

## **Sparx Systems Keystore Service (SSKS) User Guide**

This booklet describes the Sparx Systems Keystore Service facilities for Enterprise Architect.

The Sparx Systems Keystore Service is used to manage the registration keys issued with the Floating Licenses purchased for Enterprise Architect Corporate, Business & Software Engineering, Systems Engineering, and Ultimate editions, and for related MDG products.



### **Sparx Systems Keystore Service User Guide**

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All the people who have contributed suggestions, examples, bug reports and assistance in the development of the Sparx Systems Keystore Service. The task of developing and maintaining this tool has been greatly enhanced by their contribution.

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## **Foreword**

The Sparx Systems Keystore Service is used to manage the registration keys issued with the Floating Licenses purchased for Enterprise Architect Corporate, Business and Software Engineering, Systems Engineering, and Ultimate editions, and for related MDG products.

### 1 Introduction

The *Sparx Systems Keystore* Service (SSKS) is used to manage the use of registration keys issued with the Floating Licenses purchased for Enterprise Architect Corporate, Business and Software Engineering, Systems Engineering, and Ultimate editions, and for related MDG products.

Using the Sparx Systems Keystore Service application, an administrator can create a key store in a network file location that enables licenses with a finite (administrator-defined) issue period to be assigned to specific workstations. The key store also enables the administrator to quickly determine which user has a particular key, and to see the date on which the key expires.

#### Note:

Each Enterprise Architect workstation can be associated with only one key store at a time.

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Sparx Systems Keystore Service (SSKS)

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  - the payment of the cost of having the SOFTWARE PRODUCT repaired.
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### 1.3 Support

Technical support for Sparx Systems Keystore Service is available to registered users. Responses to support queries are sent by email. Sparx Systems endeavors to provide a rapid response to all product-related questions or concerns.

Registered users can lodge a support request, by visiting: <a href="http://www.sparxsystems.com/registered/reg\_support.html">http://www.sparxsystems.com/registered/reg\_support.html</a>.

An online user forum is also available for your questions and perusal, at <a href="http://www.sparxsystems.com/cgi-bin/yabb/YaBB.cgi">http://www.sparxsystems.com/cgi-bin/yabb/YaBB.cgi</a>.

### 1.4 Your Feedback

Sparx Systems likes to stay in touch with what the Sparx Systems Keystore Service users require in order to accomplish their tasks efficiently and effectively. We value any suggestions, feedback and comments you might have regarding this product, documentation or install process.

You can access our online feedback pages at:

- www.sparxsystems.com/bug\_report.htm and
- www.sparxsystems.com/feature\_request.htm.

Alternatively, you can contact Sparx Systems by email at: <a href="mailto:support@sparxsystems.com">support@sparxsystems.com</a>.

## 2 Install the Keystore Service

When you purchase a floating license product that uses the Sparx Systems Keystore Service, you receive an email from Sparx Systems Sales that provides:

- The installation instructions for the Keystore Service
- The location of the installer executable file (sparxkeystoreservice.exe) to download
- The password that enables you to run the executable.

If you do not received the password, or have lost a previous password, please contact Sparx Systems Sales at <a href="mailto:sales@sparxsystems.com">sales@sparxsystems.com</a>

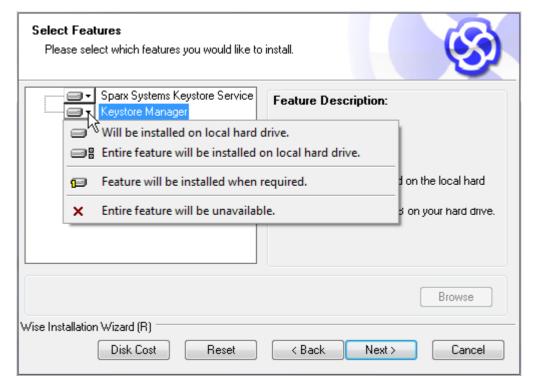
To install the Keystore Service, download and run the executable file, and enter the password.



#### Note: Vista/Windows 7 users

Please ensure that the installer is run with administrator permissions, by right-clicking on the SparxKeystoreService.exe installer file and selecting the **Run as Administrator** context menu option.

Review the license agreement and readme information, clicking on the **Next** button as you finish reading each document. The **Select Features** page displays, from which you select the features to install.



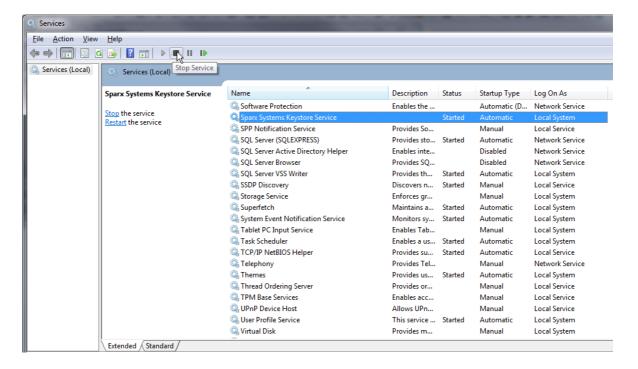
Option	Description
1 - 1	A TCP/IP service that exposes shared key management functions to remote Enterprise Architect clients.

Option	Description
	Install this feature if you would like the host machine to act as the Keystore server.
Keystore Manager	An application that facilitates <u>administration and adding</u> , removing, releasing keys).
	Install this feature if you would like to administer local or remote Sparx Systems Keystore Service keystores (or legacy file-based keystores) from the host machine.

Continue through the installation prompts and screens to finalize the installation. If you installed the **Sparx Systems Keystore Service** feature, the installer attempts to start the service at the end of the installation process, using the default configuration. For further information on configuring the service, please see the <u>Configure the Keystore Service</u> 11 topic.

## 3 Start/Stop the Keystore Service

You can start and stop the Sparx Systems Keystore Service through Microsoft Windows' Services console. You access the Services console either through the Control Panel (under Administrative Tools), or by running the command services.msc from the command line.



Locate the **Sparx Systems Keystore Service** entry in the **Services** console and start, stop or restart it through the console toolbar buttons or context menu options.

## 4 Configure the Keystore Service

When starting up, the Sparx Systems Keystore Service scans its installation directory for the file *keystoreService.config*, which contains a list of properties and values used to configure the server. The properties and their descriptions are provided below.

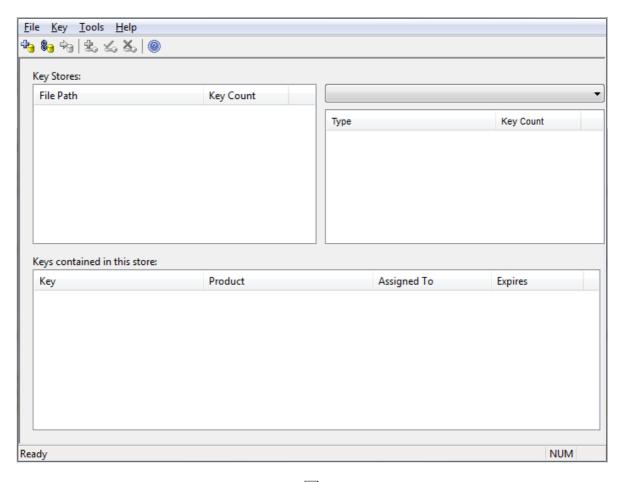
Property	Description
SERVER_PORT	The TCP/IP port on which the service is configured to listen for incoming connections. By default the Sparx Systems Keystore Service is configured to run on port <b>7770</b> .
AUTHMETHOD	The method used to authenticate Keystore Service users connecting to the service. The value of this method affects how the property <b>AUTHMETHOD_OPTIONS</b> is interpreted (below).
	Valid <b>AUTHMETHOD</b> values are:
	<ul> <li>AM_GLOBALPASSWORD - Users authenticate with a single, global password; the password is specified in the AUTHMETHOD_OPTIONS property and can be left blank.</li> </ul>
	<ul> <li>AM_ACTIVEDIRECTORY - Users authenticate according to Active Directory group membership; the permitted group is specified by a common name in the AUTHMETHOD_OPTIONS property, for example:</li> </ul>
	AUTHMETHOD_OPTIONS=SSKS_USERGROUP
AUTHMETHOD_OPT IONS	The value of this property depends on the value specified in the <b>AUTHMETHOD</b> property (above); please see the description for <b>AUTHMETHOD</b> for more details.
KEYSTORE_PATH	The path to the keystore file. By default the service is configured to check keys in and out from the <i>sskeys.dat</i> file, located in the installer directory.
	Note:
	The user the service is set to run as must be granted read/write permissions to the keystore file specified by <b>KEYSTORE_PATH</b> . If a service is set to run as the user <b>LOCALSYSTEM</b> , it generally has read/write access to its installation directory.
MINIMUM_EA_BUIL D	The minimum build of Enterprise Architect that can be serviced by the keystore. You can use this keystore server setting to deny older builds of Enterprise Architect the shared keys from this keystore.
AUDIT_TIME_PERIO D	The time period (in seconds) to wait between logging audit reports. Audit reports are logged at the INFO level.
	To turn auditing off, set this property to <b>0</b> (zero).
LOG_LEVEL	The level of messages that are written to the log file. Higher log levels include messages from the lower levels that precede them.
	Valid log levels, from lowest to highest, are:
	FATAL - Events that result in termination of the service's execution.
	<ol><li>WARNING - Events that fall outside of the normal scope of the service's operation, but are not fatal (such as the incorrect password supplied by a client).</li></ol>
	3. REPORT - Events generated by the keystore's internal auditing mechanism.
	<ol><li>INFO - Events generated within the normal scope of the service's operation (such as key checkin and checkout).</li></ol>
	<ol><li>SYSTEM - Detailed system level events (such as client connection/disconnection, and service module startup).</li></ol>
LOG_DIRECTORY	The path to which the log files are written.

Property	Description
	Notes:  • This directory must already exist at service start time.
	The user the service is set to run as must be granted read/write permissions to the directory specified by LOG_DIRECTORY. If a service is set to run as the user LOCALSYSTEM, it generally has read/write access to its installation directory.
LOG_FILECOUNT	The number of rolling log files that the service keeps.
	Log files are kept in First-In-First-Out (FIFO) order, with the oldest log file being deleted once the LOG_FILECOUNT threshold is reached.
LOG_FILESIZE	The size (in bytes) a log file can reach before the logging framework rolls the log files over.

Other system-level properties, such as the service startup condition and service user account, can be configured through the Microsoft Windows' Service console. (See the <u>Start/Stop the Keystore Service</u> topic for details on how to access the <u>Service</u> console.)

## 5 Keystore Service Administration

The management of shared keys within a keystore is performed through the *Keystore Manager* application, which operates through the Sparx Systems Key Store dialog.

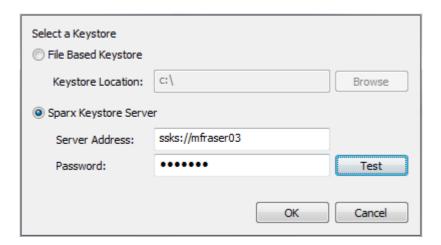


To manage a remote keystore, you must first <u>connect</u> 14 the application to it and to any number of other remote keystores as required. The Keystore Manager then enables you, the administrator, to:

- Add Shared Keys 15
- Set Issue Periods for Shared Keys 16
- Migrate Shared Keys from a Legacy File-Based Keystore 17
- Release Shared Keys 19
- Delete Shared Keys. 20

### 5.1 Connect To a Remote Keystore

To connect to a remote keystore, select the **File | Link To** menu option on the **Sparx Systems Key Store** dialog. The **Shared Keystore Selection** dialog displays.



(Alternatively, to display this dialog click on the **Link to existing store** icon in the toolbar, or right-click in the **Key Stores** panel and select the **Link to** context menu option.)

Select the **Sparx Keystore Server** radio button to indicate that you want to connect to a remote service. (The **File Based Keystore** option is there to provide backwards compatibility with legacy file-based keystores; see *Migrate Shared Keys from a Legacy File-Based Keystore*, below.)

In the **Server Address** field, type the URI to the Sparx Systems Keystore Service server. If the authentication module you choose requires a password, type that into the **Password** field.

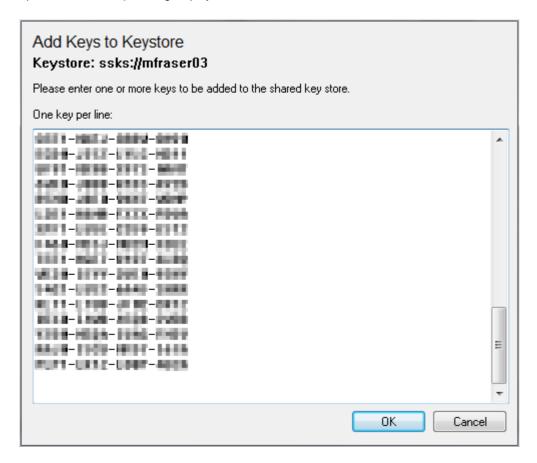
To test connectivity to the server with the credentials you have entered, click on the **Test** button. If the connection fails, review the address, password and permissions. Once the connection succeeds, click on the **OK** button to finalize the connection to the server.

The Sparx Systems Key Store dialog redisplays with the path of the remote keystore in the Keystores panel.

### 5.2 Add Shared Keys

### **Add Shared Keys**

To add shared keys to the keystore: on the Sparx Systems Key Store dialog, select the **Key | Add** menu option. The Add Keys dialog displays.



(Alternatively, to display this dialog click on the **Add Key(s)** icon in the toolbar, or right-click in the **Keys** contained in this store panel and select the **Add** context menu option.)

In the text field, type the keys (provided by Sparx Systems), one key per line. Click on the  $\mathbf{OK}$  button to register them with the keystore.

### 5.3 Set Issue Periods for the Keys

The Sparx Systems Keystore Service helps you to:

- Ensure that the number of people using Enterprise Architect is limited to the number of floating licenses that have been purchased
- Enable people to operate Enterprise Architect using a floating license while disconnected (e.g. using a laptop computer).

To achieve this, select the key store from the Key Stores section of the Sparx Systems Keystore Service dialog, and then select the **Tools | Options** menu option. The Options dialog displays.



(Alternatively, to display this dialog right-click on the keystore name in the Key Stores panel and select the **Options** context menu option.)

When most people close Enterprise Architect they no longer require their license. Therefore there is little point in continuing to allocate the license to a user who is not actually using Enterprise Architect.

• On the Options dialog, you select the Auto checkin checkbox so that any license in the key store is automatically returned to the key store when the user closes Enterprise Architect. Click on the OK button to confirm your selection. When the user closes Enterprise Architect, the key is then available to the next user who wants to do some work in Enterprise Architect.

However, a laptop user, having closed Enterprise Architect, might still want to use the license off-site, with no access to the key store and therefore no way to request another key. While the laptop user can put their machine into *standby* or *hibernate* mode while leaving Enterprise Architect running, there is the risk that the laptop might have to be rebooted. Once Enterprise Architect restarts it will report the lack of a license - the license having been automatically checked in.

 To enable such users to have access to Enterprise Architect, you could deselect the Auto checkin checkbox for the keys in the key store. Click on the OK button to confirm your selection.

This acts against the purpose of having the checkbox. It is therefore advisable to create *two* key stores, each with a different setting for **Auto checkin**:

Target	Auto checkin
Mobile users who want to use Enterprise Architect from home or other disconnected locations.	Not selected
Fixed users who leave their computers at work.	Selected

If a user has a key with no automatic check-in, they then have use of the key for a theoretically unlimited time. However, the Sparx Systems Keystore Service also enables an administrator to limit use by setting an issue period for the keys in the key store. The period is counted as continuous time spent away from the network connection to the key store. The issue period can be set in either weeks or days

For example, if a user has a license with an issue period of one week and is away from an active connection to the key store for more than one week, they cannot use Enterprise Architect until they obtain another key.

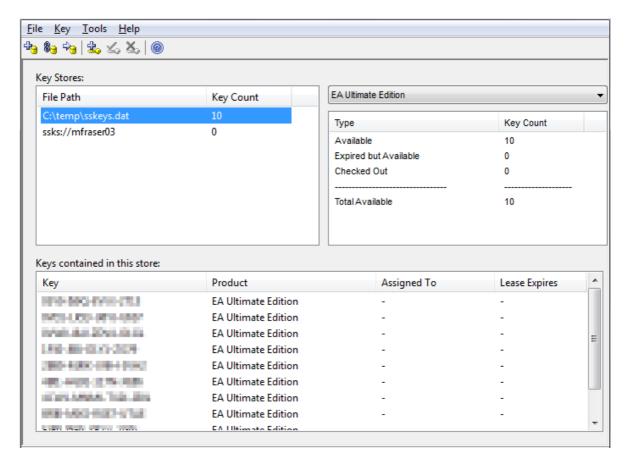
To set the issue period for the keys in the key store:

 In the first Keys leases expire after field, type the required number of units; in the second field, click on the drop-down arrow and select the unit - Days or Weeks. Click on the OK button to confirm your selection.

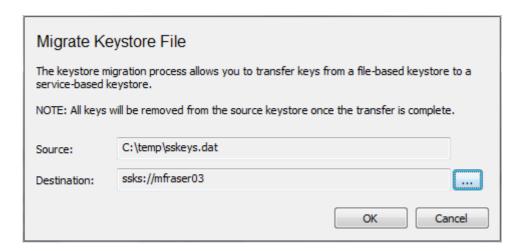
### 5.4 Migrate Shared Keys From File-Based Keystore

You might want to upgrade from a legacy file-based keystore and migrate your keys to a new network-based keystore. This process effectively *removes* all keys from the file-based keystore, leaving it empty, and places the keys into the network-based keystore.

To migrate the shared keys, select the **File** Link **To** menu option on the Sparx Systems Key Store dialog (or use the toolbar icon or context menu option 14) and select the **File Based Keystore** option, then browse for the local keystore and click on the **OK** button to connect to it. The Sparx Systems Key Store dialog now resembles the following:



In the Key Stores panel, click on the file-based keystore path and then on the **File | Migrate To** menu option. The Migrate Keystore File dialog displays, with the local keystore file path in the **Source** field.



(Alternatively, to display this dialog click on the **Migrate key store** icon in the toolbar, or right-click in the **Key Stores** panel and select the **Migrate to** context menu option.)

Click on the [ ... ] button to the right of the **Destination** field, and browse for the name of the network-based keystore into which the shared keys are to be transferred. Click on the **OK** button to migrate the shared keys from the source file-based keystore to the target service-based keystore.

### 5.5 Release Shared Keys

It is usually not necessary to manually release a shared key from a workstation, as this happens automatically if:

- The keystore's AutoCheckin 16 option has been enabled and you close all running instances of Enterprise Architect on your workstation
- · The lease on the key expires.

However, if further users want to access Enterprise Architect and there is some technical anomaly that has prevented the return of a key, you can manually release the key using the Sparx Systems Key Store dialog.

To release a key from active association with a particular workstation, click on the key in the Keys contained in this store panel, and then select the **Key | Release** menu option.

(Alternatively, click on the **Release Key** icon in the toolbar, or right-click on the key and select the **Release** context menu option.)

## 5.6 Delete Shared Keys

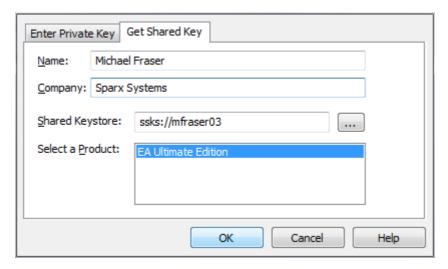
To delete a key from the keystore, open the Sparx Systems Key Store dialog, click on the key in the Keys contained in this store panel, and then select the **Key | Delete** menu option.

(Alternatively, click on the **Delete Key** icon in the toolbar, or right-click on the key and select the **Delete** context menu option.)

## 6 Configure Enterprise Architect to Acquire Keys From Keystore

Shared keys are available through the purchase of floating licenses for the Corporate edition of Enterprise Architect version 4.51 or later, and also the Business & Software Engineering, Systems Engineering and Ultimate editions of Enterprise Architect version 7.5 or later.

- 1. From the workstation, start Enterprise Architect and select the **Help | Register and Manage License Key(s)** menu option. The License Management dialog displays.
- 2. Click on the **Add Key** button; the Add Registration Key dialog displays.



- 3. Select the Get Shared Key tab.
- 4. In the **Name** and **Company** fields, type your user name and company name.
- 5. Click on the [ ... ] button to the left of the **Shared Keystore** field and browse to the network location of the shared key store.
- 6. In the Select a Product field, select the licensed product and then click on the OK button.

If keys are available, one is allocated to you and you are able to continue working in Enterprise Architect.

If keys are not available, you cannot work in Enterprise Architect and must wait until another user closes Enterprise Architect and releases their key.

## 7 Activity Logs

The activity of the Sparx Systems Keystore Service is logged to file according to the options specified in the keystore configuration 14. The log content resembles the following:

## 8 Troubleshooting

The best source of troubleshooting information can be found in the Sparx Systems Keystore Service log files 22. The log file location and level of detail are configured through the configuration 11 file. It is recommended that, for trouble shooting, the LOG\_LEVEL property be set to the highest level, SYSTEM, so that the greatest amount of information is available to the administrator.

### **Initialization Failures**

Reported Error	Cause
Could not open keystore at [FilePath]. The file does not exist and could not be created.	The service was unable to open the keystore file specified by the KEYSTORE_PATH property in the configuration file.  Ensure that this path exists, and that the user account the Sparx Systems Keystore Service runs under has the necessary permissions to read and write to the file.
Could not open keystore, no keystore file specified.	No file path was specified in the property in the configuration file.  Type a file path into the <b>KEYSTORE_PATH</b> configuration property that the user account the Sparx Systems Keystore Service runs under can read and write to.
Invalid or missing keystore file - Keystore file cannot be opened by this version of the service or the file has been corrupted.	The keystore file specified by the configuration property  KEYSTORE_PATH is either incompatible with the current version of the keystore service, or has somehow been corrupted on the file system.  Restore the keystore file specified in the configuration property  KEYSTORE_PATH from a recent backup, or contact Sparx Systems Support for assistance.
Key file has been moved.	The keystore file specified by the configuration property KEYSTORE_PATH is locked to the serial number of the hard drive it is created on. If the keystore file is moved from this hard drive, the service is unable to open it.  If the keystore file has been moved, restore the file to its initial location. Certain RAID configurations can affect how the hard drive's serial number is presented to the keystore service. Thus, it is recommended that you house the keystore file on a non RAID drive, wherever possible.

### **Checkout Failures**

Reported Error	Cause
There are no more available keys for this product in the key store.	Keys for this product exist; however, they are all checked out to other users.  If this error is frequently reported, consider limiting the use of the product across your enterprise or purchasing more keys to meet the demand for the product.
The key store does not contain any keys for this product.	This keystore does not contain keys for the requested product. Keys for the product might have been provided by the keystore in the past, but have since been removed.  Uninstall the product and return any shared keys on the client machine.

### **Checkin Failures**

Reported Error	Cause
Key not found in keystore.	The key being checked in has either been deleted since it was checked out, or was checked out from another keystore.
	Ensure that users return any shared keys to the keystore they were leased from before swapping keystores.

### **Authentication Failures - Global Password**

Reported Error	Cause
GlobalPasswordAM::Authent icate() failed due to an invalid password.	The user failed to authenticate with the keystore, as they provided a password that did not match the server password specified in the configuration property <b>AUTHMETHOD_OPTIONS</b> .
	Ensure that the password is entered correctly (passwords are case sensitive), otherwise contact your Sparx Systems Keystore Service administrator for the correct password.

### **Authentication Failures - Active Directory**

Reported Error	Cause
Could not get DefaultNamingContext.	The Active Directory authentication module failed to initialize as it could not resolve the Default Naming Context for the current domain.
	Ensure that the machine the Sparx Systems Keystore Service is installed on is able to contact the Active Directory domain controller and has the necessary permissions to query the domain's Active Directory.
Could not open root DSE.	The Active Directory authentication module failed to initialize as it could not open the domain's root DSA (Directory Server Agent) Specific Entry (DSE) at <i>Idap://rootDSE</i> . The root DSE entry provides information about the contents and capabilities of the Active Directory domain controller.
	Ensure that the machine the Sparx Systems Keystore Service is installed on is able to contact the Active Directory domain controller and has the necessary permissions to query the domain's Active Directory.
Could not initialize the Active Directory COM interface.	The Active Directory authentication module failed to initialize as it could not open or access the Active Directory COM interface.
	Ensure that the machine hosting the user account that the Sparx Systems Keystore Service runs under has the necessary permissions to create and communicate with the Active Directory COM interface.
No permitted ActiveDirectory group name provided in the	The Active Directory authentication module failed to initialize as the configuration property <b>AUTHMETHOD_OPTIONS</b> was left blank.
AUTHMETHOD_OPTIONS configuration property.	Enter a valid Active Directory group in the <b>AUTHMETHOD_OPTIONS</b> property in the service configuration file, or use the <b>AM_GLOBALPASSWORD</b> authentication module if you do not want keystore access to be restricted to a particular Active Directory group.
Group [Group Name] not found.	The Active Directory authentication module failed to initialize as the Active Directory group specified in the configuration property <b>AUTHMETHOD_OPTIONS</b> could not be resolved.
	Ensure that the group name specified in the configuration property <b>AUTHMETHOD_OPTIONS</b> exists and is spelt correctly.
User [User Name] is not a	The user failed to authenticate with the keystore as they are not a member

Reported Error	Cause
member of any permitted groups.	of the Active Directory group specified in the configuration property <b>AUTHMETHOD_OPTIONS</b> .
	Add the user to the group specified in the configuration property <b>AUTHMETHOD_OPTIONS</b> .
Account name [User Name] not found.	The user name requesting to authenticate with the keystore could not be found on the domain.  Add the user to domain.

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