s could not fetch registration realm	SmJavaApiMes-sage::RegistrationRealm-FetchFail	Unable to fetch the Registration realm. Check Policy Store.
%1s could not fetch registration scheme	SmJavaApiMes-sage::RegistrationScheme-FetchFail	Unable to fetch the Registration scheme. Check Policy Store.
%1s invalid realm oid (null)	SmJavaApiMessage::Invalid-RealmOid	Unable to get the realm oid. Ensure that the user login was successful and a valid Session ID is available.

Error Message	Function	Description
(CSmEmsCommand::Set-ObjectClasses) Could not rollback properties of directory user %1s after setting properties failed	SmJavaApiMessage::Csm-EmsSetObjectClasses-RollBackPropertiesFail	Unable to reset the properties of the user after new values were rejected. Verify that the user store is operating correctly and the Policy Server can establish a connection.
(CSmEmsCommand::Set-Properties) Could not rollback properties of directory user %1s after setting properties failed.	SmJavaApiMessage::CSm-EmsSetPropertiesRollback-PropertiesFail	Unable to reset the properties of the user after new values were rejected. Verify that the user store is operating correctly and the Policy Server can establish a connection.
(CSmEmsCommandV2::Set-ObjectClasses) Could not rollback properties of directory user %1s after setting properties failed.	SmJavaApiMessage::Set-ObjectClassesDir-UserRollbackFail	Unable to reset the properties of the user after new values were rejected. Verify the directory connection defined in the policy store.
(CSmEmsCommandV2::Set-Properties) Could not rollback properties of directory object %1s after setting properties failed.	SmJavaApiMessage::Set-PropertiesDirObjRollbackFail	Unable to reset the properties of the object after new values were rejected. Verify the directory connection defined in the policy store.
Delegated Management Services (DMS) will not run under an OEM license	SmJavaApiMessage::DMS-RunError	An OEM License has been detected. Users must purchase a valid license to continue using the product.
DMS failed to load workflow library '%1s	'SmJavaApiMessage::DMS-LibraryLoadFail	Unable to load the custom library or the default library that enables workflow functionality. Either DMS was not properly installed or the custom library is missing or misplaced.
DMS failed to resolve function '%1s' in library '%2s	'SmJavaApiMessage::DMS-FunctionResolveFail	DMS encountered a problem while trying to initialize the workflow library. Make sure the library exists and the entry points are defined.
DMS Workflow postprocess failure in library %1s: %2s	SmJavaApiMessage::DMS-WorkflowPostProcessFail	DMS encountered a problem after workflow processing.

Error Message	Function	Description
DMS Workflow preprocess failure in library %1s: %2s	SmJavaApiMessage::DMS-WorkflowPreprocessFail	DMS encountered a problem during workflow pre-processing.
Exception caught in post-process DMS Workflow	SmJavaApiMessage::ExcpIn-DMSPostprocess	The custom library used to post-process the DMS workflow encountered an exception. Check the library and the post-process function.
Exception caught in pre-process DMS Workflow.	SmJavaApiMessage::ExcpIn-DMSPreprocess	The custom library used to pre-process the DMS workflow encountered an exception. Check the library and the pre-process function.
Exception in Transact SessionTimeoutThread.	SmJavaApiMessage::Unknown-ExcpTransactSessionTimeout-Thread	An unknown error occurred while trying to process expired sessions.
Exception in Transact SessionTimeoutThread. Msg: %1s	SmJavaApiMessage::Excp-TransactSessionTimeoutThread	An error occurred while trying to process expired sessions.
Failed to create EmsSession Timeout Thread	SmJavaApiMessage::Ems-SessionTimeoutThread-CreateFail	There are not enough system resources to create a new thread.
Failed to load EMS API Library '%1s	SmJavaApiMessage::Ems-ApiLibLoadFail	Either DMS was not properly installed or the custom library is missing or misplaced.
Failed to load function '%1s', EMS API Library '%2s	SmJavaApiMessage::EmsApi-LibLoadFuncFail	Either DMS was not properly installed or the custom library is missing or misplaced.
Failed to resolve all domains	SmJavaApiMessage::Domain-ResolveFail	A problem occurred while trying to retrieve all domains associated with the current administrator. Check for Policy Store corruption.
getUsersDelegatedRoles failed, error = %1s	SmJavaApiMessage::IMSget-UsersDelegatedRolesFail	Unable to retrieve roles for this user. Make sure the library smobjims.dll (libsmobjims.so) is installed.
getUsersDelegatedRolesInApp failed, error = %1s	SmJavaApiMessage::IMSget-UsersDelegatedRolesInAppFail	Unable to retrieve user roles for the application. Make sure the library smobjims.dll (libsmobjims.so) is installed.

Error Message	Function	Description
getUsersDelegatedTasks failed, error = %1s	SmJavaApiMessage::IMSget-UsersDelegatedTasksFail	Unable to retrieve tasks for this user. Make sure the library smobjims.dll (libsmobjims.so) is installed.
getUsersDelegatedTasksInApp failed, error = %1s	SmJavaApiMessage::IMS-getUsersDelegatedTasksIn-AppFail	Unable to retrieve user tasks for the application. Make sure the library smobjims.dll (libsmobjims.so) is installed.
getUsersRoles failed, error = %1s	SmJavaApiMessage::IMS-getUsersRolesFail	Unable to retrieve roles for this user. Make sure the library smobjims.dll (libsmobjims.so) is installed.
getUsersRolesInApp failed, error = %1s	SmJavaApiMessage::IMS-getUsersRolesInAppFail	Unable to retrieve user roles for the application. Make sure the library smobjims.dll (libsmobjims.so) is installed.
getUsersTasks failed, error = %1s	SmJavaApiMessage::IMS-getUsersTasksFail	Unable to retrieve tasks for this user. Make sure the library smobjims.dll (libsmobjims.so) is installed.
getUsersTasksInApp failed, error = %1s	SmJavaApiMessage::IMS-getUsersTasksInAppFail	Unable to retrieve user tasks for the application. Make sure the library smobjims.dll (libsmobjims.so) is installed.
IMSObjectProviderFactory: getIMSBaseObjectProvider() - getProcAddress('%1s') failed	SmJavaApiMessage::getIMSB-aseObjectProvider_getProc-AddressFail	Make sure the library smobjims.dll (libsmobjims.so) is installed.
IMSObjectProviderFactory:get-Provider() - error loading provider library	SmJavaApiMes-sage::IMS_getProviderLib-LoadError	This message is generated at startup if IdentityMinder not installed, or not installed correctly.
IMSObjectProviderFactory:get-Provider() - getProcAddress of %1s failed	SmJavaApiMes-sage::IMS_getProvider_get-ProcAddressFail	The library is corrupt or the Policy Server could not load the library due to lack of resources.
ImsRBACProviderFactory:get-Provider() - getProcAddress of %1s failed	SmJavaApiMessage::Ims-RBACProvider-Factory_getProviderFail	This message is generated at startup if IdentityMinder not installed, or not installed correctly.
IsAssociatedWithDirectory failed, error = %1s	SmJavaApiMessage::IMSIs-AssociatedWithDirectoryFail	An error occurred while trying to determine if the user directory is valid for the associated IMS Environment.

Error Message	Function	Description
IsUserAssignedRole failed, error = %1s	SmJavaApiMessage::IMSIs-UserAssignedRoleFail	An error occurred while trying to determine if the user belongs to a role.
IsUserDelegatedRole failed, error = %1s	SmJavaApiMessage::IMSIs-UserDelegatedRoleFail	An error occurred while trying to determine if the user belongs to a role.
SmJavaAPI: Error finding class ActiveExpressionContext %1p	SmJavaApiMessage::MSG_E_-FINDING_CAEClog	The JVM was unable to find the Active Expression class during unitization. Make sure the Option Pack is installed on the Policy Server. Check classpath for smjavaapi.jar.
SmJavaAPI: Error finding class NativeCallbackError %1p	SmJavaApiMessage::MSG_E_-FINDING_CNCElog	Make sure a valid smjavaapi.jar exists and is included in the classpath. Check to see if the JVM version is supported for this release.
SmJavaAPI: Error finding class SmAuthenticationContext %1p	SmJavaApiMessage::MSG_E_-FINDING_CAUTHClog	Make sure a valid smjavaapi.jar exists and is included in the classpath.
SmJavaAPI: Error finding class Throwable %1p	SmJavaApiMessage::MSG_E_-FINDING_CTHROWlog	The JVM/JRE appears to not have been installed properly. Check to see if a valid rt.jar exists. Ensure that SOA Security Manager is configured to use a supported version of the JVM.
SmJavaAPI: Error finding class TunnelServiceContext %1p	SmJavaApiMessage::MSG_E_-FINDING_CTSClog	Make sure the Option Pack is installed on the Policy Server a valid smjavaapi.jar exists and is included in the classpath.
SmJavaAPI: Error finding class UserAuthenticationException %1p	SmJavaApiMessage::MSG_E_-FINDING_CUAElog	Make sure a valid smjavaapi.jar exists and is included in the classpath. Check to see if the JVM version is supported for this release.
SmJavaAPI: Error finding method ActiveExpressionContext. invoke %1p	SmJavaApiMessage::MSG_E_-FIND_MINVOKElog	Make sure the Option Pack is installed on the Policy Server a valid smjavaapi.jar exists and is included in the classpath

Error Message	Function	Description
SmJavaAPI: Error finding method ActiveExpressionContext. release %1p	SmJavaApiMessage::MSG_E_-FIND_MRELEASElog	Make sure the Option Pack is installed on the Policy Server a valid smjavaapi.jar exists and is included in the classpath
SmJavaAPI: Error finding method SmAuthenticationContext. authenticate %1p	SmJavaApiMessage::MSG_E_-FIND_MAUTHENTICATElog	Make sure a valid smjavaapi.jar exists and is included in the classpath. Check to see if the JVM version is supported for this release.
SmJavaAPI: Error finding method SmAuthenticationContext. init %1p	SmJavaApiMessage::MSG_E_-FIND_MAUTHINITlog	Make sure a valid smjavaapi.jar exists and is included in the classpath. Check to see if the JVM version is supported for this release.
SmJavaAPI: Error finding method SmAuthenticationContext. query %1p	SmJavaApiMessage::MSG_E_-FIND_MAUTHQUERYlog	Make sure a valid smjavaapi.jar exists and is included in the classpath. Check to see if the JVM version is supported for this release.
SmJavaAPI: Error finding method SmAuthenticationContext. release %1p	SmJavaApiMessage::MSG_E_-FIND_MAUTHRELEASElog	Make sure a valid smjavaapi.jar exists and is included in the classpath. Check to see if the JVM version is supported for this release.
SmJavaAPI: Error finding method Throwable.getLocalized-Message %1p	SmJavaApiMessage::MSG_E_-FIND_GLMlog	The JVM/JRE appears to not have been installed properly. Check to see if a valid rt.jar exists. Ensure that SOA Security Manager is configured to use a supported version of the JVM.
SmJavaAPI: Error finding method TunnelServiceContext.tunnel %1p	SmJavaApiMessage::MSG_E_-FIND_MTUNNELlog	Make sure a valid smjavaapi.jar exists and is included in the classpath
SmJavaAPI: Error initializing Java active expressions %1p	SmJavaApiMessage::MSG_E_-ACTEXPR_INITlog	Unable to load the Active Expression library. Check to see if smactiveexpr.jar is in the classpath
SmJavaAPI: Error initilizing JNI references for SMJavaAPI %1p	SmJavaApiMessage::MSG_E_-INIT_JNI_REFSlog	The JVM encountered an internal error. Check JVM installation.

Error Message	Function	Description
SmJavaAPI: Error making global reference to class ActiveExpressionContext %1p	SmJavaApiMessage::MSG_E_-GLOBAL_CAEClog	The JVM encountered an internal error establishing the active expression context
SmJavaAPI: Error making global reference to class NativeCallbackError %1p	SmJavaApiMessage::MSG_E_-GLOBAL_CNCElog	Make sure a valid smjavaapi.jar exists and is included in the classpath. Check to see if the JVM version is supported for this release.
SmJavaAPI: Error making global reference to class SmAuthenticationContext %1p	SmJavaApiMessage::MSG_E_-GLOBAL_CAUTHClog	The JVM encountered an internal error establishing a authentication context
SmJavaAPI: Error making global reference to class Throwable %1p	SmJavaApiMessage::MSG_E_-GLOBAL_CTHROWlog	The JVM/JRE appears to not have been installed properly. Check to see if a valid rt.jar exists. Ensure that SOA Security Manager is configured to use a supported version of the JVM.
SmJavaAPI: Error making global reference to class TunnelServiceContext %1p	SmJavaApiMessage::MSG_E_-GLOBAL_CTSClog	The JVM encountered an internal error establishing a tunnel connection
SmJavaAPI: Error making global reference to class UserAuthenticationException %1p	SmJavaApiMessage::MSG_E_-GLOBAL_CUAElog	Make sure a valid smjavaapi.jar exists and is included in the classpath. Check to see if the JVM version is supported for this release.
SmJavaAPI: Error releasing Java active expressions %1p	SmJavaApiMessage::MSG_E_-ACTEXPR_RELEASElog	The JVM encountered an internal error. Check JVM installation.
SmJavaAPI: Error releasing JNI references for SMJavaAPI %1p	SmJavaApiMessage::MSG_E_-REL_JNI_REFSlog	The JVM encountered an internal error. Check JVM installation.
SmJavaAPI: Unable to get a JVM environment %1p	SmJavaApiMessage::MSG_-ERR_GETTING_JVMlog	The JVM encountered an internal error. Check JVM installation.
SmJavaAPI: Unable to initialize JNI references %1p	SmJavaApiMessage::MSG_-ERR_INIT_JNI_REFlog	The JVM encountered an internal error. Check JVM installation.

Error Message	Function	Description
SmJavaAPI: Unable to release JNI references %1p	SmJavaApiMessage::MSG_-ERR_REL_JNI_REFlog	Policy Server could not completely release resources either after authorization or during shutdown.
SmJVMSupport: Error attaching JVM to thread %1p	SmJavaApiMessage::MSG_E_-ATTACH_TO_THREADlog	The JVM might not have been properly initialized. Make sure there are no stray java processes running
SmJVMSupport: Error creating JVM %1p	SmJavaApiMessage::MSG_E_-CREATE_JVMlog	Make sure the JVM is installed correctly and the library jvm.dll (libjvm.so) is valid
SmJVMSupport: Error destroying JVM %1p	SmJavaApiMessage::MSG_E_-DESTROYING_JAVA_VMlog	The Policy Server did not execute a clean shutdown. JVM resources were not released.
SmJVMSupport: Error detaching JVM from thread %1p	SmJavaApiMessage::MSG_E_-DETACH_THREADlog	The Policy Server did not execute a clean shutdown. JVM resources were not released.
SmJVMSupport: Error finding class System to release resources from JVM %1p	SmJavaApiMessage::MSG_E_-JVM_RR_FSYSlog	The Policy Server did not execute a clean shutdown. JVM resources were not released.
SmJVMSupport: Error getting CLASSPATH environment variable when creating JVM %1p	SmJavaApiMessage::MSG_E_-GETENV_CPlog	Ensure that the CLASSPATH variable is correctly defined
SmJVMSupport: Error getting JVM environment to release resources from JVM %1p	SmJavaApiMessage::MSG_E_-JVM_RR_ENVlog	The Policy Server did not execute a clean shutdown. JVM resources were not released.
SmJVMSupport: Error getting method GC on class System to release resources from JVM %1p	SmJavaApiMessage::MSG_E_-JVM_RR_GGClog	The JVM was unable to run the garbage collection. Ensure the validity of rt.jar
SmJVMSupport: Error opening NETE_JVM_OPTION_FILE %1p	SmJavaApiMessage::MSG_E_-OPEN_JVM_OPTION_FILElog	Ensure that the environment variable NETE_JVM_OPTION_FILE is set and the file is valid
SmJVMSupport: Error trying to get a created JVM %1p	SmJavaApiMessage::MSG_E_-GET_CREATED_JVM_LOG	The JVM might not have been properly initialized. Make sure there there are no stray java processes running .

Error Message	Function	Description
SmJVMSupport: Unknown error caught when creating JVM %1p	SmJavaApiMessage::MSG_E_-CAUGHT_CREATE_JVMlog	Make sure the JVM is installed correctly and the library jvm.dll (libjvm.so) is valid
The Delegated Management Services (DMS) evaluation period has expired	SmJavaApiMessage::DMS-EvalPeriodExpired	The DMS evaluation period is limited to a fixed amount of time. This message indicates that the evaluation period has expired. Contact your sales representative.

LDAP

Error Message	Function	Description
(AddMember) Group DN: '%1s', User DN: '%2s'. Status: Error %3i . %4s	SmLdapMessage::ErrorLdap-AddMemberGroupDN	Failed to add a given user to a given group in an LDAP user directory. See the included LDAP error message for additional information.
(AuthenticateUser) DN: '%1s' . Status: Error %2i . %3s	SmLdapMes-sage::AuthenticateUserDNLd-Error	The Policy Server failed to authenticate a user against an LDAP user directory. This may happen for a variety of reasons, including but not limited to the user supplying a wrong password. See the included LDAP error message for additional information.
(Bind - init) Server: '%1s', Port: %2ul. Status: Error	SmLdapMessage::ErrorBindInit	The LDAP server configured for a user directory could not be initialized. Troubleshoot the LDAP server specified in the error message.
(Bind - init) Server: failed to load Security Integration file	SmLdapMessage::BindInit-LoadSecurityIntegrationFileFail	(Obsolete)
(Bind - init) Server: failed to load Security Integration secret	SmLdapMessage::BindInit-LoadSecurityIntegrationSecret-Fail	(Obsolete)
(Bind - ldap_set_option CONNECT_TIMEOUT). Status: Error %1i . %2s	SmLdapMessage::ErrorBind-LdapOptionConnectTimeout	Unable to set LDAP option. Check the error string for more information.

Error Message	Function	Description
(Bind - ldap_set_option LDAP_OPT_PROTOCOL_-VERSION). Status: Error %1i . %2s	SmLdapMessage::ErrorBind-LdapOptionProtocolVersion	Unable to set LDAP option. Check the error string for more information.
(Bind - ldap_set_option LDAP_OPT_REFERRALS). Status: Error %1i. %2s	SmLdapMessage::ErrorBind-LdapOptionReferrals	Unable to set enable automatic referral handling. Check the error string for more information.
(Bind - ldap_set_option LDAPL_VERSION2). Status: Error %1i . %2s	SmLdapMessage::ErrorBind-LdapOptionVersion2	Unable to set LDAP option. Check the error string for more information. Make sure your LDAP server is one of the supported versions.
(Bind - ldap_set_option SIZELIMIT). Status: Error %1i. %2s	SmLdapMessage::ErrorBind-LdapOptionSizeLimit	Unable to set LDAP option. Check the error string for more information.
(Bind - ldap_set_option THREAD_FN_PTRS). Status: Error %1i . %2s	SmLdapMessage::ErrorBind-LdapOptionThreadFnPirs	Unable to set LDAP option. Check the error string for more information.
(Bind - ldap_set_option TIMELIMIT). Status: Error %1i. %2s	SmLdapMessage::ErrorBind-LdapOptionTimeLimit	Unable to set LDAP option. Check the error string for more information.
(Bind - SSL client init failed during LDAP Initialization) Server: '%1s', Port: %2ul, Cert DB: '%3s' . Status: Error	SmLdapMessage::BindSSL-LdapClientInitFailed	Unable to connect to LDAP server. Make sure your LDAP server is running, and the LDAP server and port are correct. (try ping from the policy server machine.)
(Bind - SSL client init) Cert DB: '%1s' . Status: Error	SmLdapMessage::BindSSL-ClientCertDBFailed	The client-side initialization of an SSL connection to the LDAP server configured for a user directory failed. Verify if the certificate database is specified correctly.
(Bind - SSL init) Server: '%1s', Port: %2ul. Status: Error. Check LDAP server and port.	SmLdapMessage::BindSSL-Init Failed. Check LDAP server and port.	Unable to initialize to LDAP server with SSL. Check the LDAP server and port. Make sure your LDAP server is configured for SSL.
(Bind) DN: '%1s'. Status: Error %2i . %3s	SmLdapMessage::BindDN-RequireCredentialsError	Unable to bind to LDAP server. Make sure the credentials are correct. See SOA Security Manager management console.

Error Message	Function	Description
(Bind) Status: Error %1i. %2s	SmLdapMessage::Bind-StatusError	Unable to set LDAP option. Check the error string for more information.
(ChangeUserPassword) DN: '%1s'. Status: Error %2i. %3s	SmLdapMessage::Change-UserPasswordLdError	A password change failed for the specified user because it couldn't bind to the LDAP server using his/her old password. See the error message for any additional information.
(ChangeUserPassword) DN: '%1s'. Status: Error %2s	SmLdapMessage::Change-UserPasswordDNFail	A password change failed for the specified user. See the error message for any additional information.
(CSmDsLdapProvider::Add-Entry) DN: '%1s'. Status: Error %2i . %3s	SmLdapMessage::ErrorLdap-AddEntryDN	Failed to add a given DN entry to an LDAP user directory. See the included LDAP error message for additional information.
(GetObjProperties) DN: '%1s' . Status: Error %2i . %3s	SmLdapMessage::GetObj-PropertiesDNLdError	The Policy Server failed to get a requested property of a requested DN in an LDAP user directory. See the included LDAP error message for additional information.
(GetUserProp) DN: '%1s', Filter: '%2s' . Status: Error %3i . %4s	SmLdapMessage::GetUser-ProDNLd-Error	An error occurred when searching for a given DN and specifying an attribute to be retrieved. See the included LDAP error message for additional information.
(GetUserProp) DN: '%1s', Filter: '%2s' . Status: Error %3i . %4s	SmLdapMessage::GetUser-ProsDNLdError	An error occurred when searching for a given DN and specifying attributes to be retrieved. See the included LDAP error message for additional information.
(RemoveEntry) DN: '%1s'. Status: Error %2i . %3s	SmLdapMessage::ErrorLdap-RemoveEntryDN	Failed to find a DN entry to be removed from an LDAP user directory. See the included LDAP error message for additional information.
(RemoveMember) Group DN: '%1s', User DN: '%2s'. Status: Error %3i . %4s	SmLdapMessage::ErrorLdap-RemoveMemberGroupDN	Failed to remove a given user from a given group in an LDAP user directory. See the included LDAP error message for additional information.

Error Message	Function	Description
(SetUserProp) DN: '%1s', PropName: '%2s', PropValue: '%3s' . Status: Error %4i . %5s	SmLdapMessage::SetUser-ProDNError	Failed to modify a given DN entry in an LDAP user directory. See the included LAP error message for additional information.
(SetUserProp) DN: '%1s'. Status: Error %2i . %3s	SmLdapMessage::SetUser-ProsDNLdError	Failed to modify a given DN entry in an LDAP user directory. See the included LDAP error message for additional information.
(SI Bind - init) Server: '%1s', Port: %2ul. Status: Error	SmLdapMessage::ErrorSI-Bind Init	The LDAP server configured for a user directory could not be initialized. Troubleshoot the LDAP server specified in the error message.
(SmDsLdap) Failed to get servers.	SmLdapMessage::SmDs-LdapFailToGetServers	Internal error occurred while trying to rebind to referred LDAP server. Data may not be available.
(SmDsLdapConnMgr(Bind): SSL client init failed in LDAP Initialization). Server %1s : %2ul, Cert DB: %3s	SmLdapMessage::Ldap-ConnMgrBindSSLCertDBInit-Fail	Unable to initialize to LDAP server with SSL. Check the LDAP server and port. Make sure your LDAP server is configured for SSL.
(SmDsLdap-GetHandle) Error while parsing %1s LDAP URL.	SmLdapMessage::GetHandle-LdapURLParsingError	An internal LDAP URL could not be parsed. It must conform to RFC 2255 format.
(SmDsLdap-LdapAdd) DN: '%1s'. Status: Received referral but no handling is implemented.	SmLdapMessage:SmDsLdap-AddHandlingImplError	Error was caused Add call returning a referral request.
(SmDsLdap-LdapDelete) DN: '%1s'. Status: Received referral but no handling is implemented.	SmLdapMessage::SmDs-LdapDeleteHandlingImplError	Error was caused Delete call returning a referral request.
(SmDsLdap-LdapModify) DN: '%1s'. Status: Received referral but no handling is implemented.	SmLdapMessage::SmDs-LdapModifyHandlingImplError	Error was caused Modify call returning a referral request.

Error Message	Function	Description
(SmDsLdap-Referral) Error while parsing %1s LDAP URL.	SmLdapMessage::Ldap-URLParsingError	The Policy Server failed to parse a given LDAP URL. The usual cause of failure is a faulty LDAP URL passed as a referral, in which case verify that your LDAP topology is defined correctly and/or disable enhanced LDAP referral handling in the Policy Server Management Console.
CSmDsLdapConnMgr (ldap_unbind_s). Server %1s : %2ul	SmLdapMessage::Error-LdapConnMgrUnbind	Error while unbinding from the LDAP server.
CSmDsLdapConnMgr (ldap_unbind_s). Server %1s : %2ul	SmLdapMessage::Unknown-ExceptionLdapConnMgrUnbind	Internal error occurred while unbinding from the LDAP server.
CSmDsLdapProvider::Search() : Wrong syntax of LDAP search filter: %1s	SmLdapMessage::Wrong-SyntaxLdapSearchFilter	Verify if the LDAP search filter has correct syntax.
CSmDsLdapProvider::Search-Binary(): Wrong syntax of LDAP search filter: %1s	SmLdapMessage::Wrong-SyntaxLdapSearchBinFilter	Verify if the LDAP search filter has correct syntax.
CSmDsLdapProvider::Search-Count(): Wrong syntax of LDAP search filter: %1s	SmLdapMessage::Wrong-SyntaxLdapSearchCountFilter	Verify if the LDAP search filter has correct syntax.
CSmObjLdapConnMgr Exception (ldap_unbind_s). Server %1s:%2ul	SmLdapMessage::Excp-CSmObjLdapConn-Mgrldap_unbind_s	The SOA Security Manager Policy Server failed to unbind from the LDAP server configured for the policy store. Troubleshoot the LDAP server specified in the error message.
Directory's Disabled Flag attribute not proper for password services functionality in CSmDsLdapProvider::Set-DisabledUserState	SmLdapMessage::DirDisabled-FlagNotProper	The user attribute chosen to server as a Disabled Flag attribute in the user directory's setting is ill-suited for this purpose. Please reselect the attribute.
Exception (ldap_controls_free) in CSmDsLDAPConn::Create-LDAPControls	SmLdapMessage::Unknown-ExceptionFreeLDAPControls	Unexpected error occurred while releasing an internal object back to LDAP library. This is likely a memory or configuration error on the policy server system.

Error Message	Function	Description
Exception (ldap_count_entries) in CSmDsLdapProvider::Search-Count	SmLdapMessage::Unknown-ExceptionLdapCountEntries	Unknown exception when processing results of an LDAP search in the user directory provider layer.
Exception (ldap_explode_dn) in CSmDsLdapProvider::Get-GroupMembers	SmLdapMessage::Ldap-ExplodeExceptionGet-GroupMembers	Unknown exception when converting a DN into its component parts.
Exception (ldap_init) in CSmDsLdapProvider::Bind	SmLdapMessage::Unknown-ExceptionLdapInitBind	Unknown exception when initializing an LDAP server configured for a user directory.
Exception (ldap_init) in SecurityIntegrationCheck	SmLdapMessage::Unknown-ExceptionLdapInit	Unknown exception when initializing an LDAP server configured for a user directory.
Exception (ldap_modify_s) in CSmDsLdapProvider::Add-Entry	SmLdapMessage::Unknown-ExceptionLdapModifyAdd-Entries	Unknown exception when adding an entry to an LDAP user directory.
Exception (ldap_modify_s) in CSmDsLdapProvider::Set-UserProps	SmLdapMessage::Unknown-ExceptionLdapModify-SetUserProps	Unknown exception when modifying an entry in an LDAP user directory.
Exception (ldap_search_ext_s) in CSmDsLdapProvider::Ping-Server	SmLdapMessage::Unknown-ExceptionPingServer	Unable to connect to LDAP server. Make sure your LDAP server is running, and the LDAP server and port are correct. (try ping from the policy server machine.)
Exception (ldap_search_ext_s) in CSmDsLdap-Provider::Search	SmLdapMessage::Unknown-ExceptionLdapSearchExt	Unknown exception when performing an LDAP search in the user directory provider layer.
Exception (ldap_search_ext_s) in CSmDsLdapProvider::-SearchBinary	SmLdapMessage::Unknown-ExceptionLdapSearchBinExt	Unknown exception when performing an LDAP search in the user directory provider layer.
Exception (ldap_search_ext_s) in CSmDsLdapProvider::-SearchCount	SmLdapMessage::Unknown-ExceptionSearchCount	Unknown exception when performing an LDAP search in the user directory provider layer.
Exception (ldap_search_s) in CSmDsLdapProvider::Get-ObjProperties	SmLdapMessage::Unknown-ExceptionLdapSearchGet-ObjProperties	Unknown exception when performing an LDAP search in the user directory provider layer.

Error Message	Function	Description
Exception (ldap_search_s) in CSmDsLdapProvider::Get-UserProp	SmLdapMessage::Unknown-ExceptionLdapSearchGet-UserProp	Unknown exception when performing an LDAP search in the user directory provider layer.
Exception (ldap_search_s) in CSmDsLdapProvider::Get-UserProps	SmLdapMessage::Unknown-ExceptionLdapSearchGet-UserProps	Unknown exception when performing an LDAP search in the user directory provider layer.
Exception (ldap_search_s) in CSmObjLdapProvider::Ping-Server	SmLdapMessage::Excp-Ldap_Search_S	The LDAP server configured for the policy store could not be pinged. Check if it is up and running.
Exception (ldap_search_st) in CSmObjLdapProvider::Ping-Server	SmLdapMessage::Excpldap_-search_st	The LDAP server configured for the policy store could not be pinged with the given timeout value. Check if it is up and running.
Exception (ldap_simple_bind_s) in CSmDsLdapProvider::Bind	SmLdapMessage::Unknown-Exception-LdapSimpleBind	Unable to connect to LDAP server. Make sure your LDAP server is running, and the LDAP server and port are correct. (try ping from the policy server machine.)
Exception (LdapModify) in CSmDsLdapProvider::Add-Entry	SmLdapMessage::Unknown-ExceptionLdapModifyAddEntry	Unknown exception when adding an entry to an LDAP user directory. Try disabling the enhanced referral handling to see if it helps.
Exception (LdapModify) in CSmDsLdapProvider::Add-Member	SmLdapMessage::Unknown-ExceptionLdapModifyAdd-Member	Unknown exception when adding a member to a group in an LDAP user directory. Try disabling the enhanced referral handling to see if it helps.
Exception (LdapModify) in CSmDsLdapProvider::Remove-Member	SmLdapMessage::Unknown-ExceptionLdapModify-RemoveMember	Unknown exception when removing a member from a group in an LDAP user directory. Try disabling the enhanced referral handling to see if it helps.
Exception (LdapModify) in CSmDsLdapProvider::Set-UserProp	SmLdapMessage::Unknown-ExceptionLdapModifySet-UserProp	Unknown exception when modifying an entry in an LDAP user directory. Try disabling the enhanced referral handling to see if it helps.

Error Message	Function	Description
Exception (ldapssl_client_init) in CSmDsLdapProvider::Init-Instance	SmLdapMessage::Unknown-ExceptionLdapSSLClinetInit	The client-side initialization of an SSL connection to the LDAP server configured for a user directory failed. Verify if the certificate database is specified correctly.
Exception (ldapssl_init) in CSmDsLdapProvider::Bind	SmLdapMessage::Unknown-ExceptionLdapSSLInitBind	Unable to initialize to LDAP server with SSL. Check the LDAP server and port. Make sure your LDAP server is configured for SSL.
Exception in CSmDsLDAPConn::Create-LDAPControls	SmLdapMessage::Unknown-ExceptionCreateLDAPControls	Unexpected error occurred while requesting internal object from LDAP library. This is likely a memory or configuration error on the policy server system.
Exception in CSmDsLDAPConn::Free-LDAPControls	SmLdapMessage::Unknown-exceptionCSmDsLDAP-Conn_FreeLDAPControls	Internal error occurred while releasing LDAP controls.
Exception in CSmDsLDAPConn::Parse-LDAPControls	SmLdapMessage::Unknown-ExceptionParseLDAPControls	Unable to parse response from LDAP server. Is the LDAP server running properly?
Exception in CSmDsLdapProvider::Get-ObjProperties	SmLdapMessage::Unknown-ExceptionGetObjProperties	Unknown exception when processing results of an LDAP search in the user directory provider layer.
Exception in CSmDsLdapProvider::Get-UserProp	SmLdapMessage::Unknown-ExceptionGetUserProp	Unknown exception when processing results of an LDAP search in the user directory provider layer.
Exception in CSmDsLdapProvider::Get-UserProps	SmLdapMessage::Unknown-ExceptionGetUserProps	Unknown exception when processing results of an LDAP search in the user directory provider layer.
Exception in CSmDsLdapProvider::Search	SmLdapMessage::Unknown-ExceptionCSmDsLdap-ProviderSearch	Unknown exception when processing results of an LDAP search in the user directory provider layer.
Exception in CSmDsLdapProvider::Search-Binary	SmLdapMessage::Unknown-ExceptionSearchBinary	Unknown exception when processing results of an LDAP search in the user directory provider layer.

Error Message	Function	Description
Exception in SecurityIntegrationCheck	SmLdapMessage::Unknown-ExceptionSecurityIntegration-Check	Unknown exception trying to identify if an LDAP server configured for a user directory is an instance of Security Integration LDAP.
Failed to create a paging control	SmLdapMessage::Create-PagingControlFail	Internal error occurred while requesting internal object from LDAP library. This is likely a memory or configuration error on the policy server system.
Failed to create a sorting LDAP control	SmLdapMessage::Create-SortLdapControlFail	Internal error occurred while requesting internal object from LDAP library. This is likely a memory or configuration error on the policy server system.
Failed to fetch user property '%1s' for DN '%2s'	SmLdapMessage::FailedTo-FetchUserPropertyForDN	The specified DN does not exist on the LDAP server configured for a user directory, or it does not have the specified property. This can happen, for example, if a SOA Security Manager SDK application attempts to add a user to a group that does not exist.
Failed to parse LDAP message	SmLdapMessage::Ldap-ParseMsgFail	Received invalid response from LDAP server. Is the LDAP server running properly?
Failed to parse the server-side sorting response control	SmLdapMessage::Parsing-ServerSideResponse-ControlFail	Unable to parse response from LDAP server. Is the LDAP server running properly?
Failed to parse the virtual list view response control	SmLdapMessage::Virtual-ListViewResponseControlFail	Unable to parse response from LDAP server. Is the LDAP server running properly?
Failed to retrieve cert db location from registry	SmLdapMessage::Retrieve-CertDBRegFailed	The HKLM\Software\Netegrity\SOA Security Manager\CurrentVersion\LdapPolicy Store\CertDbPath registry entry was not found. Create that entry, entering the appropriate SSL certificate database path or leaving empty if not using SSL connection to the policy store. On a UNIX system, use the sm.registry file in <install-dir>/registry.

Error Message	Function	Description
Failure executing the server-side sorting LDAP control	SmLdapMessage::Server-Side SortingLdapExecFail	Unable to parse response from LDAP server. Is the LDAP server running properly?
LDAP admin limit exceeded searching for ActiveExpr entries in policy store	SmLdapMessage::Admin-Limit ExceedSearchFor-ActiveExpr	A search for active expressions in the policy store exceeded the look-through limit the LDAP instance was configured with. Increase the look-through limit on the LDAP server side.
LDAP admin limit exceeded searching for Agent entries in policy store	SmLdapMessage::Ldap-Admin SizeLimit-Exceeded_Device	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP admin limit exceeded searching for AgentCommand entries in policy store	SmLdapMessage::Ldap-Admin SizeLimit-Exceeded_AgentCommand	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP admin limit exceeded searching for AgentGroup entries in policy store	SmLdapMessage::Ldap-Admin SizeLimit-Exceeded_DeviceGroup	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP admin limit exceeded searching for AgentKey entries in policy store	SmLdapMessage::Ldap-Admin SizeLimit-Exceeded_AgentKey	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP admin limit exceeded searching for AgentType entries in policy store	SmLdapMessage::Admin-Limit ExceedSearchFor-AgentType	A search for agent types in the policy store exceeded the look-through limit the LDAP instance was configured with. Increase the look-through limit on the LDAP server side.

Error Message	Function	Description
LDAP admin limit exceeded searching for AgentTypeAttr entries in policy store	SmLdapMessage::Admin-LimitExceedSearchFor-AgentTypeAttr	A search for agent type attributes in the policy store exceeded the look-through limit the LDAP instance was configured with. Increase the look-through limit on the LDAP server side.
LDAP admin limit exceeded searching for AuthAzMap entries in policy store	SmLdapMessage::Ldap-AdminSizeLimit-Exceeded_AuthAzMap	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP admin limit exceeded searching for CertMap entries in policy store	SmLdapMessage::Ldap-AdminSizeLimit-Exceeded_CertMap	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP admin limit exceeded searching for Domain entries in policy store	SmLdapMessage::LdapAdmin-SizeLimitExceeded_Domain	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP admin limit exceeded searching for KeyManagement entries in policy store	SmLdapMessage::LdapAdmin-SizeLimit-Exceeded_KeyManagement	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP admin limit exceeded searching for ODBCQuery entries in policy store	SmLdapMessage::Ldap-AdminSizeLimit-Exceeded_ODBCQuery	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.

Error Message	Function	Description
LDAP admin limit exceeded searching for PasswordPolicy entries in policy store	SmLdapMessage::Ldap-AdminSizeLimit-Exceeded_PasswordPolicy	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP admin limit exceeded searching for Policy entries in policy store	SmLdapMessage::Ldap-AdminSizeLimit-Exceeded_Policy	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP admin limit exceeded searching for PolicyLink entries in policy store	SmLdapMessage::Ldap-AdminSizeLimit-Exceeded_PolicyLink	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP admin limit exceeded searching for Property entries in policy store	SmLdapMessage::Admin-LimitExceedSearchFor-Property	A search for property objects in the policy store exceeded the look-through limit the LDAP instance was configured with. Increase the look-through limit on the LDAP server side.
LDAP admin limit exceeded searching for PropertyCollection entries in policy store	SmLdapMessage::Admin-LimitExceedSearchFor-PropertyCollection	A search for property collections in the policy store exceeded the look-through limit the LDAP instance was configured with. Increase the look-through limit on the LDAP server side.
LDAP admin limit exceeded searching for PropertySection entries in policy store	SmLdapMessage::AdminLimit-ExceedSearchForProperty-Section	A search for property sections in the policy store exceeded the look-through limit the LDAP instance was configured with. Increase the look-through limit on the LDAP server side.

Error Message	Function	Description
LDAP admin limit exceeded searching for Realm entries in policy store	SmLdapMessage::LdapAdmin-SizeLimitExceeded_Realm	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP admin limit exceeded searching for Response entries in policy store	SmLdapMessage::Ldap-Admin SizeLimit-Exceeded_Response	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP admin limit exceeded searching for ResponseAttr entries in policy store	SmLdapMessage::AdminLimit-ExceedSearchForRespAttr	A search for response attributes in the policy store exceeded the look-through limit the LDAP instance was configured with. Increase the look-through limit on the LDAP server side.
LDAP admin limit exceeded searching for ResponseGroup entries in policy store	SmLdapMessage::AdminLimit-ExceedSearchForRespGroup	A search for response groups in the policy store exceeded the look-through limit the LDAP instance was configured with. Increase the look-through limit on the LDAP server side on the LDAP server side.
LDAP admin limit exceeded searching for RootConfig entries in policy store	SmLdapMessage::AdminLimit-ExceedSearchForRootConfig	This should never happen, since there may only be one RootConfig object in the policy store. Possible policy store corruption.
LDAP admin limit exceeded searching for Rule entries in policy store	SmLdapMessage::AdminLimit-ExceedSearchForRule	A search for rules in the policy store exceeded the look-through limit the LDAP instance was configured with. Increase the look-through limit on the LDAP server side.
LDAP admin limit exceeded searching for RuleGroup entries in policy store	SmLdapMessage::AdminLimit-ExceedSearchForRuleGroup	A search for rule groups in the policy store exceeded the look-through limit the LDAP instance was configured with. Increase the look-through limit on the LDAP server side.

Error Message	Function	Description
LDAP admin limit exceeded searching for Scheme entries in policy store	SmLdapMessage::AdminLimit-ExceedSearchForScheme	A search for authentication schemes in the policy store exceeded the look-through limit the LDAP instance was configured with. Increase the look-through limit on the LDAP server side.
LDAP admin limit exceeded searching for SelfReg entries in policy store	SmLdapMessage::AdminLimit-ExceedSearchForSelfReg	A search for registration schemes in the policy store exceeded the look-through limit the LDAP instance was configured with. Increase the look-through limit on the LDAP server side.
LDAP admin limit exceeded searching for ServerCommand entries in policy store	SmLdapMessage::Admin-Limit ExceedSearchForServer-Command	A search for server commands in the policy store exceeded the look-through limit the LDAP instance was configured with. Increase the look-through limit on the LDAP server side.
LDAP admin limit exceeded searching for SharedSecretPolicy entries in policy store	SmLdapMessage::Admin-Limit ExceedSearchFor-SharedSecret Policy	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP admin limit exceeded searching for TaggedString entries in policy store	SmLdapMessage::Admin-Limit ExceedSearchFor-TaggedString	A search for tagged strings in the policy store exceeded the look-through limit the LDAP instance was configured with. Increase the look-through limit on the LDAP server side.
LDAP admin limit exceeded searching for TrustedHost entries in policy store	SmLdapMessage::Admin-Limit ExceedSearchFor-TrustedHost	A search for trusted hosts in the policy store exceeded the look-through limit the LDAP instance was configured with. Increase the look-through limit on the LDAP server side.
LDAP admin limit exceeded searching for UserDirectory entries in policy store	SmLdapMessage::Admin-Limit ExceedSearchForUser-Directory	A search for user directories in the policy store exceeded the look-through limit the LDAP instance was configured with. Increase the look-through limit on the LDAP server side.

Error Message	Function	Description
LDAP admin limit exceeded searching for UserPolicy entries in policy store	SmLdapMessage::Admin-Limit ExceedSearchForUser-Policy	A search for user policies in the policy store exceeded the look-through limit the LDAP instance was configured with. Increase the look-through limit on the LDAP server side.
LDAP admin limit exceeded searching for Variable entries in policy store	SmLdapMessage::Admin-Limit ExceedSearchForVariable	A search for variables in the policy store exceeded the look-through limit the LDAP instance was configured with. Increase the look-through limit on the LDAP server side.
LDAP admin limit exceeded searching for VariableType entries in policy store	SmLdapMessage::Admin-Limit ExceedSearchFor-VariableType	A search for variable types in the policy store exceeded the look-through limit the LDAP instance was configured with. Increase the look-through limit on the LDAP server side.
LDAP admin size limit exceeded searching for Admin entries in policy store	SmLdapMessage::LdapAdmin-SizeLimitExceeded_Admin	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP Error in Domain_FetchProperty for IMSEnvironments - unsupported policy store version for IMS objects	SmLdapMessage::Error-DomainFetchIMSEnv	The Policy server version must be 5.1 or greater.
LDAP Error in Domain_SaveProperty for IMSEnvironments - unsupported policy store version for IMS objects	SmLdapMessage::Error-DomainSaveIMSEnv	The Policy server version must be 5.1 or greater.
LDAP size limit exceeded searching for ActiveExpr entries in policy store	SmLdapMessage::SizeLimit-ExceedSearchForActiveExpr	A search for active expressions in the policy store exceeded the size limit the LDAP instance was configured with. Increase the size limit on the LDAP server side.

Error Message	Function	Description
LDAP size limit exceeded searching for Admin entries in policy store	SmLdapMessage::LdapSize-LimitExceeded_Admin	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP size limit exceeded searching for Agent entries in policy store	SmLdapMessage::LdapSize-LimitExceeded_Device	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP size limit exceeded searching for AgentCommand entries in policy store	SmLdapMessage::LdapSize-LimitExceeded_Agent-Command	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP size limit exceeded searching for AgentGroup entries in policy store	SmLdapMessage::LdapSize-LimitExceeded_DeviceGroup	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP size limit exceeded searching for AgentKey entries in policy store	SmLdapMessage::LdapSize-LimitExceeded_AgentKey	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP size limit exceeded searching for AgentType entries in policy store	SmLdapMessage::SizeLimit-ExceedSearchForAgentType	A search for agent types in the policy store exceeded the size limit the LDAP instance was configured with. Increase the size limit on the LDAP server side.

Error Message	Function	Description
LDAP size limit exceeded searching for AgentTypeAttr entries in policy store	SmLdapMessage::SizeLimit-ExceedSearchForAgent-TypeAttr	A search for agent type attributes in the policy store exceeded the size limit the LDAP instance was configured with. Increase the size limit on the LDAP server side.
LDAP size limit exceeded searching for AuthAzMap entries in policy store	SmLdapMessage::LdapSize-LimitExceeded_AuthAzMap	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP size limit exceeded searching for CertMap entries in policy store	SmLdapMessage::LdapSize-LimitExceeded_CertMap	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP size limit exceeded searching for Domain entries in policy store	SmLdapMessage::LdapSize-LimitExceeded_Domain	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP size limit exceeded searching for KeyManagement entries in policy store	SmLdapMessage::LdapSize-Limit-Exceeded_KeyManagement	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP size limit exceeded searching for ODBCQuery entries in policy store	SmLdapMessage::LdapSize-LimitExceeded_ODBCQuery	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.

Error Message	Function	Description
LDAP size limit exceeded searching for PasswordPolicy entries in policy store	SmLdapMessage::LdapSize-Limit-Exceeded_PasswordPolicy	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP size limit exceeded searching for Policy entries in policy store	SmLdapMessage::LdapSize-LimitExceeded_Policy	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP size limit exceeded searching for PolicyLink entries in policy store	SmLdapMessage::LdapSize-LimitExceeded_PolicyLink	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP size limit exceeded searching for Property entries in policy store	SmLdapMessage::SizeLimit-ExceedSearchForProperty	A search for property objects in the policy store exceeded the size limit the LDAP instance was configured with. Increase the size limit on the LDAP server side.
LDAP size limit exceeded searching for PropertyCollection entries in policy store	SmLdapMessage::SizeLimit-ExceedSearchForProperty-Collection	A search for property collections in the policy store exceeded the size limit the LDAP instance was configured with. Increase the size limit on the LDAP server side.
LDAP size limit exceeded searching for PropertySection entries in policy store	SmLdapMessage::SizeLimit-ExceedSearchForProperty-Section	A search for property sections in the policy store exceeded the size limit the LDAP instance was configured with. Increase the size limit on the LDAP server side.
LDAP size limit exceeded searching for Realm entries in policy store	SmLdapMessage::LdapSize-LimitExceeded_Realm	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.

Error Message	Function	Description
LDAP size limit exceeded searching for Response entries in policy store	SmLdapMessage::LdapSize-LimitExceeded_Response	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP size limit exceeded searching for ResponseAttr entries in policy store	SmLdapMessage::SizeLimit-ExceedSearchForResponse-Attr	A search for response attributes in the policy store exceeded the size limit the LDAP instance was configured with. Increase the size limit on the LDAP server side.
LDAP size limit exceeded searching for ResponseGroup entries in policy store	SmLdapMessage::SizeLimit-ExceedSearchForRespGroup	A search for response groups in the policy store exceeded the size limit the LDAP instance was configured with. Increase the size limit on the LDAP server side.
LDAP size limit exceeded searching for RootConfig entries in policy store	SmLdapMessage::SizeLimit-ExceedSearchForRootConfig	This should never happen, since there may only be one RootConfig object in the policy store. Possible policy store corruption.
LDAP size limit exceeded searching for Rule entries in policy store	SmLdapMessage::SizeLimit-ExceedSearchForRule	A search for rules in the policy store exceeded the size limit the LDAP instance was configured with. Increase the size limit on the LDAP server side.
LDAP size limit exceeded searching for RuleGroup entries in policy store	SmLdapMessage::SizeLimit-ExceedSearchForRuleGroup	A search for rule groups in the policy store exceeded the size limit the LDAP instance was configured with. Increase the size limit on the LDAP server side.
LDAP size limit exceeded searching for Scheme entries in policy store	SmLdapMessage::SizeLimit-ExceedSearchForScheme	A search for authentication schemes in the policy store exceeded the size limit the LDAP instance was configured with. Increase the size limit on the LDAP server side.
LDAP size limit exceeded searching for SelfReg entries in policy store	SmLdapMessage::SizeLimit-ExceedSearchForSelfReg	A search for registration schemes in the policy store exceeded the size limit the LDAP instance was configured with. Increase the size limit on the LDAP server side.

Error Message	Function	Description
LDAP size limit exceeded searching for ServerCommand entries in policy store	SmLdapMessage::SizeLimit-ExceedSearchForServer-Command	A search for server commands in the policy store exceeded the size limit the LDAP instance was configured with. Increase the size limit on the LDAP server side.
LDAP size limit exceeded searching for SharedSecretPolicy entries in policy store	SmLdapMessage::SizeLimit-ExceedSearchForShared-SecretPolicy	Check the size limit for your specific LDAP server. (see LDAP server manual) Also, run the SOA Security Manager admin UI to check the sizelimit that SOA Security Manager will use for this LDAP server. Set this to match the server configuration.
LDAP size limit exceeded searching for TaggedString entries in policy store	SmLdapMessage::SizeLimit-ExceedSearchForTaggedString	A search for tagged strings in the policy store exceeded the size limit the LDAP instance was configured with. Increase the size limit on the LDAP server side.
LDAP size limit exceeded searching for TrustedHost entries in policy store	SmLdapMessage::SizeLimit-ExceedSearchForTrustedHost	A search for trusted hosts in the policy store exceeded the size limit the LDAP instance was configured with. Increase the size limit on the LDAP server side.
LDAP size limit exceeded searching for UserDirectory entries in policy store	SmLdapMessage::SizeLimit-ExceedSearchForUser-Directory	A search for user directories in the policy store exceeded the size limit the LDAP instance was configured with. Increase the size limit on the LDAP server side.
LDAP size limit exceeded searching for UserPolicy entries in policy store	SmLdapMessage::SizeLimit-ExceedSearchForUserPolicy	A search for user policies in the policy store exceeded the size limit the LDAP instance was configured with. Increase the size limit on the LDAP server side.
LDAP size limit exceeded searching for Variable entries in policy store	SmLdapMessage::SizeLimit-ExceedSearchForVariable	A search for variables in the policy store exceeded the size limit the LDAP instance was configured with. Increase the size limit on the LDAP server side.
LDAP size limit exceeded searching for VariableType entries in policy store	SmLdapMessage::SizeLimit-ExceedSearchForVariableType	A search for variable types in the policy store exceeded the size limit the LDAP instance was configured with. Increase the size limit on the LDAP server side.

Error Message	Function	Description
Length of the string supplied is more than the allowed limit.Please see LDAP store documentation for more details .	SmLdapMessage::Ldap-Length Constrain-Violation_CertMap	The value used in the search was too long.
SmDsLdapConnMgr (ldap_search_ext_s) in PingServer : %1s	SmLdapMessage::ErrorLdap-C onnMgrPingServer	Unable to connect to LDAP server. Make sure your LDAP server is running, and the LDAP server and port are correct. (try ping from the policy server machine.)
SmDsLdapConnMgr Bind - init. Server %1s : %2ul	SmLdapMessage::LdapConn-M grBindInitFail	Unable to connect to LDAP server. Make sure your LDAP server is running, and the LDAP server and port are correct. (try ping from the policy server machine.)
SmDsLdapConnMgr Bind - SetOption CONNECT_TIMEOUT %1i . Server %2s : %3ul	SmLdapMessage::LdapConn-M grBindSetOptionConnect-Timeo ut	Unable to set LDAP option. Check the error string for more information.
SmDsLdapConnMgr Bind - SSL init. Server %1s : %2ul	SmLdapMessage::LdapConn-M grBindSSLInitFail	Unable to initialize to LDAP server with SSL. Check the LDAP server and port. Make sure your LDAP server is configured for SSL.
SmDsLdapConnMgr Bind. Server %1s : %2ul. Error %3i-%4s	SmLdapMessage::ErrorLdap-C onnMgrBind	Unable to connect to LDAP server. Make sure your LDAP server is running, and the LDAP server and port are correct. (try ping from the policy server machine.)
SmDsLdapConnMgr Exception (ldap_init). Server %1s : %2ul	SmLdapMessage::Unknow-Exc eptionLdapConnMgrInit	Unexpected error while connecting to LDAP server. Check the LDAP server and port configuration settings.
SmDsLdapConnMgr Exception (ldap_simple_bind_s). Server %1s : %2ul	SmLdapMessage::Unknown-Ex ceptionLdapConnMgrSimpleBin d	Unexpected error while connecting to LDAP server. Check the LDAP server and port configuration settings.
SmDsLdapConnMgr Exception (ldapssl_init). Server %1s : %2ul	SmLdapMessage::Unknow-Exc eptionLdapConnMgrSSLInit	Unexpected error while connecting to LDAP server with SSL. Check the LDAP server and port configuration settings. Is the server configured for

Error Message	Function	Description
		SSL?
SmObjLdap failed to bind to LDAP server %1s:%2i as %3s . LDAP error %4i-%5s	SmLdapMessage::SmObj-LdapFailToBindToLdapServer	Unable to connect to LDAP server. Make sure your LDAP server is running, and the LDAP server and port are correct. (try ping from the policy server machine.)
SmObjLdap failed to init LDAP connection to %1s : %2i	SmLdapMessage::SmObj-LdapInitLdapConnFail	Unable to connect to LDAP server. Make sure your LDAP server is running, and the LDAP server and port are correct. (try ping from the policy server machine.)
SmObjLdap failed to init SSL LDAP connection to %1s : %2i	SmLdapMessage::SmObj-LdapInitSSLLdapFail	Unable to set LDAP option. This is likely a configuration error on the policy server system. Is the proper LDAP library being used?
SmObjLdap failed to init SSL using %1s	SmLdapMessage::SmObj-LdapInitSSLFail	Unable to initialize to LDAP server with SSL. Check the LDAP server and port. Make sure your LDAP server is configured for SSL.
SmObjLdap failed to set LDAP CONNECT_TIMEOUT option	SmLdapMessage::SmObj-LdapConnectTimeoutOptFail	Unable to set LDAP option. This is likely a configuration error on the policy server system. Is the proper LDAP library being used?
SmObjLdap failed to set LDAP PROTOCOL V3 option	SmLdapMessage::SmObj-LdapProtocolV3OptFail	Unable to set LDAP option. This is likely a configuration error on the policy server system. Is the proper LDAP library being used?
SmObjLdap failed to set LDAP RECONNECT option	SmLdapMessage::SmObj-LdapReconnectOptFail	Unable to set LDAP option. This is likely a configuration error on the policy server system. Is the proper LDAP library being used?
SmObjLdap failed to set LDAP THREAD_FN option	SmLdapMessage::SmObjLdap-ThreadFnOptFail	Unable to set LDAP option. This is likely a configuration error on the policy server system. Is the proper LDAP library being used?

Error Message	Function	Description
SmObjLdap failed to set LDAP TIMELIMIT option	SmLdapMessage::SmObjLdap-TimeoutOptFail	Unable to set LDAP option. This is likely a configuration error on the policy server system. Is the proper LDAP library being used?
SmObjLdap failed to set LDAP_OPT_REFERRALS option	SmLdapMessage::SmObj-LdapOptReferralsFail	Unable to set LDAP option. This is likely a configuration error on the policy server system. Is the proper LDAP library being used?
SmObjLdapConnMgr Bind - init. Server: %1s:%2ul	SmLdapMessage::SmObj-LdapConnMgrBindinitServer	The LDAP server configured for the policy store could not be initialized. Troubleshoot the LDAP server specified in the error message.
SmObjLdapConnMgr Bind - SetOption CONNECT_TIMEOUT %1i. Server %2s:%3ul	SmLdapMessage::SmObj-LdapConnMgrBindSetOption-CONNECT_TIMEOUT	The LDAP_X_OPT_CONNECT_TIMEOUT option (LDAP_OPT_SEND_TIMEOUT when using the Microsoft Active Directory SDK) could not be set on the LDAP server configured for the policy store. Troubleshoot the LDAP server specified in the error message.
SmObjLdapConnMgr Bind - SSL client init. Server: %1s:%2ul, Cert DB: %3s	SmLdapMessage::SmObj-LdapConnMgrBindSSLclientinit	The client-side initialization of an SSL connection to the LDAP server configured for the policy store failed. Verify if the certificate database is specified correctly.
SmObjLdapConnMgr Bind - SSL init. Server: %1s:%2ul	SmLdapMessage::SmObj-LdapConnMgrBindSSLinit	The LDAP server configured for the policy store could not be initialized on an SSL connection. Troubleshoot the LDAP server specified in the error message.
SmObjLdapConnMgr Bind. Server %1s:%2ul. Error %3i - %4s	SmLdapMessage::SmObj-LdapConnMgrBindServerError	The SOA Security Manager Policy Server failed to bind to the LDAP server configured for the policy store. See the included LDAP error message for additional information. Also verify if the Policy Server uses valid LDAP admin credentials. You can reset them in the Data tab in the Policy Server Management Console.

Error Message	Function	Description
SmObjLdapConnMgr Exception (ldap_init). Server %1s:%2ul	SmLdapMessage::ExcpSm-Obj LdapConnMgrldap_init	The LDAP server configured for the policy store could not be initialized. Troubleshoot the LDAP server specified in the error message.
SmObjLdapConnMgr Exception (ldap_simple_bind_s). Server %1s:%2ul	SmLdapMessage::ExcpSm-Obj LdapConnMgrldap_simple_-bind_s	The SOA Security Manager Policy Server failed to bind to the LDAP server configured for the policy store. Verify if the Policy Server uses valid LDAP admin credentials. You can reset them in the Data tab in the Policy Server Management Console.
SmObjLdapConnMgr Exception (ldapssl_client_init). Server %1s:%2ul	SmLdapMessage::ExcpSm-Obj LdapConnMgrldap-ssl_client_init	The client-side initialization of an SSL connection to the LDAP server configured for the policy store failed. Verify if the certificate database is specified correctly.
SmObjLdapConnMgr Exception (ldapssl_init). Server %1s:%2ul	SmLdapMessage::ExcpSm-Obj LdapConnMgrldapssl_init	The LDAP server configured for the policy store could not be initialized on an SSL connection. Troubleshoot the LDAP server specified in the error message.
Terminating the server/process.....	SmLdapMes-sage::Terminating Server-Processes	Shutting down server process so important reconfiguration may take place. See previous error in log.
Unable to fetch more than %1i data entries from the Data Store. \n %2s LDAP_SIZELIMIT_EXCEEDED, Error has been detected. \n %3s Please re-configure the sizelimit parameter of your Directory Server, \n %4s as suggested in your \""Directory Server Manual\"" \n %5s or bind the Directory Server with root dn to overcome this problem. \n %6s Ex : For Iplanet / Netscape, bind the Directory Server as \""cn=Directory Manager\""	SmLdapMessage::Unable-ToFe tchMoreEntriesFromData-Sourc e	Increase sizelimit parameter of your LDAP server

Error Message	Function	Description
Unable to retrieve LDAP directory type	SmLdapMessage::Unable-ToRetrieveLdapDir	Unable to determine LDAP vendor and type. Is the target server one of the supported LDAP servers? Processing will continue but further unexpected errors may occur.
Unable to search and fetch more data entries from the Data Store. \n %1s LDAP_SIZELIMIT_EXCEEDED, Error has been detected. \n %2s Please re-configure the sizelimit parameter of your Directory Server, \n %3s as suggested in your \""Directory Server Manual\"" \n %4s or bind the Directory Server with root dn to overcome this problem. \n %5s Ex : For Iplanet / Netscape, bind the Directory Server as \""cn=Directory Manager\""	SmLdapMessage::Unable-ToSearchFetchMore-EntriesFromDataSource	The Policy Server cannot retrieve more data from the directory server. See the error message text for possible configuration changes.
Unexpected value of 'arg' argument in rebindproc %1i	SmLdapMes-sage::UnexpectedValueArg-Argument	An illegal value is being passed as the 'arg' argument in a rebindproc call. The rebindproc function is set as a rebind callback for automatic referral handling. Try enabling enhanced referral handling instead.
Unexpected value of 'arg' argument in rebindproc_sm %1i	SmLdapMes-sage::UnexpectedValueArg-Argument2	An illegal value is being passed as the 'arg' argument in a rebindproc_sm call. The rebindproc_sm function is set as a rebind callback for automatic referral handling. Try enabling enhanced referral handling instead.
Unknown value of ’freeit’ argument in rebindproc_sm %1i	SmLdapMes-sage::UnexpectedValueFreeit-Argument	An illegal value is being passed as the freeit argument in a rebindproc call (only 0 and 1 are allowed). The rebindproc function is set as a rebind callback for automatic referral handling Try enabling enhanced referral handling instead.

Error Message	Function	Description
Unknown value of 'freeit' argument in rebindproc_sm %1i	SmLdapMes-sage::Unexpected Value-FreeitArgument2	An illegal value is being passed as the freeit argument in a rebindproc_sm call (only 0 and 1 are allowed). The rebindproc_sm function is set as a rebind callback for automatic referral handling (doesn't apply when using Microsoft Active Directory SDK). Try enabling enhanced referral handling instead.

ODBC

Error Message	Function	Description
Could not save IMS Environments. Possibly missing schema support	SmOdbcMessage::IMSSave-ErrorMissingSchema	Policy server database does not have a schema that supports IMS.
Database Error executing query (%1s) . Unknown failure.	SmOdbcMessage::Unknown-FailureDBExecQuery	An unknown error or exception has occurred while trying to execute the given SQL statement.
Database Error executing query (%1s) . Unknown failure.	SmOdbcMessage::Unknown-FailureExecODBCQuery	An unknown error or exception has occurred while trying to execute the given SQL statement.
Database Error executing query ('%1s'). Error: %2s .	SmOdbcMessage::DBError-ExecQuery	The given error occurred while trying to execute the given SQL statement.
Database Error executing query ('%1s'). Unknown failure.	SmOdbcMessage::Unknown-ExceptionDBExecQuery	An unknown error or exception has occurred while trying to execute the given SQL statement.
Database Error executing query. Error: %1s .	SmOdbcMessage::ErrorDB-ExecQuery	The given error occurred while trying to execute the a SQL query.
Database error getting escape chars. Error: %1s.	SmOdbcMessage::DBError-GetEscapeChar	Error occurred when trying to establish the escape character for use with the database.
Database error getting escape chars: unknown failure.	SmOdbcMessage::Unknown-ExceptionDBGetEscapeChar	An unknown exception occurred when trying to establish the escape character for use with the database.

Error Message	Function	Description
DB Warning: Data truncation will occur with data value: '%1s' Actual length: '%2u' Maximum allowed length: '%3u	'SmOdbcMessage::Data-TruncationInfo	A data value for the given input has exceeded the maximum allowed length. The value will be truncated to the maximum length given.
Error Code is %1i message is '%2s'.	SmOdbcMessage::ErrorCode-AndMessage	A failure occurred trying to connect to the given data source. An error code and error message is given indicating the problem.
Error Code is %1i.	SmOdbcMessage::ErrorCode	A failure occurred trying to connect to the given data source. An error code is given indicating the problem.
Failed to allocate query for user directory with oid: '%1s'.	SmOdbcMessage::FailedTo-AllocMemForUserDir	Failed to allocate the queries used for the user directory specified by the given OID.
Failed to connect to any of the following data sources: '%1s'.	SmOdbcMessage::FailedTo-ConnectToAnyOfDataSources	Failed to connect to any of the User Directories specified.
Failed to connect to data-source '%1s'.	SmOdbcMessage::FailedTo-ConnectToDataSource	A failure occurred trying to connect to the given data source.
Failed to fetch query for user directory with oid: '%1s'.	SmOdbcMessage::FailedTo-FetchQueryForUserDir	Search for the User Directory Query with the given oid failed.
Failed to fetch user directory with oid: '%1s'.	SmOdbcMessage::FailedTo-FetchUserDir	Search for the User Directory with the given oid failed.
Failed to find data source name for database '%1s'.	SmOdbcMessage::FailedTo-FindDataSource	Could not find ""ProviderNameSpace"" registry key for the given SOA Security Manager database
Failed to find query definition for %1s	SmOdbcMessage::FailTo-FindQueryDefinition	Failed to find the query definition for the given query.
Failed to init DataDirect ODBC driver. Unable to load function '%1s' in library '%2s'.	DataDirectODBCDriverFunc-LoadFail	Failed to initialize the DataDirect ODBC libraries. The given initialization function could not be found in the provided library.

Error Message	Function	Description
Failed to init DataDirect ODBC driver. Unable to load library '%1s	SmOdbcMessage::DataDirect-ODBCDriverLibLoadFail	Could not load the given ODBC library. Please check to your library paths include the SOA Security Manager ODBC library directory.
Failed to load ODBC branding library '%1s' .	SmOdbcMessage::ODBC-BrandingLibraryLoadFail	Failed to load the ODBC libraries that are branded for use by SOA Security Manager.
Failed to resolve name of the ODBC branding library.	SmOdbcMessage::ODBC-BrandingLibraryNameResolve-Fail	Failed to resolve the name of the branding library. The library name is indicated from the registry Key OdbcBrandingLib located in the registry under Netegrity/Siteminder/Database
Failed to retrieve database registry keys for database '%1s'.	SmOdbcMessage::FailedTo-RetrieveDBRegKeys	Could not find one of the following registry keys (Data Source, User Name, or Password) for the given SOA Security Manager Database.
Invalid credentials or server not found attempting to connect to '%1s' server '%2s'.	SmOdbcMessage::Unable-ToConnect	Invalid credentials supplied for accessing a SOA Security Manager ODBC database.
ODBC Error executing query ('%1s') . Error: %2s.	SmOdbcMessage::ErrorExec-ODBCQuery	The given ODBC error occurred while trying to execute the given SQL statement.
ODBC Error executing query. Error: %1s.	SmOdbcMessage::Error-ODBCQueryExec	The given ODBC error occurred while trying to execute a SQL query.
ODBC Error executing query. Unknown failure	SmOdbcMessage::Unknown-ExceptionExecODBCQuery	An unknown exception occurred when trying to execute a SQL query against an ODBC database.

Directory Access

Message	Message ID	Description
%1s failed for path '%2s	'FuncFailForPath	The policy server failed to get directory information using the custom provider.
ADs EnumContainer failed; Error %1xl. %2s	ADsEnumContainerFailed	The policy server failed to enumerate container members through the ADSI interface.
ADs Get failed for property '%1s' ; Error %2xl. %3s	ADsGetFailForProperty	The policy server failed to get user property through the ADSI interface.
ADs GetGroups failed; Error %1xl. %2s	ADsGetGroupsFail	The policy server failed to get user groups.
ADs Put failed for property '%1s' ; Error %2xl. %3s	ADsPutFailForProperty	The policy server failed to set user property through the ADSI interface.
ADs put_Filter failed; Error %1xl. %2s	ADsPutFilterFailed	The policy server failed to create enumeration filter through the ADSI interface.
ADs Search failed; Error %1xl. %2s	ADsSearchFail	The policy server failed to search through the ADSI interface.
ADsBuildEnumerator failed; Error %1xl. %2s	ADsBuildEnumeratorFailed	The policy server failed to enumerate container members through the ADSI interface.
ADsBuildVarArrayStr failed; Error %1xl. %2s	ADsBuildVarArrayStrFailed	The policy server failed to build a variable array through the ADSI interface.
ADsEnumerateNext failed; Error %xl. %2s	ADsEnumerateNextFailed	The policy server failed to enumerate container members through the ADSI interface.
ADsGetObject failed; Error %1xl. %2s	ADsGetObjectFail	The policy server failed to get object properties through the ADSI interface.
ADsOpenObject failed on '%1s' . ADSI Error %2xl. %3s	ADsOpenObjectFailed	The policy server failed to create a handle to the ADSI interface.

Message	Message ID	Description
Affiliate PropertyCollection does not match group name	AffiliatePropertyCollection-GroupNameMismatch	The policy server failed to validate affiliate relationship to a policy. The affiliate property collection name does not match the specified policy name.
Could not fetch properties using '%1s' function	PropertiesFetchFail	The policy server failed to fetch object properties through the custom provider.
Exception in SmDsObj	SmDsObjUnknownException	The policy server failed to lookup a DS provider. Check if the provider shared library can be loaded by the policy server process.
Exception in SmDsObj: %1s	SmDsObjException	The policy server failed to lookup a DS provider. Check if the provider shared library is accessible by the policy server process.
Failed to find an Affiliate PropertyCollections	AffiliatePropertyCollectionsFail	The policy server failed to fetch an affiliate domain. Check the policy store for consistency.
Failed to find attribute	AttributeFindFail	The policy server failed to find the specified user attribute.
Failed to find password property	PasswordPropertyFindFail	The policy server failed to find password for the specified affiliate.
Failed to find Property in PropertySection acting as Affiliate user	AffilateUserPropertyIn-PropertySectionFindFail	The policy server failed to fetch the specified affiliate property.
Failed to find Property-Collection acting as Affiliate user directory	ActingAffiliateUserDirProps-FindFail	The policy server failed to fetch an affiliate domain. Check the policy store for consistency.
Failed to find PropertySection as Affiliate user	AffilateUserPropertySection-FindFail	The policy server failed to lookup the specified affiliate.
Failed to find PropertySection in Affiliate user directory	InAffiliateUserDirPropsFindFail	The policy server failed to fetch an affiliate from the affiliate domain. Check the policy store for consistency.

Message	Message ID	Description
Failed to find root object!	RootObjFindFail	The policy server failed to find affiliate domains. Check if affiliate objects are visible through the SOA Security Manager Administration UI.
Failed to find user in Affiliate PropertyCollection	AffiliatePropertyCollection-User FindFail	The policy server failed to lookup the specified affiliate.
Failed to initialize custom directory API module '%1s	'CustomDirAPIModInitFail	The policy server failed to initialize the custom provider library.
Failed to load custom directory API library '%1s'. System error: %2s	CustormDirAPILibLoadFail	The policy server failed to load the custom provider library. Check if the appropriate custom provider library is accessible by the policy server process.
Failed to resolve function '%1s' in custom directory API library '%2s'. System error: %3s	CustormDirAPILibFuncResovl-Fail	The policy server failed to initialize the custom provider library. Check if the appropriate custom provider library is accessible by the policy server process.
Get Disabled State not supported for namespace ADSI	ADSIGetDisabledState-Supported	The policy server does not support getting user disabled state through the ADSI interface.
No function '%1s' is available in custom directory API library '%2s’	CustomDirAPILibFunctNot-Found	The policy server failed to find one of the required methods in the custom provider library. Check if the appropriate custom provider library is accessible by the policy server process.
Password change not supported for namespace ADSI	ADSINoPasswordChange	The policy server does not support changing user password through the ADSI interface.
Password change not supported for namespace LanMan:	LanManPasswordChangeNot-Supported	The policy server LanMan provider does not support changing user passwords.
QueryInterface (IID_IADsContainer) failed; Error %1s %2s %3i . %4s	IID_IADsContainerFail	The policy server failed to enumerate container members through the ADSI interface.
QueryInterface (IID_IADsContainer) failed; Error %1xl. %2s	QueryInterfaceIID_IADs-ContainerFail	The policy server failed to enumerate container members through the ADSI interface.

Message	Message ID	Description
QueryInterface (IID_IADsUser) failed; Error %1xl. %2s	IID_IADsUserFail	The policy server failed to get user groups.
QueryInterface (IID_IDirectorySearch) failed; Error %1xl. %2s	IID_IDirectorySearchFail	The policy server failed to search through the ADSI interface.
Set Disabled State not supported for namespace ADSI	ADSISetDisabledState-Supported	The policy server does not support setting user disabled state through the ADSI interface.
Unsupported function called: SmDirAddEntry	UnsupportedFuncCallSmDir-AddEntry	The SmDirAddEntry function is not supported by the affiliate provider library.
Unsupported function called: SmDirAddMemberToGroup	UnsupportedFuncCallSmDir-AddMemberToGroup	The SmDirAddMemberToGroup function is not supported by the affiliate provider library.
Unsupported function called: SmDirAddMemberToRole	UnsupportedFuncCallSmDir-AddMemberToRole	The SmDirAddMemberToRole function is not supported by the affiliate provider library.
Unsupported function called: SmDirChangeUserPassword	UnsupportedFuncCallSmDir-ChangeUserPassword	The SmDirChangeUserPassword function is not supported by the affiliate provider library.
Unsupported function called: SmDirGetGroupMembers	UnsupportedFuncCallSmDir-GetGroupMembers	The SmDirGetGroupMembers function is not supported by the affiliate provider library.
Unsupported function called: SmDirGetRoleMembers	UnsupportedFuncCallSmDir-GetRoleMembers	The SmDirGetRoleMembers function is not supported by the affiliate provider library.
Unsupported function called: SmDirGetUserAttrMulti	UnsupportedFuncCallSmDir-GetUserAttrMulti	The SmDirGetUserAttrMulti function is not supported by the affiliate provider library.
Unsupported function called: SmDirGetUserClasses	UnsupportedFuncCallSmDir-GetUserClasses	The SmDirGetUserClasses function is not supported by the affiliate provider library.
Unsupported function called: SmDirGetUserGroups	UnsupportedFuncCallSmDir-GetUserGroups	The SmDirGetUserGroups function is not supported by the affiliate provider library.
Unsupported function called: SmDirGetUserProperties	UnsupportedFuncCallSmDir-GetUserProperties	The SmDirGetUserProperties function is not supported by the affiliate provider library.

Message	Message ID	Description
Unsupported function called: SmDirGetUserRoles	UnsupportedFuncCallSmDir-GetUserRoles	The SmDirGetUserRoles function is not supported by the affiliate provider library.
Unsupported function called: SmDirLookup	UnsupportedFuncCallSmDir-Lookup	The SmDirLookup function is not supported by the affiliate provider library.
Unsupported function called: SmDirRemoveEntry	UnsupportedFuncCallSmDir-RemoveEntry	The SmDirRemoveEntry function is not supported by the affiliate provider library.
Unsupported function called: SmDirRemoveMemberFrom-Group	UnsupportedFuncCallSmDir-RemoveMemberFromGroup	The SmDirRemoveMemberFromGroup function is not supported by the affiliate provider library.
Unsupported function called: SmDirRemoveMemberFrom-Role	UnsupportedFuncCallSmDir-RemoveMemberFromRole	The SmDirRemoveMemberFromRole function is not supported by the affiliate provider library.
Unsupported function called: SmDirSearch	UnsupportedFuncCallSmDir-Search	The SmDirSearch function is not supported by the affiliate provider library.
Unsupported function called: SmDirSearchCount	UnsupportedFuncCallSmDir-SearchCount	The SmDirSearchCount function is not supported by the affiliate provider library.
Unsupported function called: SmDirSetUserAttr	UnsupportedFuncCallSmDir-SetUserAttr	The SmDirSetUserAttr function is not supported by the affiliate provider library.
Unsupported function called: SmDirSetUserAttrMulti	UnsupportedFuncCallSmDir-SetUserAttrMulti	The SmDirSetUserAttrMulti function is not supported by the affiliate provider library.
Unsupported function called: SmDirSetUserDisabledState	UnsupportedFuncCallSmDir-SetUserDisabledState	The SmDirSetUserDisabledState function is not supported by the affiliate provider library.

Tunnel

Error Message	Function	Description
Bad security handshake attempt. Handshake error: %1i	SmTunnelMessage::Hand-shakeAttemptError	The client/server security handshake failed due to the specified system error.
Client cannot encrypt data successfully during handshake	SmTunnelMessage::Client-EncryptFail	The client/server security handshake failed. The client could not properly encrypt its handshake messages.
Exception caught during handshake attempt	SmTunnelMessage::ExcpIn-HandshakeAttempt	An unspecified error occurred during the client/server security handshake.
Failed to initialize tunnel service library '%1s'. %2s	SmTunnelMessage::Tunnel-ServiceLibInitFail	The requested tunnel service library failed initialization.
Failed to load tunnel service library '%1s'. System error: %2s	SmTunnelMessage::Tunnel-ServiceLibLoadFail	The requested tunnel service library could not be loaded.
Failed to resolve function '%1s' in tunnel service library '%2s'. System error: %3s	SmTunnelMessage::Tunnel-ServiceLibFuncResolveFail	The requested function could not be found in the requested tunnel service library due to a system error.
Handshake error: Bad host-name in hello message	SmTunnelMessage::Hand-shakeErrorBadHostname	The client/server security handshake failed. The initial message from the client to the server contained an incorrect host name.
Handshake error: Bad version number in hello message	SmTunnelMessage::Hand-shakeErrorBadVersionNo	The client/server security handshake failed. The initial message from the client to the server contained an incorrect version number.
Handshake error: Failed to receive client ack. Socket error %1i	SmTunnelMessage::Hand-shakeErrorToReceiveClientACK	The client/server security handshake failed. The initial message from the server to the client was not acknowledged by the client.
Handshake error: Failed to receive client hello. Client disconnected	SmTunnelMessage::Hand-shakeErrorClientHelloNot-Receive	The client/server security handshake failed. The client disconnted the connection before sending the initial message.

Error Message	Function	Description
Handshake error: Failed to receive client hello. Socket error %1i	SmTunnelMessage::Hand-shakeErrorSocketError	The client/server security handshake failed. The client did not send the initial message.
Handshake error: Failed to send server hello. Socket error %1i	SmTunnelMessage::Hand-ShakeErrorInSendSocketError	The client/server security handshake failed. The initial message from the server to the client couldn't be sent due to a communications failure.
Handshake error: Shared secret incorrect for this client	SmTunnelMessage::Hand-shakeErrorSharedSecret-Incorrect	The client/server security handshake failed. The initial message from the client to the server contained an incorrect shared secret.
This Policy Server version does not support 3.6 agents	SmTunnelMessage::Agent-VersionNotSupported	The client/server security handshake failed. The version of the client is no longer allowed to establish a tunnel connection.
Tunnel callers are not allowed to execute request %1ul	SmTunnelMessage::Tunnel-CallerExecDenied	A Tunnel call attempted to make a request that is disallowed.
Unexpected handshake error	SmTunnelMessage::Hand-shakeErrorUnexpected	The client/server security handshake failed for an unexpected reason.
Unknown Exception caught while publishing Tunnel Libs	SmTunnelMessage::Unknown-ExcpPublishTunnelLibs	An unknown exception occurred while a tunnel service library was describing itself through its publishing interface.

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