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Administration Guide

SecureLogin 7.0 SP3

April, 2012

Novell.

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Audience

This guide is intended for:

- Network Administrators

- System Administrators
- IT Support Staff

Feedback

We want to hear your comments and suggestions about this manual and the other documentation included with this product. Please use the User Comments feature at the bottom of each page of the online documentation, or go to www.novell.com/documentation/feedback.html and enter your comments there.

Documentation Updates

For the most recent version of the *Novell SecureLogin 7.0 Administration Guide*, visit the Novell Documentation Web site. (http://www.novell.com/documentation/securelogin70).

Additional Documentation

The other documents available with this release of Novell SecureLogin are:

- *Getting Started*:
  - *Novell SecureLogin Release Notes 7.0 Service Pack 3*
  - *Novell SecureLogin Quick Start Guide*
  - *Novell SecureLogin Overview Guide*
- *Installation*:
  - *Novell SecureLogin Installation Guide*
- *Administration*:
  - *Novell SecureLogin Application Definition Wizard Administration Guide*
  - *Novell SecureLogin Citrix and Terminal Services Guide*
  - *pcProx Guide*
- *End User*:
  - *Novell SecureLogin User Guide*
- *Reference*:
  - *Novell SecureLogin Application Definition Guide*

Documentation Conventions

In Novell documentation, a greater-than symbol (>) is used to separate actions within a step and items in a cross-reference path.

1 Getting Started

Novell SecureLogin is an enterprise single sign-on product. It provides authentication solutions to Web, Windows, host, and legacy application-based single sign-on. Novell SecureLogin functions as an identity overseer for all the systems that users access.

It is a credential management tool developed to increase an organization's network security, while lowering support costs.

Novell SecureLogin securely manages and encrypts the authentication information in a directory. It stores usernames and passwords and automatically retrieves them for users, when required.

- Section 1.1, "Recommendations," on page 11
- Section 1.2, "The Administrative Management Utilities," on page 11
- Section 1.3, "Known Issues," on page 13
- Section 1.4, "Enhancements," on page 14

1.1 Recommendations

Before you begin configuring and administering Novell SecureLogin, it is recommended that you have a strong working knowledge of the following:

- Microsoft Active Directory
- Microsoft Management Console (MMC)
- Microsoft Group Policy Object Management Console (GPMC)
- Microsoft Windows operating systems
- Lightweight Directory Access Protocol (LDAP)

1.2 The Administrative Management Utilities

Novell SecureLogin consists of the Administrative Management utilities and plug-in for inclusion in Novell SecureLogin, which are used for administering Novell SecureLogin.

The utilities are:

- Section 1.2.1, "Novell iManager," on page 12
- Section 1.2.2, "SLManager," on page 12
- Section 1.2.3, "Microsoft Management Console Snap-In," on page 13

1.2.1 Novell iManager

Novell iManager is a state-of-the-art Web-based administration console that provides customized secure access to network administration utilities and content from any location in the world. With a global view of your network from one browser-based tool, you can proactively assess and respond to changing network demands.

Novell recommends using Novell iManager to administer Novell SecureLogin in LDAP environments.

IMPORTANT: Throughout this document, we refer to iManager as the Administrative Management Utility to explain the various administration procedures.

The graphics also represent iManager set up.

Starting iManager

Accessing iManager varies based on the iManager version (server-based or workstation) and the platform on which iManager is running.

Accessing Server-Based iManager

1. Enter one of the following in the Address (URL) field of a supported Web browser:
   - **Default URL on non-OES 2 platforms:** `https://<server ip address>:8443/nps/iManager.html`

     On platforms other than Novell Open Enterprise Server 2 (OES 2), you must specify the Tomcat port as part of the iManager URL because iManager 2.7 uses only Tomcat 5 for its Web server requirements.
   - **Default URL for OES 2 platforms:** `https://<server ip address>/nps/iManager.html`

   Although slightly different, iManager URLs might work on some platforms. Novell recommends using these URLs for consistency.
2. Log in by using your username, password, and the tree name.

Accessing iManager on a Workstation

1. Browse to the iManager set up on your workstation.
2. Execute `imanager\bin\iManager.bat`.
3. Log in by using your username, password, and tree name.

1.2.2 SLManager

Use SecureLogin Manager (SLManager) for LDAP mode installations.

There is no difference in the features and components of iManager and SLManager. The menu options in both the utilities are similar. Only the user interfaces are different.

Starting SLManager

1. On the Start menu, select *Programs > Novell SecureLogin > SecureLogin Manager*. The Administrative Management utility is displayed.
2. In the *Object* field, specify your object name, then press the Enter key.

You must press the Enter key to submit the entry typed in the Object field. Clicking OK closes the dialog box but does not accept the entry you typed. The object name should be in the LDAP convention (username, objectname) if you are using LDAP mode and in the eDirectory convention (username. objectname), if you are using the eDirectory mode.

1.2.3 Microsoft Management Console Snap-In

Use the Microsoft Management Console (MMC) snap-in for Active Directory deployments.

Starting MMC

1 On the Windows *Start* menu, select *Programs* > *Administrative Tools* > *Active Directory Users and Computers*. The Microsoft Management Console is displayed.

1.3 Known Issues

Note the following issue before you begin configuring and administering Novell SecureLogin.

Applications, Preferences, and Policies Added at the Group Leve

The applications and policies added at the group level through iManager are not reflected on the client.

Every time a new group is created, you must re-assign the rights. You must manually assign read permissions for the correct functioning of the configured group.

Do the following on iManager for the applications, preferences, policies, and others added at the level to be reflected on the client:

1 Log in to iManager.

2 Select *Rights* > *Modify Trustees*.

3 Specify the object name.

4 Click *Add Trustee*. Browse and locate more objects.

Selection of multiple trustees is allowed.

5 Select *Assigned Rights* > *Add Properties*. Add the following attributes:

- Proto:SSO Entry
- Proto:SSO Entry Checksum
- Proto:SSO Security Prefs
- Proto:SSO Security Prefs Checksum

6 Click *OK*.

7 Click *Done* to save the changes and exit.

1.4 Enhancements

This section provides information on the enhancements made to Novell SecureLogin 7.0 post-release, through the various hotfixes.

- Section 1.4.1, "Forcing Users to Change Password Before Grace Login Expires," on page 14
- Section 1.4.2, "Support for .NET Framework," on page 14
- Section 1.4.3, "Support for Oracle Forms," on page 14

1.4.1 Forcing Users to Change Password Before Grace Login Expires

Novell SecureLogin has introduced an enhancement in Novell SecureLogin 7.0 hotfix 1 where an administrators can force users to change their password before the grace login expires.

Scenario: Novell SecureLogin is installed in LDAP mode with eDirectory. When the password expires, the authentication process consumes the all grace logins and users cannot log in. To avoid this, create the following registry keys.

- `GraceDaysBeforePasswordExpire` registry of DWORD value. This displays a warning message to the users about the number of days remaining for password expiry.
- `DaysForcePasswordChange` of DWORD value. This forces the users to change their password. Although the grace login available, this forces the users to change their password before the grace login expires.

For example, if the password policy is set to change every 90 days, the `GraceDaysBeforePasswordExpire` can be set to 5 and `DaysForcePasswordChange` can be set to 3. On the day 85 when users logs in, a message indicating the number of days left before password expiry appears. The users can choose to change the password immediately or change it later.

Similarly, when a users logs in on day 87 another message appears that forces the users to change the password. They cannot continue without changing the password.

1.4.2 Support for .NET Framework

Novell SecureLogin 7.0 SP1 supports .NET Framework 3.5 SP1 or above, which should be already available in the system.

1.4.3 Support for Oracle Forms

Novell SecureLogin 7.0 SP1 uses the pre-installed Oracle JInitiator or JRE to support Web enabled Oracle form applications. If any of these Java components is added in the machine after installing (or upgrading to) SecureLogin 7.0 SP1, you need to enable SecureLogin to use the newly added Java component. To enable support to the new Java component, run the repair option of the SecureLogin installer.

2 Configuring

User IDs, applications, and password policies must all have unique names. Additionally, you cannot create an application named Error.

If you install SecureLogin with the SecretStore client in the eDirectory mode, you cannot add an application and name it App1 (for example) if a password policy already exists with the name App1.

Before you deploy Novell SecureLogin, you must complete the following configuration tasks:

- Section 2.1, “Setting User Preferences,” on page 15
- Section 2.2, “Disabling User Access,” on page 16
- Section 2.3, “Updating the Datastore Objects,” on page 16
- Section 2.4, “Changing the Organizational Unit Level Datastore,” on page 17
- Section 2.5, “Changing the Directory Datastore,” on page 18
- Section 2.6, “Deleting or Re-setting User Data,” on page 18

2.1 Setting User Preferences

You can set the user preferences in the Preferences table in the administrative management utilities. Each user preference has a default value that is implemented until an alternative value is manually configured. In directory hierarchies, the preference values are inherited from higher level objects. However, the preference values set at the user object level override all higher level object values.

You can restrict users from setting or modifying the preferences.

2.1.1 Changing a Preference Value

1. Launch the Administrative Management utility (iManager, SLManager, or MMC snap-ins).
2. Click *Preference*. The Preference properties table is displayed.
3. Locate the setting you want to change and then, in the Value column, select the appropriate value.

   Some of the value settings are text field entries where you have to provide the value.
4. Click *OK*. The selected value is saved and the Administrative Management utility closes.

2.2 Disabling User Access

You can disable a user's access to the Novell SecureLogin Client Utility as a part of the configuration. By default, the user has permission to change application definitions and predefined applications, passwords, and functionality. You do this through the administrative management utilities.

You have several options for restricting user access by setting preferences at the user, group policy, container, or organizational unit level. This includes:

- Full access to all administrative tools.
- Access to selected administrative tools.
- Hiding the SecureLogin icon on the notification area (system tray).
- Hiding and password protecting the SecureLogin icon in the notification area (system tray).

If the SecureLogin icon is password protected, anyone attempting to access the Novell SecureLogin Client Utility through the SecureLogin icon is prompted to provide the network password. This prevents non-authorized users from viewing SecureLogin data. However, an authorized user can use the administration tools to modify SecureLogin.

2.3 Updating the Datastore Objects

Novell SecureLogin 6.0 introduced a range of security features, including storing the single sign-on credentials on the user's smart card, encrypting the datastore by using the Public Key Infrastructure (PKI)-based credentials and the Advanced Encryption Standard (AES) encryption algorithm support.

To support the new features, you must change the Novell SecureLogin 6.0 datastore format.

The Novell SecureLogin 6.0 client can read data created by all the previous versions of Novell SecureLogin. However, the older versions cannot read the data created by version 6.0 and later. In case of a mixed corporate environment where some workstations are running Novell SecureLogin 6.0, 6.1, or 7.0, and other workstations are running previous versions, data compatibility issues arise when a user moves between different versions of Novell SecureLogin on different workstations. This is particularly problematic in Citrix environments or in large enterprise deployments.

If Novell SecureLogin 3.5 is present when you install Novell SecureLogin 7.0, it detects that version 3.5 data is in use and continues to function correctly. In this mode, version 3.5 functions are available. However, any new function that relies on version 7.0 data, is not available.

If you require the new functions, complete the following processes:

1. Choose a section of the tree to upgrade.

   For example:

   - Container
   - Group
   - Organization
   - User

2. Make sure that all user workstations in that section of the tree are upgraded with the Novell SecureLogin 7.0 client.

The next time the users log in, their data is converted to version 7.0 format and the new functions are available.

2.4 Changing the Organizational Unit Level Datastore

- Section 2.4.1, "Changing the Organizational Unit Level Datastore in an Active Directory Environment," on page 17
- Section 2.4.2, "Changing the Organizational Unit Level Datastore in an eDirectory Environment," on page 17
- Section 2.4.3, "Deploying an Upgrade," on page 18

2.4.1 Changing the Organizational Unit Level Datastore in an Active Directory Environment

Perform the following to set the directory datastore version at the organizational unit level in an Active Directory environment:

1 **On Microsoft Windows Vista:** On the Windows Start icon, select *All Programs* > *Control Panel* > *System Maintenance* > *Administrative Tools*.

   On Microsoft Windows XP: On the Windows *Start* menu, select *Programs* > *Administrative Tools* > *Active Directory Users and Computers*. The Microsoft Management Console is displayed.

2 Right click the required group policy, container, or OU, then click *Properties*. The properties dialog box is displayed.

3 Click the *SecureLogin* tab. The SecureLogin page is displayed.

4 Click *Manage*. The Advanced Settings page of the administrative management (SecureLogin Manager) utility is displayed

5 On the left pane, click *Advanced Settings*. The Advanced Settings page is displayed.

6 Click the *Datastore* tab.

7 From the *Select version drop-down* list, select the required version. A warning is displayed.

   The warning message refers to 3.0 clients that were used by some users who later upgraded the datastore mode to version 7.0.

   When a user's directory data version is upgraded, the datastore information displayed in the Novell SecureLogin About box is not updated. To update this information, the user must activate Refresh Cache from the Advanced menu of the Novell SecureLogin icon on the notification area (system tray).

2.4.2 Changing the Organizational Unit Level Datastore in an eDirectory Environment

1 Log in to iManager.

2 Specify the organizational unit object.

3 Click *OK*.

4 Click *Advanced Settings*. The Advanced Settings page is displayed.

5 From the Select version under the *Datastore* section, select the required version. A warning is displayed.

6 Click *OK* to save the changes.

2.4.3 Deploying an Upgrade

When you are deploying an upgrade across a series of workstations, follow the procedure explained in Section 2.5, "Changing the Directory Datastore," on page 18. The next time the directory server and the workstation caches are synchronized and SecureLogin operates in the new version mode.

2.5 Changing the Directory Datastore

When the directory is upgraded, the new features of Novell SecureLogin 7.0 are not available on the workstation. So, users must upgrade to the new version.

You can configure directory datastore version at the group policy, user object, container, or organizational unit levels. Set the datastore version at the container or the organization unit levels. This helps enterprises to manage the datastore base and minimize the possibility of conflicting versions.

If you require to update a single new feature of Novell SecureLogin preference that requires 7.0 datastore, you are prompted with a warning before proceeding to change. For example, when you upgrade the *Use AES for SSO data encryption* preference.

2.6 Deleting or Re-setting User Data

If a user forget the network password and passphrase answer or if the login credential data is corrupted, you must delete all SecureLogin data.

You as an administrator must do this because the user does not have access to the administrative management utilities.

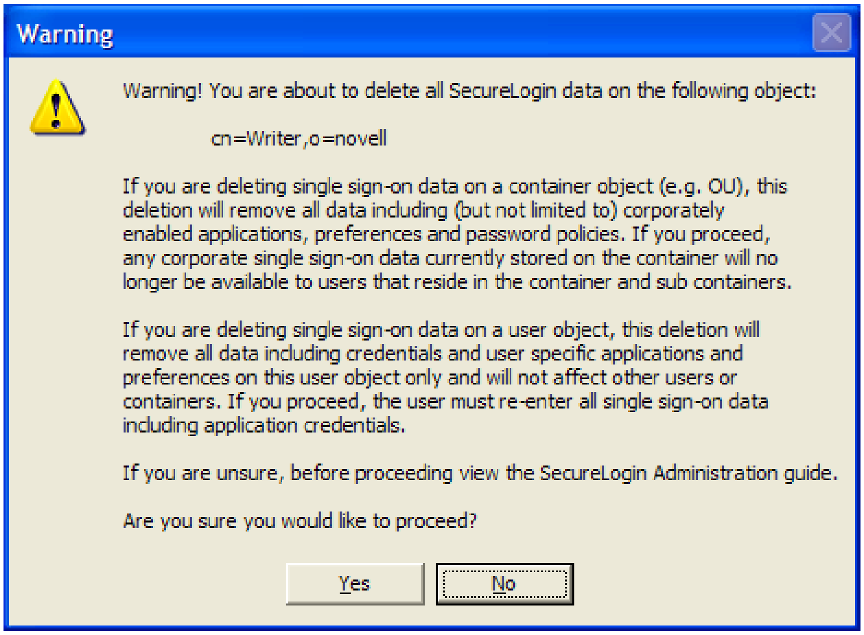
Before you delete a user's datastore object, consider the following important aspects:

User Data Re-set Option	Action
Select the required directory object only	The Delete single sign-on configuration for this datastore object option is available at the container, group policy, ou, and user object level.
Record (external to SecureLogin) all usernames, password, and additional required credential information	For example, if you delete a single sign-on-enabled application at the ou level, you might also be deleting the credentials for all users that reside in that container.
Delete the local cache on the workstation	The object or user continues to inherit configuration from higher-level objects in the directory even though you deleted the user data in the directory cache. This means that you should delete the local cache on the workstation first. This ensures that it does not synchronize with the directory cache and re-create the configuration in the directory.

To reset the user data:

1. Launch the Administrative Management utility (iManager, SLManager, or MMC snap-ins).
2. If you are using iManager, browse to *SecureLogin SSO* > *Manage SecureLogin SSO* > *Advanced Settings*. The Advanced Settings page is displayed.

3 Click *Delete* in the Datastore section. A warning message appears.



Warning

Warning! You are about to delete all SecureLogin data on the following object:

cn=Writer,o=novell

If you are deleting single sign-on data on a container object (e.g. OU), this deletion will remove all data including (but not limited to) corporately enabled applications, preferences and password policies. If you proceed, any corporate single sign-on data currently stored on the container will no longer be available to users that reside in the container and sub containers.

If you are deleting single sign-on data on a user object, this deletion will remove all data including credentials and user specific applications and preferences on this user object only and will not affect other users or containers. If you proceed, the user must re-enter all single sign-on data including application credentials.

If you are unsure, before proceeding view the SecureLogin Administration guide.

Are you sure you would like to proceed?

4 Click *Yes*. The Datastore object is deleted.

If you did not delete the SecureLogin cache from the local cache, before you deleted the Datastore object data, you get an error message.

NOTE: When SecureLogin is installed in the SecretStore environment, the data will not be deleted from the SecretStore datastore.

In a SecretStore environment, use the SecretStore iManager plugin to clear the credentials instead of the SecureLogin plugin .

5 Click *Yes*.

When you do this, you delete the complete data of the user, including:

- Credentials, including usernames and passwords
- Application definitions
- Predefined applications
- Password policies
- Preferences
- Passphrase questions and answers

WARNING: The deleted data cannot be retrieved.

The next time the user logs in, the user is asked to set up a new passphrase question and response and re-enter the credentials for each application enabled for single sign-on.

Novell SecureLogin supports setting a cache expiry by using the following registry entry on the client:

`HKEY_LOCAL_MACHINE/SOFTWARE/Protocom/SecureLogin`

`DWORD` Value CacheExpiryDays

The value data is the number of days. Do not provide zero (0) because the cache would expire immediately on refresh. The cache expiry period is updated at each cache or directory synchronization, or each time Novell SecureLogin loads in an online mode.

NOTE: No warning is provided at cache expiry. If a cache is expired, the users cannot access Novell SecureLogin in an offline mode until they log in, and create the cache again in an online session.

3 Managing Preferences

Novell SecureLogin preferences are tools, options, and parameters used by the enterprise administrators to configure the user's Novell SecureLogin corporate environment.

You can restrict a user's access to his or her Novell SecureLogin preferences through the administrative management utilities.

The preferences also include applications that are permitted to be enabled for single sign-on and the tools to enable users to access their own Novell SecureLogin management and administration functions.

You can configure user preferences from the Preference properties table in the administrative management utilities. This section provides information on the following:

- Section 3.1, "Changes to Preferences," on page 21
- Section 3.2, "Preferences Categories," on page 22
- Section 3.3, "The Default Preference Values," on page 22
- Section 3.4, "Setting User Preferences," on page 23
- Section 3.5, "Changing Preference Value," on page 23
- Section 3.6, "Setting the Preferences," on page 23

3.1 Changes to Preferences

- Section 3.1.1, "Rights for Installing JREs," on page 21
- Section 3.1.2, "Installing a New Version Java on Windows Vista," on page 22
- Section 3.1.3, "Update Rights on Microsoft Windows Vista," on page 22

3.1.1 Rights for Installing JREs

Novell SecureLogin now checks for new JREs installed on the client when Novell SecureLogin is launched. If new JREs are detected and they are allowed by user's permissions, the new JREs are enabled for single-sign on automatically, without any user prompts or intervention.

The JRE update process requires local administrative rights on the client. If the user is not logged in with administrative rights, the update fails without displaying any notification to the user.

The JREs are updated the next time the user logs in with administrative rights and launches Novell SecureLogin on the workstation.

3.1.2 Installing a New Version Java on Windows Vista

If a new version of Java is installed after installing Novell SecureLogin, the next time you run Novell SecureLogin, it checks for new versions of Java to enable single sign-on.

If a new version of Java (if Java is installed for the first time after Novell SecureLogin is installed) is detected, the required information must be updated in `C:\Program Files\Java`, and a few files must also be modified in the process. But, Microsoft Windows Vista does not permit the user to write to the `C:\ProgramFiles\Java files`.

To resolve this:

1. Stop the Novell SecureLogin application.
2. Locate `slproto.exe` > *right-click*, then select *Run As Administrator*.
3. Specify the administrator passsword.

   The user is now working with administrator privileges and can successfully write to the Java folder.

3.1.3 Update Rights on Microsoft Windows Vista

In User Access Control (UAC) mode, Microsoft Windows Vista requires elevated privileges to perform certain runtime updates. Microsoft Windows Vista enforces elevated privileges for JRE updates that are required to enable single sign-on for Java applications.

NOTE: Microsoft Windows Vista does not enforce this elevation during the installation process.

For this, when a new JRE is installed on Vista client, the you must update after elevating your privileges using the `Run As` command and selecting the appropriate administrator command.

3.2 Preferences Categories

The Novell SecureLogin preferences are divided into the following categories:

- *General*
- *Java*
- *Security*
- *Web*
- *Windows*

3.3 The Default Preference Values

Each preference value has a default value that is implemented during installation or deployment. You can configure alternative values.

3.3.1 Inheriting Preference Values

In corporate directory hierarchies, preference values are inherited from higher-level objects, while some lower-level objects can override preferences set at higher-levels.

Therefore, the preference values set at the user object-level override all higher-level object values.

3.4 Setting User Preferences

ou can set the SecureLogin user preferences in the Preferences Properties table in the Administrative Management utilities (Novell iManager or SecureLogin Manager).

Each SecureLogin preference has a default value that is implemented until an alternative value is manually configured. In directory hierarchies, preference values are inherited from a higher-level object, while some lower-level objects can override preference set at higher level.

For example, preference values set at the user object level override all higher level object values.

NOTE: This can be controlled for users by restricting their ability to set preferences.

For more information about inheriting configuration settings, see Chapter 13, "Distributing Configurations," on page 119.

3.5 Changing Preference Value

1 Launch the Administrative Management utility (iManager, SLManager, or MMC snap-ins).

2 Click *Preference*. The Preference properties table is displayed.

3 Locate the setting you want to change and then, in the *Value* column, select the appropriate value.

   NOTE: Some of the value settings are text field entries where you have to provide the value.

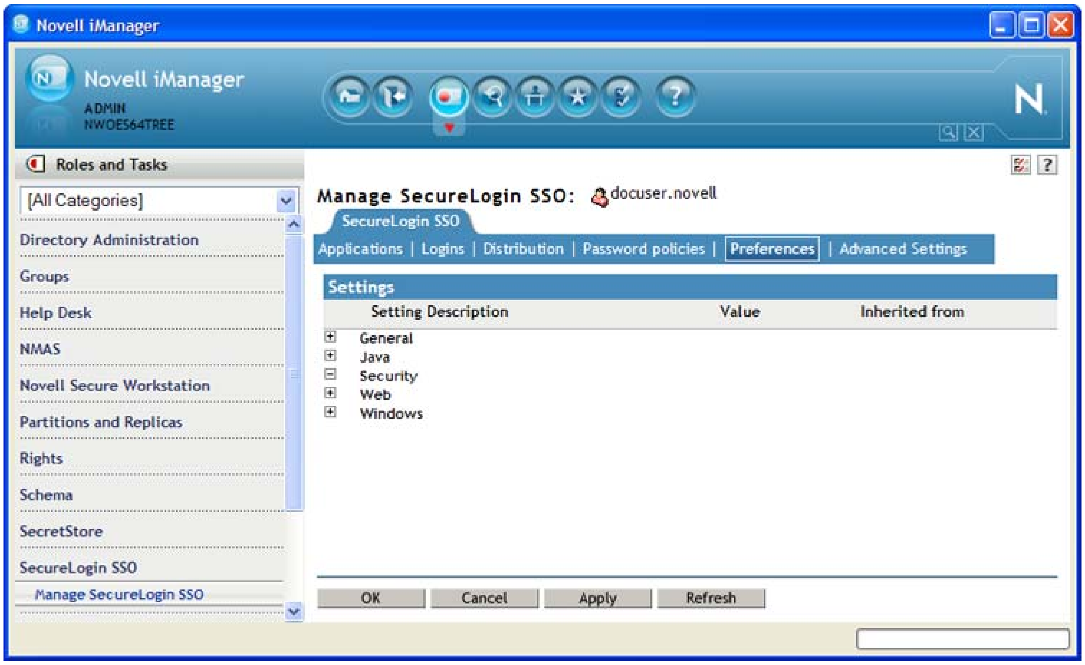
4 Click *OK*. The selected value is saved and the Administrative Management utility closes.

3.6 Setting the Preferences

You set preferences for managing SecureLogin in the Administration Management utility:

1 Log in to iManager.

2 Click *Novell SecureLogin* > *Manage SecureLogin* > *Preferences*. The list of preferences is displayed.



3 Make the changes you want, then click *OK*.

Use the information in the following tables to assist you in making the changes:

- Table 3-1, “The General Preferences,” on page 25
- Table 3-2, “The Security Preferences Properties Table,” on page 37
- Table 3-3, “The Java Preferences Properties Table,” on page 40
- Table 3-4, “The Web Preferences Properties Table,” on page 41
- Table 3-5, “The Windows Preferences Properties Table,” on page 43

Changes in Preferences in Novell SecureLogin 6.1

Novell SecureLogin 6.1 modified the *Allow users to view and modify application definitions preference*. This preference was divided into two preferences:

- *Allow application definition to be modified by users*
- *Allow application definition to be viewed by users*

When upgrading from previous versions of Novell SecureLogin to version 7.0 by using a legacy directory data (6.0 or 3.5), if the *Allow users to view and modify application definitions option* was set to *No*, then the *Allow application definition to be modified by users* for 6.1 is dimmed.

You must reset the *Allow application definition to be viewed by users* to *Yes* before users can modify the application definitions.

Table 3-1 The General Preferences

Preference	Possible Values	Description	Default Value
Allow "Close" option via system tray	*Yes*/*No*/*Default*	This preference controls whether users can access the *Close* option from Novell SecureLogin icon on the notification area (system tray). If the option is set to *No*, the *Close* option is shown as disabled in the Novell SecureLogin notification area (system tray) icon. If this option is set to Yes or *Default*, the *Close* option is displayed and accessible in the Novell SecureLogin notification area (system tray) icon. **NOTE:** This preference requires Novell SecureLogin 6.0 datastore if the value is changed. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.
Allow "Refresh Cache" option via system tray	*Yes*/*No*/*Default*	This preference controls whether users can refresh cache using the *Advanced* > *Refresh Cache* option from the Novell SecureLogin icon on the notification area (system tray). If this option is set to *Yes*, the *Refresh Cache* option is displayed and accessible in the notification area (system tray) icon. If this option is set to *No* or *Default*, the *Refresh Cache* option is not displayed in the notification area (system tray) icon. **NOTE:** This preference requires Novell SecureLogin 6.0 datastore if the value is changed. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *No*.
Allow "Log Off" option via system tray	*Yes*/*No*/*Default*	This preference controls if users can log out from a session using *Log Off User* option from the Novell SecureLogin icon on the notification area (system tray). If this option is set to *No*, the *Log Off User* option is not displayed and accessible in the Novell SecureLogin notification area (system tray) icon. If this option is set to *Yes* or *Default*, the *Log Off User* option is displayed and accessible in the Novell SecureLogin notification area (system tray) icon. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.

Preference	Possible Values	Description	Default Value
Allow "Work Offline" option via system tray	*Yes*/*No*/*Default*	This preference controls whether users can work in offline cache mode using the *Advanced* > *Work Offline* option. If this option is set to *Yes* or *Default*, the *Work Offline* option is displayed in the notification area (system tray) icon. If this option is set to *No*, the *Work Offline* option is not displayed in the notification area (system tray) icon. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.
Allow application definition to be modified by users	*Yes*/*No*/*Default*	This preference controls whether users can modify application definitions using the *Definitions* tabs in the Applications pane of Novell SecureLogin client. If this option is set to *Yes* or *Default*, the end user can view and modify their application definitions. If this option is set to *No*, the end user cannot change their application definitions. **NOTE:** If the Allow application definition to be viewed by users is set to No, then this option is cannot be edited. Disabling this preference does not disable the users from creating new applications through the wizards. This preference requires Novell SecureLogin 6.0 datastore if the value is changed. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default option is *Yes*.
Allow application definition to be viewed by users	*Yes*/*No*/*Default*	This preference controls whether users can view application definitions using the *Definitions* tabs in the Applications pane of Novell SecureLogin client. If this option is set to *Yes* or *Default*, users can view the application definition. If this option is set to *No*, users cannot view the application definition. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.

Preference	Possible Values	Description	Default Value
Allow credentials to be deleted by users through the GUI	*Yes*/*No*/*Default*	This preference controls whether users can delete their credentials using Novell SecureLogin client available from Manage Logins from the Novell SecureLogin icon in the notification area (system tray). **NOTE:** If Allow credentials to be modified by users through the GUI is set to *No*, then this option is automatically set to *No* and not editable. This preference requires Novell SecureLogin 6.0 datastore if the value is changed. If this option is set to *Yes* or *Default*, users can delete their credentials through the GUI. If this option is set to *No*, users cannot delete their credentials. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.
Allow credentials to be modified by users through the GUI	*Yes*/*No*/*Default*	This preference controls whether users can modify their credentials using Novell SecureLogin client available from Manage Logins from the Novell SecureLogin icon in the notification area (system tray). If this option is set to *Yes* or *Default*, users can modify their credentials through the GUI. If this option is set to *No*, users cannot modify their credentials through the GUI. They can only view the credentials. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.

Preference	Possible Values	Description	Default Value
Allow users to (de) activate SSO via system tray	*Yes*/*No*/*Default*	This preference controls whether users can activate or deactivate SecureLogin through the SecureLogin icon in the notification area (system tray). If this option is set to *Yes* or *Default*, users can switch between active and inactive modes of Novell SecureLogin. If this option is set to *No*, users cannot switch between active and inactive modes. ◆ If SecureLogin status was active when this preference was applied, it remains as active and the user cannot de-activate SecureLogin. ◆ If SecureLogin status was inactive when this preference was applied, it remains as inactive and the user cannot change SecureLogin status to *Active*. This preference requires Novell SecureLogin 6.0 datastore if the value is changed. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.
Allow users to backup/restore	*Yes*/*No*/*Default*	This preference controls whether users can backup and restore their information from the *Advanced* menu of the SecureLogin icon on the notification area (system tray). If this option is set to *Yes* or *Default*, users can back up and restore their single sign-on information. If this option is set to *No*, users cannot back up and restore their single sign-on configuration. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.

Preference	Possible Values	Description	Default Value
Allow users to change passphrase	*Yes*/*No*/*Default*	This preference controls whether users can change their passphrase question and answer. The *Change Passphrase* option is available from the *Advanced* menu of the Novell SecureLogin icon on the notification area (system tray). If this option is set to *Yes* or *Default*, users can change their passphrase through the notification area (system tray) icon. If this option is set to *No*, users cannot change their passphrase through the notification area (system tray) icon. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.
Allow users to modify names of Applications and Logins	*Yes*/*No*/*Default*	This preference controls whether users can edit the names of their Application login credentials using the *Details* tab > *Edit* function in Novell SecureLogin client. If this option is set to *Yes* or *Default*, the user can edit the names of their credentials (either by right-clicking on the credential and selecting Rename, or by a slow double-click on the credential name). If this option is set to *No*, the use cannot edit the names of the credentials. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.
Allow user to set Obscure Show Password	*Yes/No/Default*	This preference controls whether the user can modify the *Obscure Show Password* option. If this option is set to *Yes* or *Default*, users can modify the *Obscure Show Password* option and change the duration of time a password is visible. If this option is set to *No*, users cannot modify the *Obscure Show Password* option.	The default value is *Yes*.

Preference	Possible Values	Description	Default Value
Allow users to view and change Preferences	*Yes*/*No*/*Default*	This preference controls whether users can view and update their preferences. If this option is set to *Yes* or *Default*, users can view and change their preferences. If this option is set to *No*, users cannot view and change their preferences. **NOTE:** Create a separate ou for administrators to ensure that they are not adversely affected by the general user configuration preferences at the ou level. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.
Allow users to view and modify API preferences	*Yes*/*No*/*Default*	This preference controls whether users can view and modify API options using the Preferences pane of Novell SecureLogin client. The API preference defines the following options for users to: ◆ Enter an API license key(s). ◆ Provide API access. If this option is set to *Yes* or *Default* users can view and modify the API preference. If this option is set to *No*, users cannot view and modify the API preference. **NOTE:** This preference affects what is displayed in Novell SecureLogin client using Change Preferences from the Advanced menu. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.

Preference	Possible Values	Description	Default Value
Allow users to view passwords	*Yes*/*Yes, per application*/*No*/*Default*	This preference controls whether users can view their passwords using Show Passwords in the Application pane > Details of Novell SecureLogin client. If this option is set to *Yes* or *Default*, users can view their passwords. If this option is set to *No*, users cannot view their passwords. **NOTE:** Allowing users to view their passwords gives them an opportunity to view and record passwords if they need to reset the Novell SecureLogin configuration. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.
Change the cache refresh interval (in minutes)	*5*	This preference defines the time in minutes the synchronization of user data and directory on the local workstation. This preference is available in both Novell SecureLogin client and the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is set to *5* minutes.
Detect incorrect passwords	*Yes*/*No*/*Default*	Predefined applications generally include commands to respond to incorrect password dialogs. This preference enables SecureLogin to respond to incorrect passwords for web applications. If this option is set to *Yes* or *Default*, incorrect passwords for Web applications are detected. If this option is set to *No*, incorrect passwords for Web applications are not detected. This preference is available in both Novell SecureLogin client and the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.

Preference	Possible Values	Description	Default Value
Disable single sign-on	*Yes*/*No*/*Default*	This preference controls the users access to running Novell SecureLogin. If this option is set to *Yes*, access to Novell SecureLogin is disabled and it will not start when run either automatically at startup or when run manually. If this option is set to *No* or *Default*, access to Novell SecureLogin is enabled and will start normally. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *No*.
Display splash screen on startup	*Yes*/*No*/*Default*	This preference controls the display of the Novell SecureLogin splash screen during startup. If this option is set to *Yes* or *Default*, the splash screen appears when Novell SecureLogin startsup. If this option is set to *No*, the splash screen is hidden and users cannot see the splash screen when Novell SecureLogin startsup. **NOTE:** This preference requires Novell SecureLogin 6.0 datastore if the value is changed. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.
Display the system tray icon	*Yes*/*No*/*Default*	This preference controls the display of Novell SecureLogin icon in the notification area (system tray). If this option is set to *Yes* or *Default*, the Novell SecureLogin icon appears on the notification area (system tray). If this option is set to *No*, the Novell SecureLogin icon does not appear on the notification area (system tray). **NOTE:** When the Novell SecureLogin icon is visible, users can double-click the icon on the notification area (system tray) to launch Novell SecureLogin client. When the Novell SecureLogin is not visible, users can start Novell SecureLogin client through *Start* > *Programs* > *Novell SecureLogin* > *Novell SecureLogin* This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.

Preference	Possible Values	Description	Default Value
Display user name on mouse over tray icon	*Yes/No/Default*	This preference allows SecureLogin to display the current user name, when you mouse over the SecureLogin tray icon. When the user logs in to SecureLogin in the offline mode, the full qualified distinguished name (FQDN) is displayed when you mouse over the SecureLogin tray icon. In the online mode, the current user’s full name is displayed.	The default value is *No*.
Enable cache file	*Yes*/*No*/*Default*	This preference controls creating and updating of a SecureLogin cache file on the local workstation. The cache file stores all user configuration data; local and inherited. Set this option to *Yes* or *Default*, the cache file is saved on the local workstation in the directory that was specified during install. Users with roaming profiles should always have this setting as *Yes*. Set this option to *No* if you cannot store cache files locally or if this causes conflicts with your organizational security policy. This preference is available in both Novell SecureLogin client and the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.

Preference	Possible Values	Description	Default Value
Enable logging to Windows Event log	*Yes*/*No*/*Default*	This preference controls sending the log events to Windows Event Log. This includes the entire user configuration, both local and inherited. If set to *Yes* or *Default*, log events are sent automatically to Windows Event Log. If set to *No*, the log events are not sent to Windows Event Log. Only the following events are logged: ◆ SSO client started ◆ SSO client exited ◆ SSO client activated by user ◆ SSO client deactivated by user ◆ Password provided to an application by a script ◆ Password changed by the user in response to a change password command ◆ Password changed automatically in response to a change password command. **NOTE:** This preference requires Novell SecureLogin 6.0 datastore if the value is changed. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.
Enable the New Login Wizard on the system tray icon	*Yes*/*No*/*Default*	This preference controls whether users can create multiple logins on the same application using the *New Login* > *Add New Login* option from the Novell SecureLogin icon on the notification area (system tray). If this option is set to *Yes* or *Default*, the New Login menu option is enabled and users can create multiple logins. If this option is set to *No*, New Login menu option is disabled and users cannot create multiple logins. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.

Preference	Possible Values	Description	Default Value
Enforce passphrase use	*Yes*/*No*/*Default*	This preference forces users to set up a passphrase question and answer when Novell SecureLogin is launched by a user for the first time. If this option is set to *Yes*, users must complete setting up their passphrase before they proceed with any other activity on the workstation. If this option is set to *No* or *Default*, users can postpone setting up the passphrase. If the users clicks *Cancel* or closes the dialog, then SecureLogin does not start. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *No*.
Enter API license key(s)	Specify API license key(s)	Specify the API license key(s) provided by Novell SecureLogin to activate the API functionality for an application. You can add more than one API license key. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	Specify the API license key
Obscure Show Password (seconds)	Integer value in seconds	Restricts the password display time when you click the *Show Password* button in the local interface.	The default value is 30.
Password protect the system tray icon	*Yes*/*No*/*Default*	This preference restricts the users from accessing the Novell SecureLogin icon menu option (from the notification area (system tray) without their network login password. If this option is set to *Yes*, the Novell SecureLogin icon on the notification area (system tray) is password protected. If this option is set to *No* or *Default*, the Novell SecureLogin icon on the notification area (system tray) is not password protected. This preference is available in both Novell SecureLogin client and the administrative management utilities (iManager, SLManager, and MMC snap-ins). **NOTE:** Always check the *Synchronize NDS password with Universal Password* option when NMAS is used.	The default value is *No*.

Preference	Possible Values	Description	Default Value
Provide API Access	*Yes*/*No*/*Default*	This preference controls the API functionality use. If this option is set to *Yes*, the API access is enabled. If this option is set to *No* or *Default*, the API access is disabled. This preference is available in both Novell SecureLogin client and the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *No*.
Stop walking here	*Yes*/*No*/*Default*	This preference controls the inheritance of settings from higher level containers or organizational units. If this option is set to Yes, the inheritance of settings from higher level containers or organizational units is disabled. Set the option to *Yes* during phased upgrades when higher levels might have a different version of Novell SecureLogin implemented. If this option is set to *No* or *Default*, the inheritance of settings from higher level containers or organizational units is enabled. This preference does not apply when Novell SecureLogin is installed in eDirectory environment. The Corporate redirection functionality; that is, the inheritance settings from higher level container or organizational units is bypassed in an eDirectory environment. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *No*.
Wizard mode	*Administrator*/ *User*/*Disabled*	This preference controls that access to the application definition wizard. If this option is set to *Administrator*, it gives users' complete access to the application definition wizard. Users can create their own application definitions. If this option is set to *User*, users are only allowed to create new login credential sets for new applications using the auto-detection settings. If this option is set to *Disabled*, the application definition wizard is not launched. **NOTE:** This preference requires Novell SecureLogin 6.0 datastore if the value is changed. This preference is available through the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Administrator*.

Table 3-2 *The Security Preferences Properties Table*

Preference	Possible Values	Description	Default Value
Certificate selection criteria	Specify text to identify your certificate	This preference allows you to specify a text to uniquely identify a certificate (within searchable field only).	Not applicable
Current certificate	No certificate selected	This preference allows you to select a certificate from the multiple certificates available for a smartcard user.	Not applicable

Preference	Possible Values	Description	Default Value
Enable passphrase security system	*Yes*/*No*/*Hidden*	This passphrase is an additional mechanism for unlocking a user's single sign-on data if the primary key (network password, smartcard, or PIN) used to encrypt the single sign-on data is lost or forgotten. It also prevents unauthorized access to a user's single sign-on data in the event their primary key is deliberately changed by a third party. In this case even if the unauthorized person is able to bypass a user's primary key, he or she must answer the passphrase answer to access the user's single sign-on data. If this option is set to *Yes* or *Default*, the correct passphrase answer is prompted in situations where the user cannot provide the primary key (network password, smart card, or PIN). If the correct passphrase answer is not provided, SSO data will not be available to the user. If you change the preference from *Hidden* to *Yes* after the user has set up a passphrase, users must answer the passphrase questions to use Novell SecureLogin. Typically, users not prompted to create a passphrase after the first login. If this option is set to *Hidden*, the user is not requested to answer a passphrase question. It is automatically generated by SecureLogin according to the user's parameters. This process is then automatically used in the configuration where a passphrase is required. If this option is set to *No*, the passphrase system is not enabled and cannot be used. If the primary key is lost or forgotten, users' single sign-on data cannot be accessed. You can set this preference to *No* if the preference for *Use smart card to encrypt SSO data* is also set to *PKI Credentials*. **NOTE:** The Enable passphrase security system preference is supported only with the datastore version 6.0. The Disable passphrase security system preference applicable for datastore version 3.5 is removed and is no longer supported. If you are using this preference with datastore version 3.5, you must upgrade the datastore version 6.0 to use the Enable passphrase security system preference.	The default value is *Yes*.

Preference	Possible Values	Description	Default Value
Lost card scenario	*Allow passphrase*/ *Require smart card*	This preference determines how Novell SecureLogin handles a user forgetting, losing or damaging his or her smart card. The *Lost card* option can only be used if the *Enable passphrase security system* option is set to *Yes* or *Hidden* and Use smart card to encrypt single sign-on data is set to one of the smart card values. If this option is set to *Allow passphrase* or *Default*, the passphrase functions as a secondary key. If the smart card is not available, the passphrase is required in online mode to retrieve credentials from the directory. If this option is set to *Require smart card*, then the users single sign-on data is not accessible if the users' smartcard is not available.. **NOTE:** This preference is not available to users who have not upgraded their datastore to version 6.0.	The default value is *Allow passphrase.*
Use AES for SSO data encryption	*Yes*/*No*	This option is defined to change the data encryption mode. This option is not available prior to version 6.0 of Novell SecureLogin. If the preference is set to *Yes* or *Default*, AES encryption is used for encrypting single sign-on data. If the preference is set to *No*, Triple DES is used for encrypting single sign-on data.	The default value is *No*.
Use enhanced protection by default	*Yes*/*No*/*Default*	This setting is only relevant in a Novell environment; it relates to using SecretStore protection. If this option is set to *Yes* or *Default*, then a password protection is added. If this option is set to *No*, a password protection is not added. This preference is not available to users who have not upgraded their datastore to version 6.0.	The default value is *Yes*.

Preference	Possible Values	Description	Default Value
Use smart card to encrypt SSO data	*No*/*PKI credentials*/*Key generated on smart card*	Allows PKI credentials or a self-generated key to be created as the encryption source to encrypt the single sign-on data in the directory. If this preference is set to *No* or *Default*, all other smart card options are dimmed. If this preference is set to PKI credentials, single sign-on data is encrypted using the user's PKI credentials. Single sign-on data stored in the Directory and in the offline cache (if enabled) is encrypted using the public key from the selected certificate and the private key (stored on a PIN-protected smart card) is used for decryption. If this preference is set to *Key generated on smart card*, single sign-on data is encrypted using a randomly generated symmetric key that is stored on the user's smart card. This key is used to encrypt and decrypt single sign-on data stored in the Directory and in the offline cache (if enabled).	The default preference is *No*.
eDirectory network authentication using	*Public Key / Password*	*Public Key* of NDS password in e-Directory Mode is used to encrypt SecureLogin data. *Password* allows SecureLogin to use the user's password (NDS or Universal) to encrypt SecureLogin data.	*Public Key*

Table 3-3 *The Java Preferences Properties Table*

Preference	Possible Values	Description	Default Value
Add application prompts for Java applications	*Yes*/*No*/*Default*	This preference controls whether Novell SecureLogin detects Java application. If the preference is set to *Yes* or *Default*, Novell SecureLogin prompts to create a script when a Java application login page is loaded. Novell SecureLogin will not prompt when Java application login page is loaded. This preference is available in both Novell SecureLogin client and all the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.

Preference	Possible Values	Description	Default Value
Allow single sign-on to Java applications	*Yes*/*No*/*Default*	This preference controls whether Novell SecureLogin allows single sign-on for Java applications. If the preference is set to *Yes* or *Default*, Novell SecureLogin prompts the user to enter credentials (if none already exist), or submits existing credentials on the Java application login page. If this option is set to *No*, Java applications are not enabled for single sign-on. This preference is available in both Novell SecureLogin client and all the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.

Table 3-4 *The Web Preferences Properties Table*

Preference	Possible Values	Description	Default Value
Add application prompts for Internet Explorer	*Yes*/*No*/*Default*	This preference controls the display of the Web login detection wizard and confirmation dialog box when a Web application is detected and recognized by Internet Explorer. If you select *Yes* or *Default*, the user is initially prompted to enable the application and enter the credentials for the application (if not done previously). **NOTE:** Setting the preference to *Yes* when displayed to users depends on the settings of the Wizard mode preference. On subsequent runs of the application, the user is not prompted for credentials and single sign-on occurs seamlessly. If you select *No*, Novell SecureLogin skips enabling the application for single sign-on, the user is never be prompted to enable the application. This preference is available in both Novell SecureLogin client and all the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.

Preference	Possible Values	Description	Default Value
Add application prompts for Mozilla Firefox	*Yes*/*No*/*Default*	This preference controls the display of Web login detection wizard and confirmation dialog box when a Web application is detected and recognized by Mozilla Firefox. **NOTE:** Setting the preference to *Yes* when displayed to users depends on the settings of the Wizard mode preference. If you select *Yes* or *Default*, the user is initially prompted to enable the application and enter the credentials for the application (if not done previously). On subsequent runs of the application, the user is not prompted for credentials and single sign-on occurs seamlessly. If you select *No*, Novell SecureLogin skips enabling the application for single sign-on on this instance. You are prompted to enable the application when you launch it the next time. This preference is available in both Novell SecureLogin client and all the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.
Allow single sign-on to Internet Explorer	*Yes*/*No*/*Default*	This preference defines single sign-on access to Web application using Internet Explorer. If you select *Yes* or *Default* the specified credentials are saved and the application is enabled for single sign-on. If you select *No*, Novell SecureLogin does not prompt for credentials (if none exist or are incorrect) and does not submit credentials into the application. This preference is available in both Novell SecureLogin client and all the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.
Allow single sign-on Mozilla Firefox	*Yes*/*No*/*Default*	This preference defines single sign-on access to Web application using Mozilla Firefox. If you select *Yes* or *Default* the specified credentials are saved and the application is enabled for single sign-on. If you select *No*, Novell SecureLogin does not prompt for credentials (if none exist or are incorrect) and does not submit credentials into the application. This preference is available in both Novell SecureLogin client and all the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.

***Table 3-5** The Windows Preferences Properties Table*

Preference	Possible Values	Description	Default Value
Add application prompts for Windows applications	*Yes*/*No*/*Default*	This preference controls the display of a Windows login detection and confirmation message when a Windows application is detected and recognized. If you select *Yes* or *Default*, the user prompted to enable the application and to enter the credentials for the application (if not done previously). On subsequent runs of the application, the user is not prompted for credentials and single sign-on occurs seamlessly. If you select *No*, Novell SecureLogin skips enabling the application for single sign-on on this instance. You are prompted to enable the application when you launch it the next time. This preference is available in both Novell SecureLogin client and all the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.
Allow single sign-on to Windows applications	*Yes*/*No*/*Default*	This preference defines single sign-on access to Windows applications. If you select *Yes* or *Default* the specified credentials are saved and the application is enabled for single sign-on. If you select No, Novell SecureLogin will not prompt for credentials (if none exist or are incorrect) and will not submit credentials into the application. This preference is available in both Novell SecureLogin client and all the administrative management utilities (iManager, SLManager, and MMC snap-ins).	The default value is *Yes*.

4 Managing Passphrases

This section provides information on the following:

4.1 About Passphrases

Passphrases are an important security component in the implementation of Novell® SecureLogin. Passphrases are unique question and answer combinations created to verify and authenticate the identity of a user. In a directory environment, you can create passphrase questions for users. Users can select one of these questions and provide an answer for it. You can also permit users to provide a question of their choice and the answer for it.

Passphrases protect user credentials from unauthorized use. For example, in a Microsoft Active Directory environment, you can potentially log in to the network by resetting the user’s network password.

However, this cannot happen when you are using Novell SecureLogin. If someone other than the actual users tries to reset the network password, Novell SecureLogin triggers the passphrase question. The user must provide the correct answer before successfully logging in. Even an administrator cannot access the user’s single sign-on-enabled applications without knowing the user’s passphrase answer.

When Novell SecureLogin is launched for the first time on a user’s workstation, the Passphrase Setup dialog box is displayed.

In a Microsoft Windows Vista environment, when you log in to Novell SecureLogin in an offline mode with an incorrect password, you are prompted to provide the passphrase answer. If an incorrect passphrase answer is specified, you are prompted to retry the authentication.

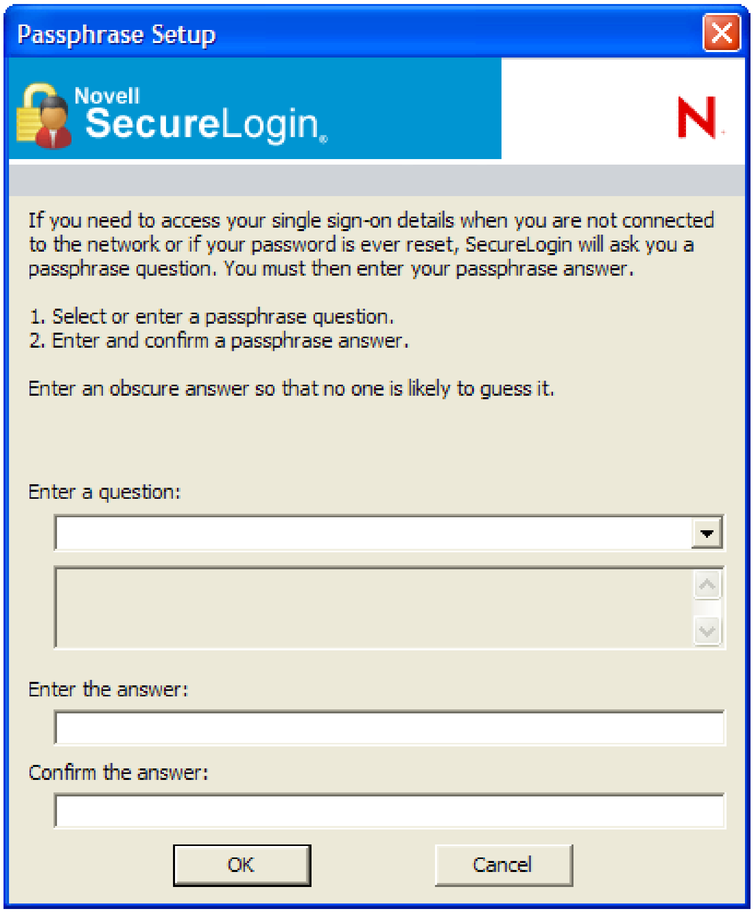
However, if you again provide a wrong password, instead of seeing a prompt for the passphrase answer, you are prompted to specify the password (that is, instead of the passphrase dialog box, the password dialog box is displayed).

Close and relaunch Novell SecureLogin to be prompted for the password first, then prompted for the passphrase answer if the incorrect password is specified.

SecureLogin using the Novell Client™ does not support non-password-based NMAS™ logins if the passphrase options are disabled. This is not supported because SecureLogin either fails to open the local cache or opens the local cache file without any password.

Also, Offline authentication does not work if you do a non-password-based NMAS authentication with the *Passphrase Security System* disabled. This is because SecureLogin in offline mode accepts only passphrases for non-password-based NMAS authentication. This scenario occurs only if SecureLogin is installed in Novell Client mode

Figure 4-1 *Passphrase Setup Dialog Box*



If you need to access your single sign-on details when you are not connected to the network or if your password is ever reset, SecureLogin will ask you a passphrase question. You must then enter your passphrase answer.

1. Select or enter a passphrase question.
2. Enter and confirm a passphrase answer.

Enter an obscure answer so that no one is likely to guess it.

Enter a question:

Enter the answer:

Confirm the answer:

Passphrase Authentication

Passphrases are used to authenticate when:

- A user is working either remotely or offline in an eDirectory or non-Microsoft Active Directory LDAP environment.
- Someone other than the actual user resets the network password.

Benefits of Passphrases

Some of the benefits of using passphrase include:

- An individual cannot access a user's credentials by resetting the network password.

- Passphrases can be used in conjunction with SecureLogin Self-Service Password Reset, which enables users to reset their network password after answering the passphrase question.
- You can use this functionality to disable access to user credentials if the computer is stolen.

NOTE: You can disable the passphrase security system, but it also removes the features mentioned in the preceding section.

4.2 Creating a Passphrase Question

As an administrator, you can:

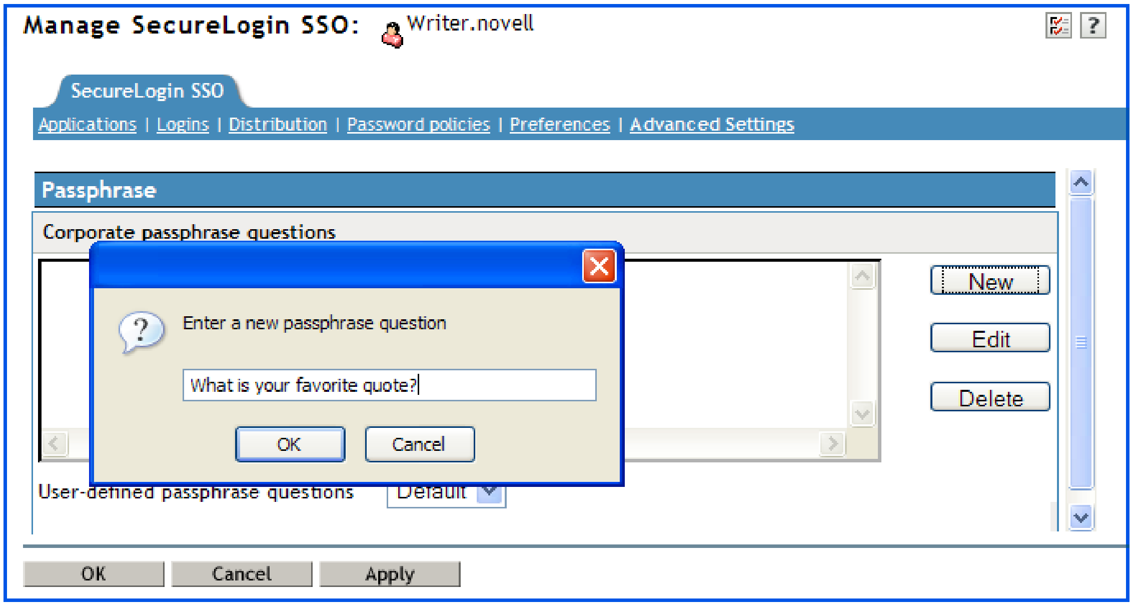
- Create one or more passphrase questions for users to select.
- Enable users to create their own passphrase question and answer.
- Set up a combination of both.

If you have installed Novell SecureLogin in LDAP GINA mode with eDirectory, Novell SecureLogin does not work while setting a passphrase for a new user if the eDirectory user's fully distinguished name (FDN) has 128 characters or more.

To create a passphrase question:

1. Launch the Administrative Management utility (iManager, SLManager, or MMC snap-ins).
2. Click *Advanced Setting*. The advanced setting options are deployed.

   By default, *User-defined passphrase questions* is selected. Deselect this option if you do not want users to create their own passphrase question and answer.
3. Click *New*.
4. In the Enter a new passphrase question dialog box, provide your passphrase question.



Manage SecureLogin SSO: Writer.novell

SecureLogin SSO
Applications | Logins | Distribution | Password policies | Preferences | Advanced Settings
Passphrase
Corporate passphrase questions
New
Edit
Delete
User-defined passphrase questions
Default
OK
Cancel
Apply

Enter a new passphrase question

What is your favorite quote?

5. Click *OK*. The question you provided is displayed in the *Corporate passphrase questions* field.

This passphrase question is displayed to all users associated with the selected object.

6 Repeat the Steps 3 to Step 5 to create additional passphrases.

IMPORTANT: Make sure you click *OK* after you have created the passphrase question to save the changes and exit the page.

The passphrase answer is specified by the user when he or she sets up the passphrase question and answer. Ideally, passphrase answers must contain a minimum of six characters. However, you can change the policy to suit your security requirement. For more information, see Section 5.2, "Changing a Passphrase Policy," on page 53.

We recommend that you do not apply strict policies to passphrase answers as it make them harder to remember. Instead, we recommend you to use a multivalue question, such as `What is you driving license number plus your age?` and set a passphrase policy based on that.

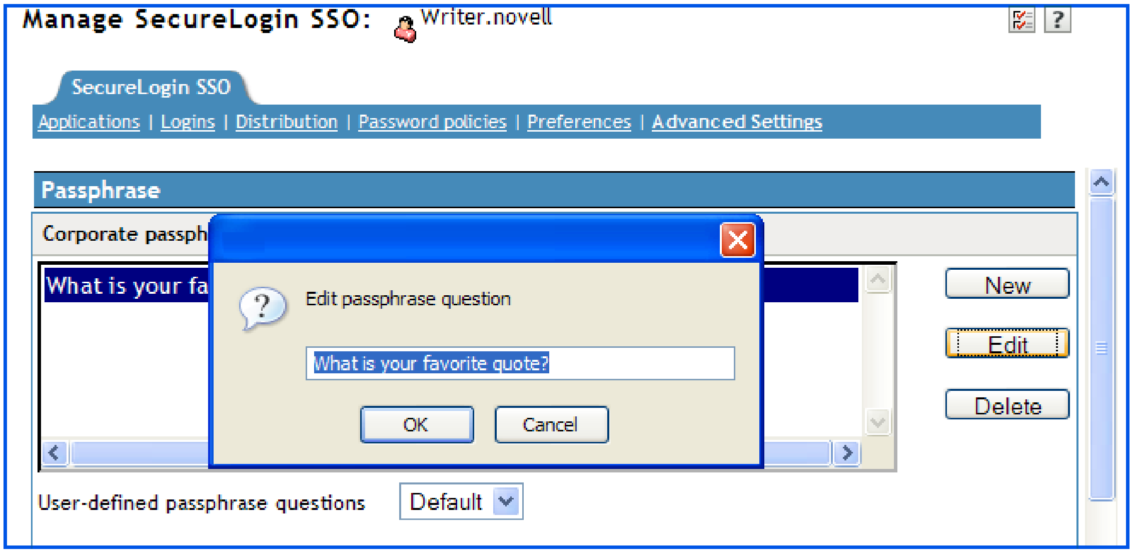
4.3 Editing a Passphrase Question

1 Launch the Administrative Management utility (iManager, SLManager, or MMC snap-ins).

2 Click *Advanced Settings*. The Advanced Settings options are displayed.

3 In the *Corporate passphrase questions* box, select the passphrase question you want to edit.

4 Click *Edit*.


Manage SecureLogin SSO:
Writer.novell
SecureLogin SSO
Applications | Logins | Distribution | Password policies | Preferences | Advanced Settings
Passphrase
Corporate passph
What is your fa
New
Edit
Delete
User-defined passphrase questions
Default
OK
Cancel

Edit passphrase question

What is your favorite quote?

5 Make the required changes, then click *OK*. The passphrase question is updated with the changes.

IMPORTANT: Make sure that you click *OK* after you have created the passphrase question to save the changes and exit the page.

4.4 Deleting a Passphrase Question

To delete an existing passphrase question:

1. Launch the Administrative Management utility (iManager, SLManager, or MMC snap-ins).
2. Click *Advanced Settings*. The Advanced Settings options are displayed.
3. In the *Corporate passphrase questions* box, select the passphrase question you want to delete.
4. Click *Delete.* The selected passphrase question is deleted.

4.5 Re-setting a Passphrase Answer

If a user forgets the passphrase answer, you must reset the user's Novell SecureLogin configuration to ensure that the user's data is secure. This deletes all user-specific information, including usernames and passwords.

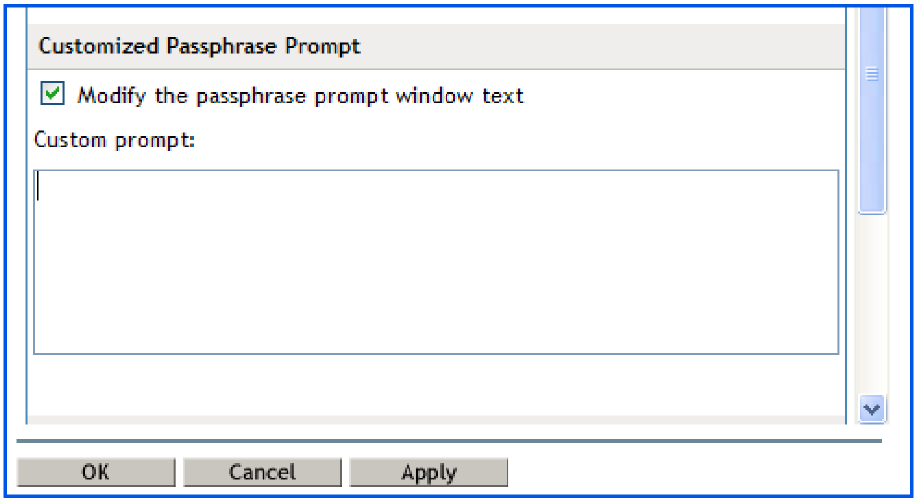
For more information on re-setting user data, see Section 2.6, "Deleting or Re-setting User Data," on page 18.

IMPORTANT: When you set up a user's passphrase question and answer policies, we recommend that you keep them simple so that the user can easily remember the answer.

4.6 Changing the Passphrase Prompt

You can change the passphrase prompt that users see in the Passphrase Setup dialog box the first time they log in.

1. Launch the Administrative Management utility (iManager, SLManager, or MMC snap-ins).
2. Click *Advanced Settings*. The Advanced Settings options are displayed.
3. Under *Customized Passphrase Prompt*, select the *Modify the passphrase prompt window text* check box. The *Custom prompt* is now active.



Customized Passphrase Prompt

☑ Modify the passphrase prompt window text

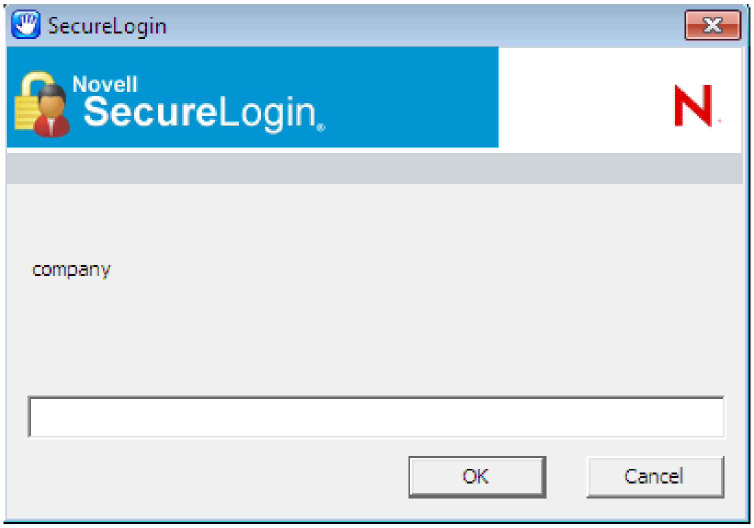
Custom prompt:

4. Specify the new prompt.
5. Click *OK* to save the changes and close the Administrative Management utility. Log in as a new user to view the customized prompt.

4.7 Changing a Passphrase

Users can change their passphrase answer depending on how you configure Novell SecureLogin.

1 Right-click ✋ in the notification area (system tray), then select *Advanced > Change Passphrase*. The Passphrase dialog box is displayed.



company

2 Specify the passphrase answer in the field.

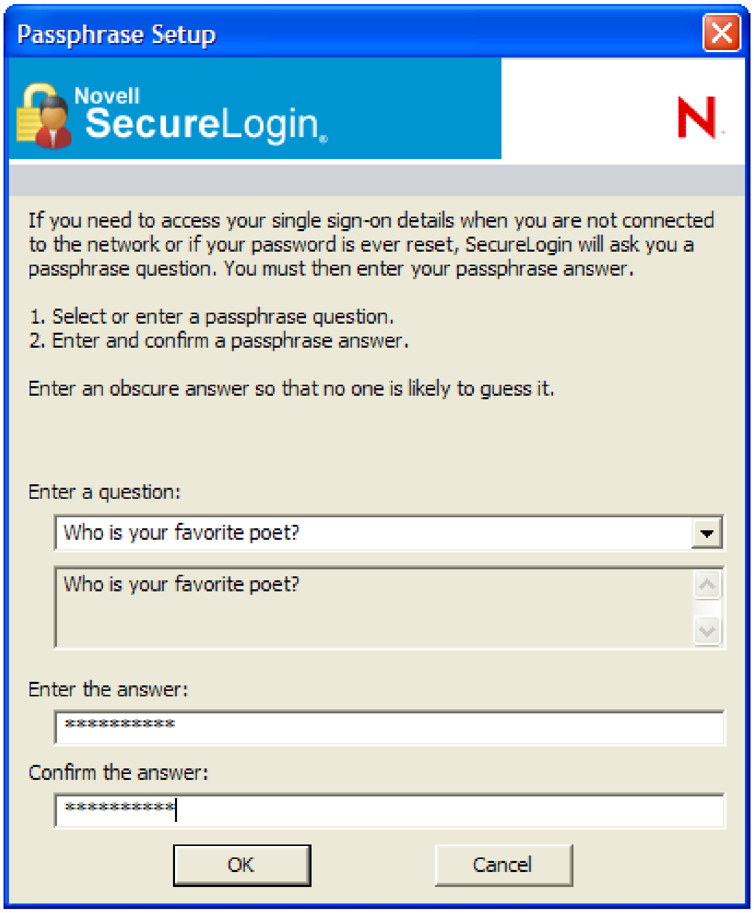
3 Click *OK*. The Passphrase Setup dialog box is displayed.

4 In the *Enter a question* field, select or specify a passphrase question.

5 In the *Enter the answer* field, specify the new passphrase answer.

6 In the *Confirm the answer* field, retype the new passphrase answer.

7 Click *OK*.



If you need to access your single sign-on details when you are not connected to the network or if your password is ever reset, SecureLogin will ask you a passphrase question. You must then enter your passphrase answer.

1. Select or enter a passphrase question.
2. Enter and confirm a passphrase answer.

Enter an obscure answer so that no one is likely to guess it.

Enter a question: Who is your favorite poet?

Who is your favorite poet?

Enter the answer: ***********

Confirm the answer: ***********

NOTE: Users who do not have access to the Novell SecureLogin icon cannot change their passphrases. You can temporarily enable access to the icon to allow the user to change the passphrase with the Display the system tray icon preference setting.

5 Managing Passphrase Policies

5.1 About Passphrase Policies

A passphrase is an integral part of the security architecture of SecureLogin. It can be used to secure single sign-on data when a user authenticates to applications.

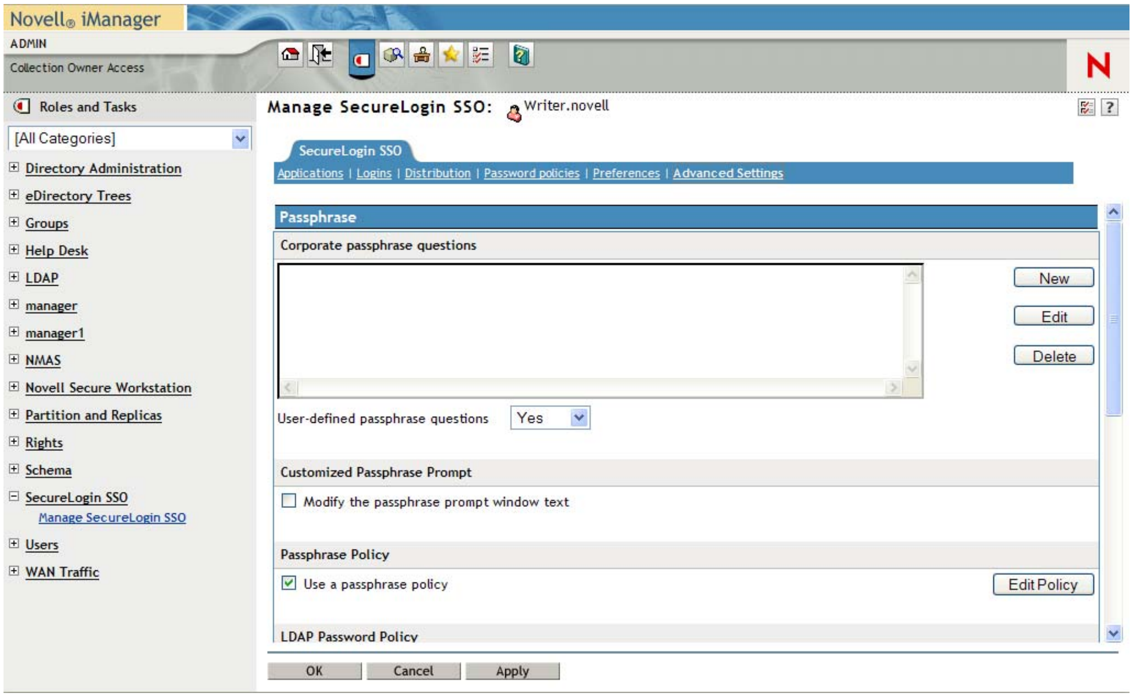
A policy is used to restrict the format and content of passphrase answers, including length, whether numeric characters are required, and whether passphrases must be uppercase or lowercase. For example, you could set *Begin with an uppercase character* to *Yes* and *Maximum uppercase characters* to *1*, and *Prohibit characters* to *Disallow spaces*. You could also require all passphrase answers to start with uppercase and have the rest of the characters as lowercase.

You can set passphrase policies in the *Passphrase Policy properties* table of the Administrative Management utility, the iManager single sign-on plug-in, or the Group Policy plug-in.

5.2 Changing a Passphrase Policy

The passphrase policy now applies to all users inheriting configuration from the selected object. You can change or disable it at any time.

1. Launch the Administrative Management utility (iManager, SLManager, or MMC snap-ins).
2. Click *Advanced Settings*. The Advanced Settings options are displayed.
3. Select the *Use a passphrase policy* check box.



Manage SecureLogin SSO: Writer.novell

Passphrase

Corporate passphrase questions

User-defined passphrase questions Yes

Customized Passphrase Prompt

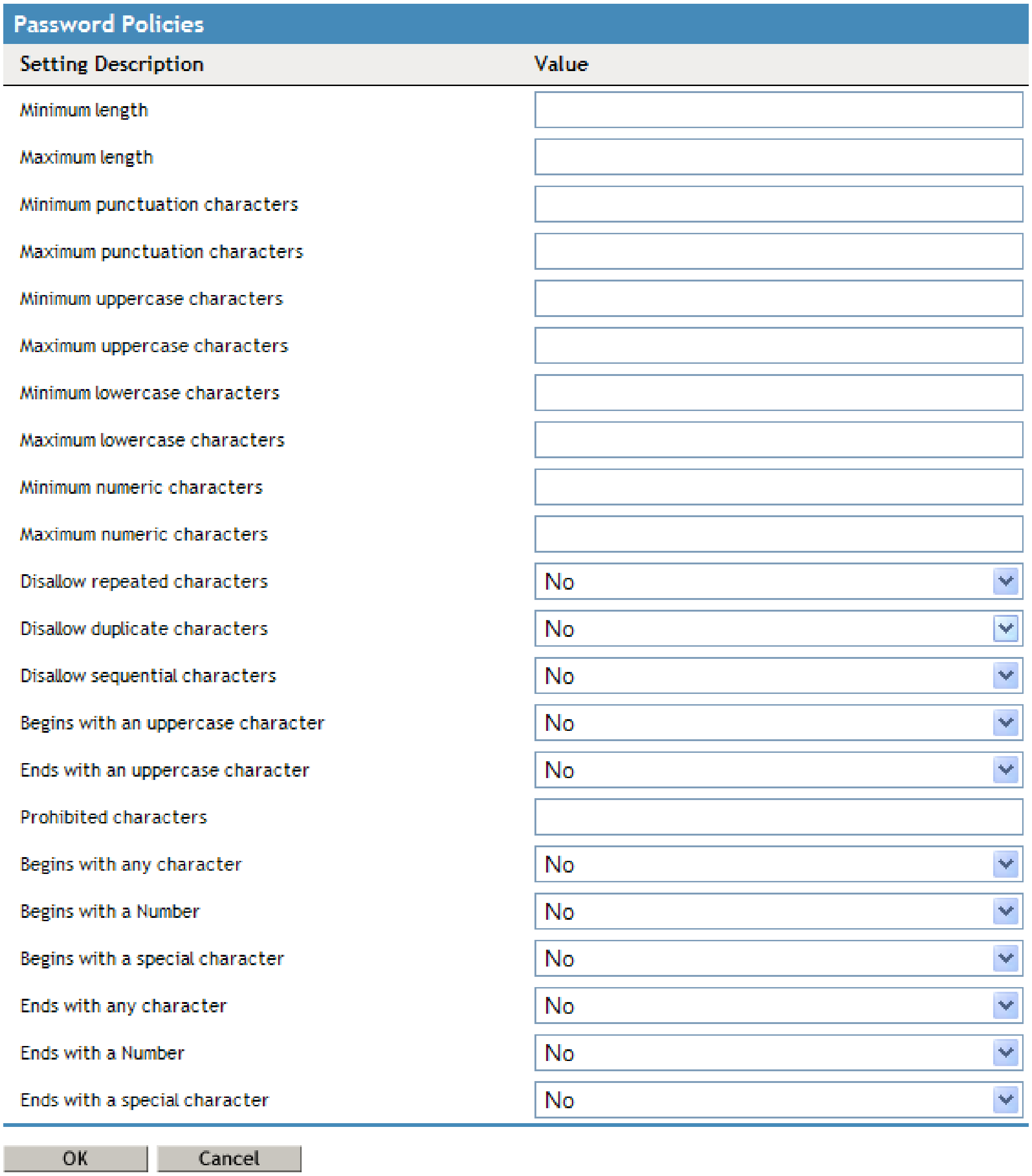
□ Modify the passphrase prompt window text

Passphrase Policy

☑ Use a passphrase policy

LDAP Password Policy

4 Click *Edit Policy*. The Passphrase Policy settings page is displayed.



Password Policies

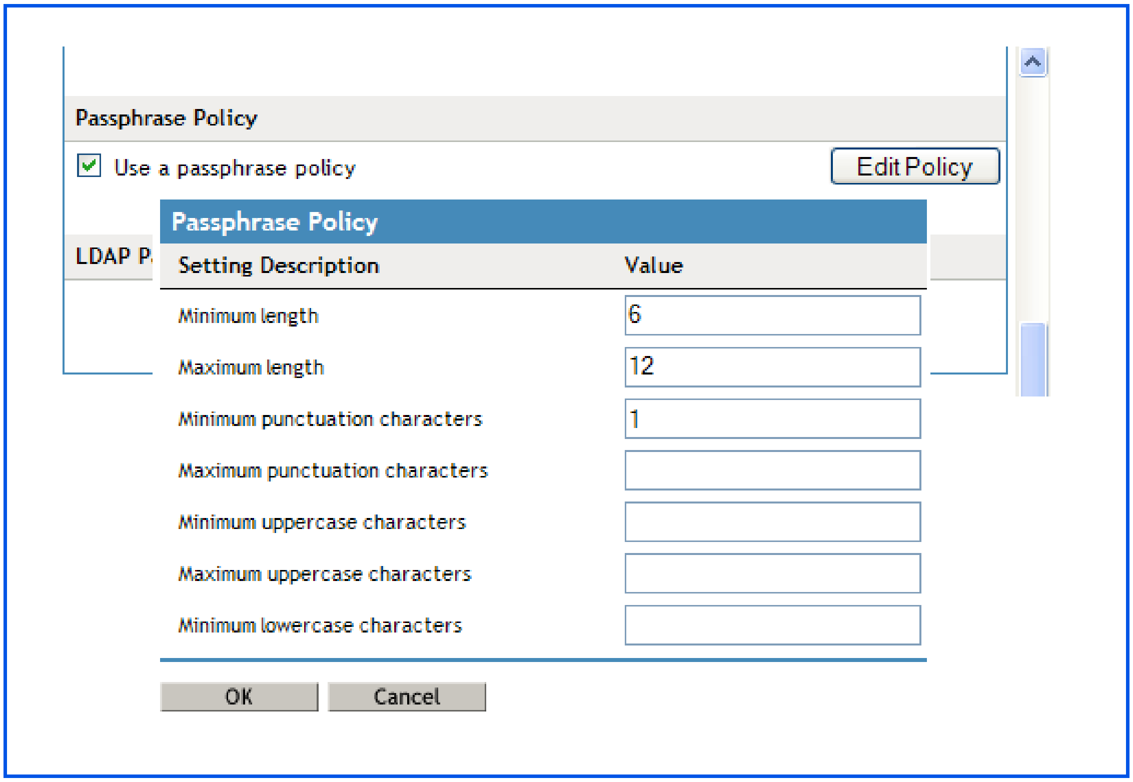
Setting Description	Value
Minimum length	
Maximum length	
Minimum punctuation characters	
Maximum punctuation characters	
Minimum uppercase characters	
Maximum uppercase characters	
Minimum lowercase characters	
Maximum lowercase characters	
Minimum numeric characters	
Maximum numeric characters	
Disallow repeated characters	No
Disallow duplicate characters	No
Disallow sequential characters	No
Begins with an uppercase character	No
Ends with an uppercase character	No
Prohibited characters	
Begins with any character	No
Begins with a Number	No
Begins with a special character	No
Ends with any character	No
Ends with a Number	No
Ends with a special character	No

5 In the *Setting Description* column, click the policy rule you want to edit, then in the *Value* column, specify the required value.

For example, if you think that users might find it easier to remember basic rules for all passphrases instead of remembering exactly how they typed a passphrase when they created it, you could require all passphrases to contain a minimum of four characters and a maximum of 12 characters. Set *Minimum length* to `6` and set *Maximum length* to `12`.

By default, passphrase responses are required to contain a minimum of six characters. For security reasons, any passphrase policy you implement must also contain a minimum of six characters.

6 When you have finished setting the values in the table, click *OK*. The new values are added to the *Value* column.



☑ Use a passphrase policy

Passphrase Policy

Setting Description	Value
Minimum length	6
Maximum length	12
Minimum punctuation characters	1
Maximum punctuation characters	
Minimum uppercase characters	
Maximum uppercase characters	
Minimum lowercase characters	

5.3 Enabling the Passphrase Security System

This section contains information on the following:

- Section 5.3.1, "Enabling the Passphrase Security Using PKI Encryption," on page 58
- Section 5.3.2, "Enabling the Passphrase Security Using PKI Encryption," on page 59

The *Enable Passphrase Security System* option determines if users can use a passphrase to decrypt single sign-on data.

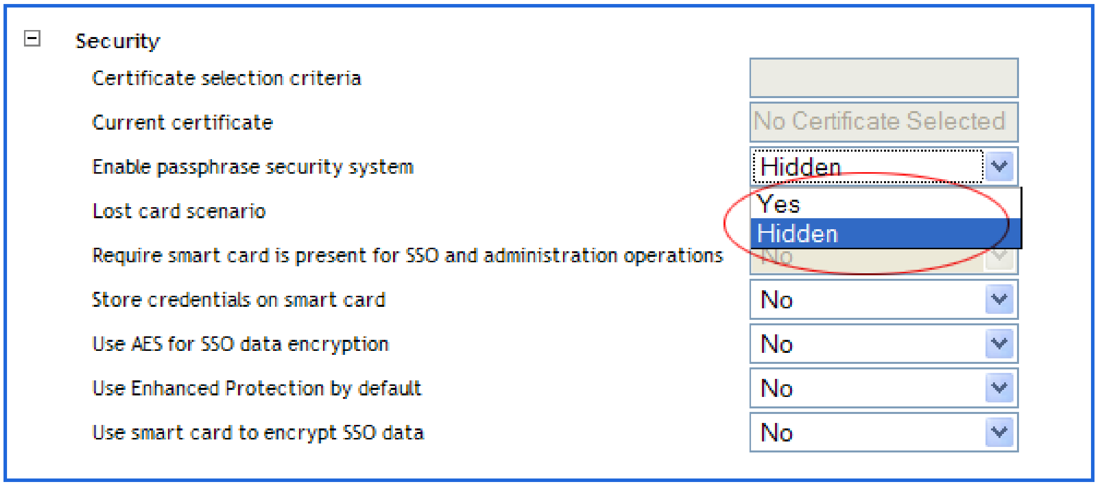
If the passphrase system is not used, this exposes the users' single sign-on data if a third party can to reset the users network password. It is strongly recommended you enforce passphrase system on users environment.

To view or modify this preference:

1 Launch the Administrative Management utility (iManager, SLManager, or MMC snap-ins).

2 Click *Preferences*. The Preferences page is displayed.

3 Select *Security* > *Enable passphrase security system* and from the drop-down list, select either *Yes* or *Hidden*.



Security

Certificate selection criteria	
Current certificate	No Certificate Selected
Enable passphrase security system	Hidden
Lost card scenario	
Require smart card is present for SSO and administration operations	No
Store credentials on smart card	No
Use AES for SSO data encryption	No
Use Enhanced Protection by default	No
Use smart card to encrypt SSO data	No

4 Click *Apply*.

5 Click *OK*.

You can set the *Enable Passphrase Security System preference* to *Yes* or *Hidden* depending on the enterprise security requirements.

If the *Enable Passphrase Security System* is set to *Yes,* (which is the default preference) the user is prompted to set the passphrase question and answer when Novell SecureLogin is launched for the first time.

If the *Enable Passphrase Security System* is set to *Hidden*, the user is not prompted to set the passphrase question and answer when Novell SecureLogin is launched for the first time.

WARNING: If you change the preference from *Hidden* to *Yes*, users must answer the passphrase questions to use Novell SecureLogin. Typically, users not prompted to create a passphrase after the first login.

Without any message indicating the change in the preference, users are prompted for the passphrase answer. So, avoid changing the preference.

You have two options, depending on what you specified.

- Users can create both the passphrase question and answer.
- You predefine a list of questions and answers, and the user selects from the list.

When users have set a passphrase, the application generates a random key, and a one-way hash of the passphrase answer encrypts this key. Later, the application key encrypts the new key. This key protects users' SecureLogin credentials and passwords so that even someone with Supervisor rights to the network and access to Microsoft Management Console (MMC) is unable to view a user's passwords to applications.

After the passphrase is set, every time a user logs in to the network, Novell SecureLogin loads seamlessly.

Typically, the prompt to create a passphrase is never seen after the first login. However, if an administrator resets the user's directory or network, the next time SecureLogin launches, users must answer the passphrase question before SecureLogin continues. This prevents other users from changing the user's directory password, logging on as the user, obtaining access to the Novell SecureLogin data, and using it to run applications.

5.3.1 Enabling the Passphrase Security Using PKI Encryption

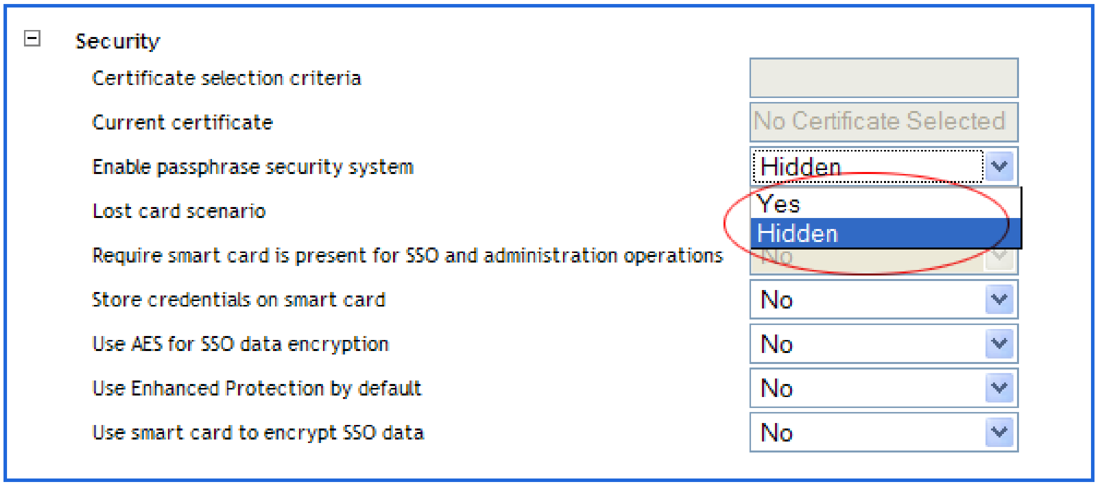
You cannot toggle the *Enable Passphrase Security System* setting when the users forget their smart card unless they had previously set a passphrase or had it randomly generated using the *Hidden* option.

If users are required to authenticate to the network by using passwords, *Enable Passphrase Security System* must be set either to *Yes* or *Hidden*.

1 Launch the Administrative Management utility (iManager, SLManager, or MMC snap-ins).

2 Click *Preferences*. The Preferences page is displayed.

3 Under *Security*, select either *Yes* or *Hidden* in the *Enable passphrase security passphrase* drop-down list.



⊟ Security

Certificate selection criteria	
Current certificate	No Certificate Selected
Enable passphrase security system	Hidden
Lost card scenario	
Require smart card is present for SSO and administration operations	No
Store credentials on smart card	No
Use AES for SSO data encryption	No
Use Enhanced Protection by default	No
Use smart card to encrypt SSO data	No

4 Click *Apply*.

5 Click *OK*.

If you select *Yes*, users must select a passphrase question and answer when they log in to SecureLogin for the first time. When the passphrase system is enabled, users are prompted to answer their passphrase question if their password has been reset by the administrator.

NOTE: With the *Use smart card to encrypt SSO data* option selected (either *PKI credentials* or *Key generated on smart card*), you can use the passphrase to decrypt single sign-on data if the user's smart card is damaged or lost.

This setting must be used in conjunction with the *Lost card scenario* preference set to *Allow passphrase* and *Store credentials on the smart card* preference set to *No*. You can toggle these preferences if the user's smart card is forgotten providing the user's passphrase has already been set. The user is prompted to answer the passphrase question before SecureLogin loads.

For more information, see Section 8.5, "Lost Card Scenarios," on page 89.

If the *Hidden* preference is selected, users are not prompted to set a user-defined passphrase. A user key is generated automatically with any input from the user.

The *Enable Passphrase Security System* cannot be set to *No* unless *Use smart card to encrypt SSO data* is set to *PKI credentials*.

If users are required to authenticate to the network by using passwords, the *Enable passphrase security system* option must be set to *Yes* or *No* or *Hidden*.

IMPORTANT: With the passphrase security system set to *Hidden*, a directory administrator can reset a user's directory password, log in as the user, and access the user's single sign-on data because they are not prompted to answer a passphrase question.

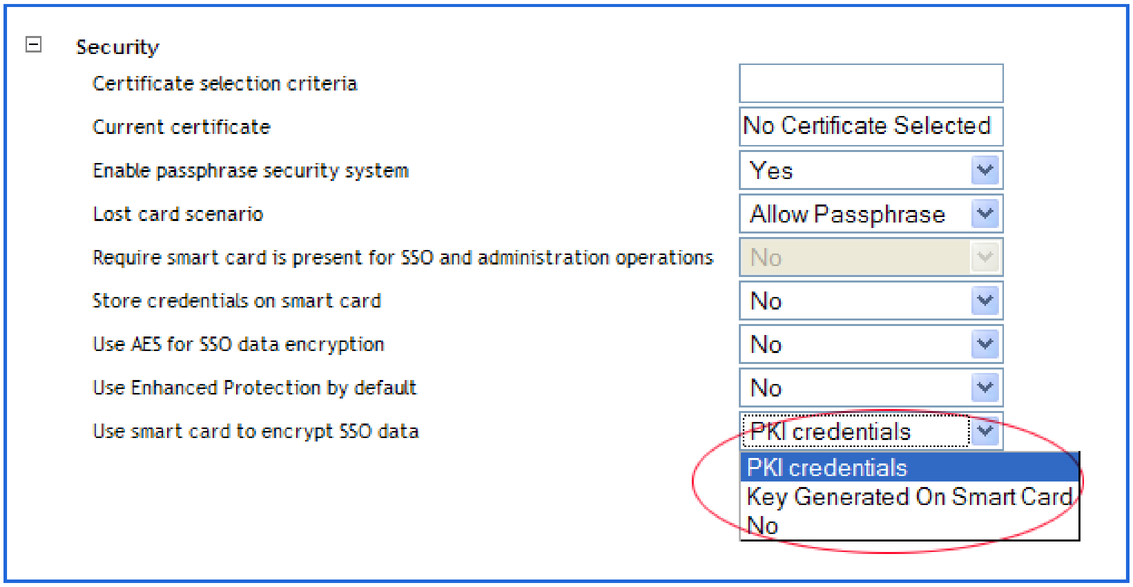
5.3.2 Enabling the Passphrase Security Using PKI Encryption

If the *Use smart card to encrypt SSO data* is set to *PKI credentials*, the user's single sign-on data is encrypted by using the public key from the selected certificate and the private key and stored on a PIN-protected container on the user's smart card. Both, the user's directory datastore and the local cache are now protected by the PKI credentials.

The single sign-on data can be encrypted by using the private key that is PIN-protected and stored on the user's smart card for added security. Only the user who has the physical possession of the smart card and knowledge of the PIN can decrypt the single sign-on data.

To set the *Use smart card to encrypt SSO data* preference:

1. Launch the Administrative Management utility (iManager, SLManager, or MMC snap-ins).
2. Click *Preferences*. The Preferences page is displayed.
3. Select *Security* > *Use smart card to encrypt SSO data* and from the drop-down list, select either *PKI credentials* or *Key Generated On Smart Card* or *No*.



⊟ Security

Certificate selection criteria	
Current certificate	No Certificate Selected
Enable passphrase security system	Yes
Lost card scenario	Allow Passphrase
Require smart card is present for SSO and administration operations	No
Store credentials on smart card	No
Use AES for SSO data encryption	No
Use Enhanced Protection by default	No
Use smart card to encrypt SSO data	PKI credentials

4. Click *Apply*.
5. Click *OK*.

If the *Use smart card to encrypt SSO data* is set to *PKI credentials*, the *Enable passphrase security system* can be optionally set to *No*.

If the *Use smart card to encrypt SSO data* is set to *No*, the user's passphrases are completely disabled and the user's smart card is always required to decrypt the single sign-on data.

IMPORTANT: If your enterprise chooses to disable the passphrase security system:

- You can still access a user's credentials by resetting the network password.
- The functions of using the passphrases in conjunction with SecureLogin Self Service Password Reset (SLSSPR) is disabled. The SecureLogin Self Service Password Reset enables a user to reset his or her network passwords after answering the passphrase questions.

The supported directory modes for disabling the passphrase security system are:

- Active Directory
- LDAP-compatible
- eDirectory (if SecretStore is used)

For detailed information on the likely scenarios that a user might experience in environments where the *Enable passphrase security system* option is set to *No*, see Section 5.5, "Passphrase Security System Scenarios," on page 60.

5.4 Checking the Passphrase Security System Status

1 On the notification area (system tray), right-click the Novell SecureLogin icon > *About*. The About dialog box is displayed.

  The status appears next to the `Database Mode` and is listed as either `PP Enabled` or `PP Disabled`.

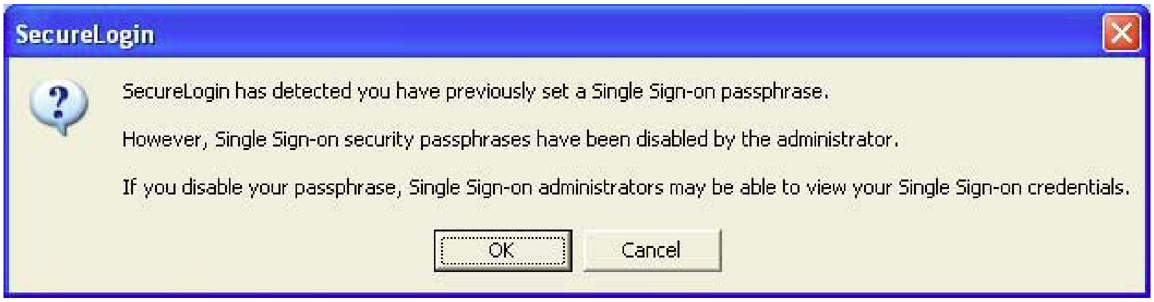
5.5 Passphrase Security System Scenarios

The information provided in this section describes the user experience in environments where the passphrase security system has been enabled and disabled.

Scenario 1: The passphrase security system is disabled in a previously enabled environment

When the passphrase security system is disabled in an environment where it was previously enabled, the following message appears to users the next time they log in.

Figure 5-1 *Passphrase Security Prompt*



SecureLogin has detected you have previously set a Single Sign-on passphrase.

However, Single Sign-on security passphrases have been disabled by the administrator.

If you disable your passphrase, Single Sign-on administrators may be able to view your Single Sign-on credentials.

If the user clicks *OK*, the disabling of the passphrase security system is approved and the user is prompted for the current password. The approval is complete when the user provides the password.

If the user click *Cancel*, the passphrase security system disabling is delayed and the user is prompted with the message until he or she clicks *OK* to approve the change.

NOTE: Users must answer the passphrase answer to prevent the administrators to toggle this preference and allow an unauthorized user access Novell SecureLogin.

Scenario 2: The passphrase security system is re-enabled in a previously disabled environment

If the passphrase security system is re-enabled, the Passphrase Setup dialog box is displayed (similar to when a user logs in for the first time after installing Novell SecureLogin.)

If the user clicks *OK*, the user resets the passphrase question and answer.

If the user clicks *Cancel*, there is a delay in enabling the passphrases for the user's workstation. The user is prompted at subsequent log ins until he or she specifies a passphrase question and answer.

Scenario 3: The passphrase security system is disabled and the user has changed his or her passwords (restrictions for moving user objects)

If you reset the user's password when the passphrase security system is disabled:

- In an LDAP-compatible and eDirectory (with SecretStore) modes, you cannot move the user object to another organizational unit until that user has logged in to Novell SecureLogin on his or her workstation. You must move the object back to its previous location to enable the user to run Novell SecureLogin.
- In an Active Directory mode, you can move the user object within the directory. However, copying is limited. If the user object is moved, you must move the object back to its previous location to enable the user to run Novell SecureLogin.

Scenario 4: Forgotten Passphrase

If a user forgets SecureLogin data, including his or her passphrase or passphrase answer, you must delete the user's existing SecureLogin datastore.

After the datastore is deleted, the user's corporate applications, credentials, preferences, and user policies are permanently removed. You must then reset the user's corporate password before he or she can log in and reconfigure the applications by using Novell SecureLogin.

The next time Novell SecureLogin starts, he or she must manually log in. Novell SecureLogin then detects that a passphrase is not set and prompts the user to set up the passphrase before continuing. You can create a list of predefined list of passphrases questions.

After the user has set a new passphrase, he or she must re-enter the application usernames and passwords. If it is not done, an unauthorized could breach security by clearing the passphrase, entering a new passphrase, and accessing the actual user's credentials.

You might need to reset the user's application passwords as they might have forgotten them.

6 Managing Credentials

This section provides information on the following:

6.1 About Credentials

The first time a user logs in after creating an application definition and activating it for single sign-on, the user is prompted to provide credentials in a SecureLogin dialog box. SecureLogin then stores and associates these credentials with the application definition and uses it in subsequent logins.

Because individual application requirements determine the credentials that users must enter when manually logging in, only those credentials are stored and remembered by SecureLogin. For example, if users have an application that only requires username and password, SecureLogin encrypts and stores the username and password for subsequent logins. Alternatively, some applications require the user to enter domain and database names, IP addresses, and select various options on Web pages. SecureLogin can handle all these on behalf of the user.

You can display and manage these credentials in the *Logins* page of the Administrative Management utility and the *My Logins* pane of the Novell SecureLogin Client Utility.

Credentials stored in a directory environment apply to all associated objects. For example, if users access an application located on a specific domain, and they are required to manually select or provide the domain address, then the domain must be configured as a credential in the *Logins* pane at the organizational unit level. Thereby, users need not manually provide the domain location when they log in. You can then change the domain at any time without notifying users.

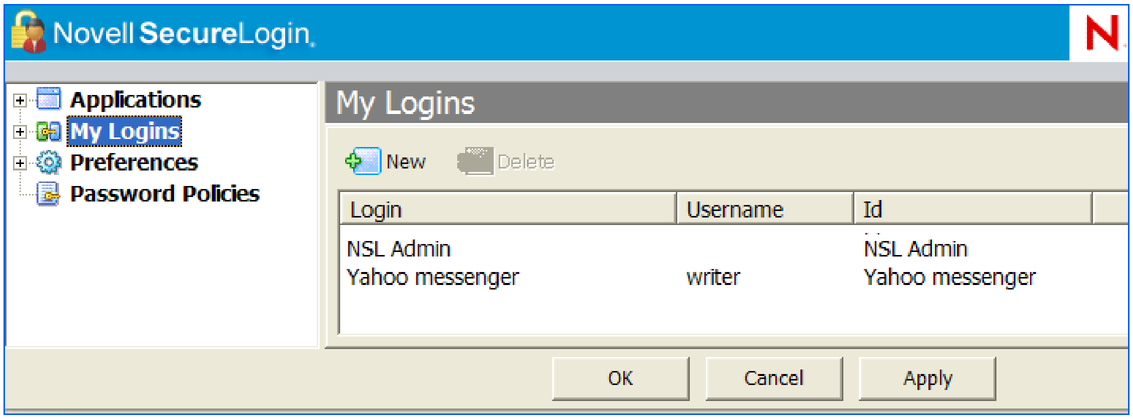
Application credentials such as e-mail, finance system, human resource system, and travel system are typically stored for user objects and apply only to (and can be used by) the particular user. For example, John's application credentials are encrypted and stored against John's user object and only available to him. When he starts an application, SecureLogin retrieves, decrypts, and enters the credentials on behalf of John.

6.2 Creating a User Login and Credentials

Logins and credentials are typically created automatically as part of the application definition, but you can manually create and edit them, if required.

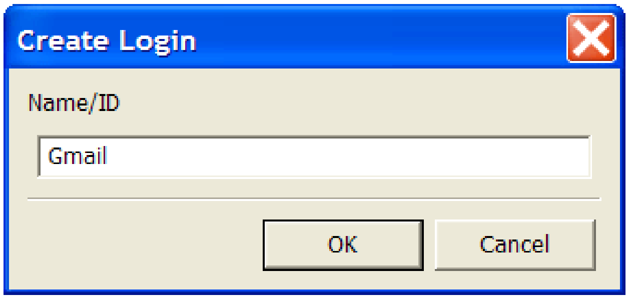
To create logins and credentials:

1. On the notification area (system tray), double-click the Novell SecureLogin icon. The Novell SecureLogin Client Utility is displayed.
2. Click *My Logins*. The existing Logins are displayed.



Login	Username	Id
NSL Admin		NSL Admin
Yahoo messenger	writer	Yahoo messenger

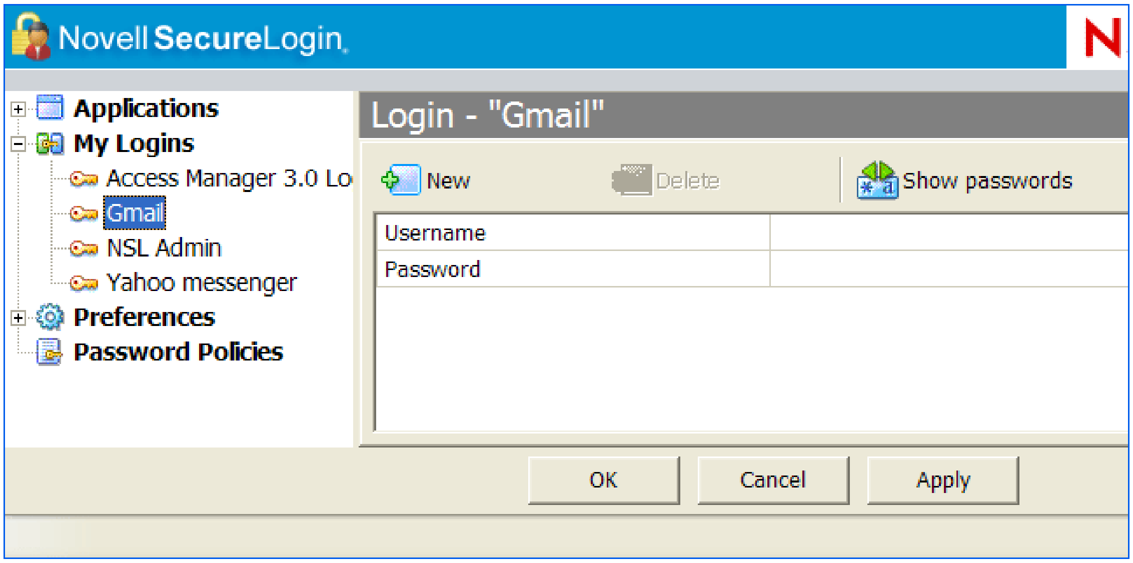
3. Click *New*. The Create Login dialog box is displayed.



Name/ID

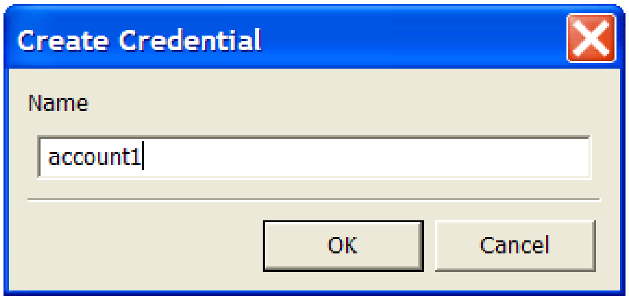
Gmail

4. In the *Name/Id* field, specify a Name/ID for the login.
5. Click *OK*. The Login name/ID is added to the My Logins pane.
6. From the My Logins on the left pane, select the login you have created.



7 Click *New*. The Create Credential dialog box is displayed.

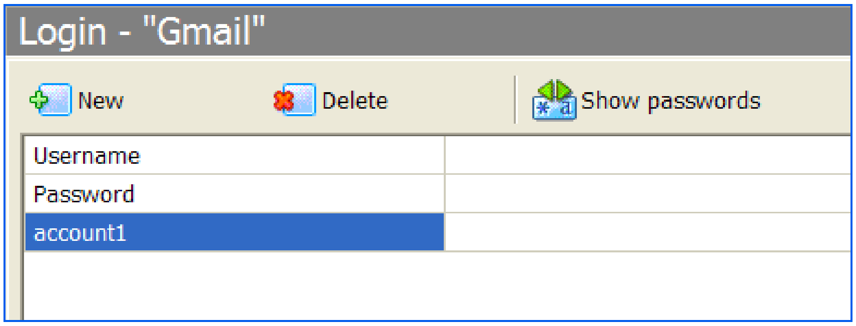
8 In the *Name* field, specify a name for the new credential.



Name

account1

9 Click *OK*. The new credential is added to the Login details.



Username	
Password	
account1	

10 In the Value column, specify a value for the credential.

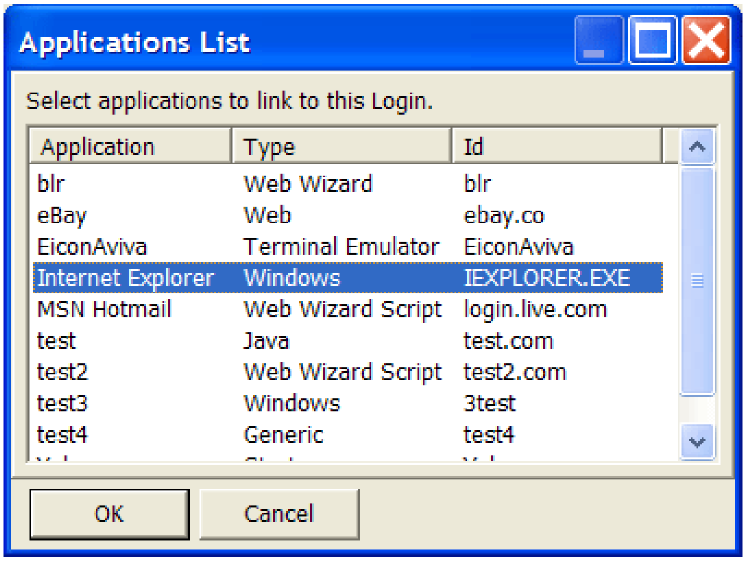
11 Click *Apply*. The new credential variable and its value are displayed.

6.3 Linking a Login to an Application

You can link a login to an application in the appropriate Login pane. For example, if users are logging in to Microsoft Outlook using a set of credentials and they are also logging in to Outlook Web Access, then they can share or link the credentials to the Web login application definition.

To link a login to an application:

1. In the notification area (system tray), double-click the Novell SecureLogin icon. The Novell SecureLogin Client Utility is displayed.
2. Click *My Login* and the login that you want to an application.
3. Click *Link* icon. The Applications List dialog box displays the list of enabled predefined applications and application definitions.

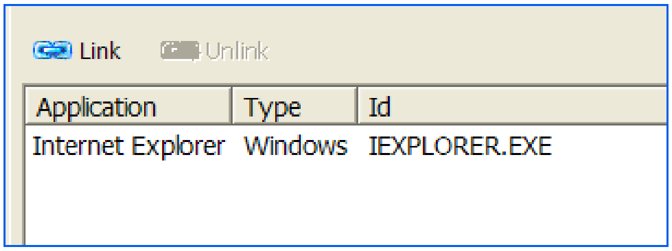


Applications List

Select applications to link to this Login.

Application	Type	Id
blr	Web Wizard	blr
eBay	Web	ebay.co
EiconAviva	Terminal Emulator	EiconAviva
Internet Explorer	Windows	IEXPLORER.EXE
MSN Hotmail	Web Wizard Script	login.live.com
test	Java	test.com
test2	Web Wizard Script	test2.com
test3	Windows	3test
test4	Generic	test4

4. Select the application that you want to link.
5. Click *OK*. The linked application is added.



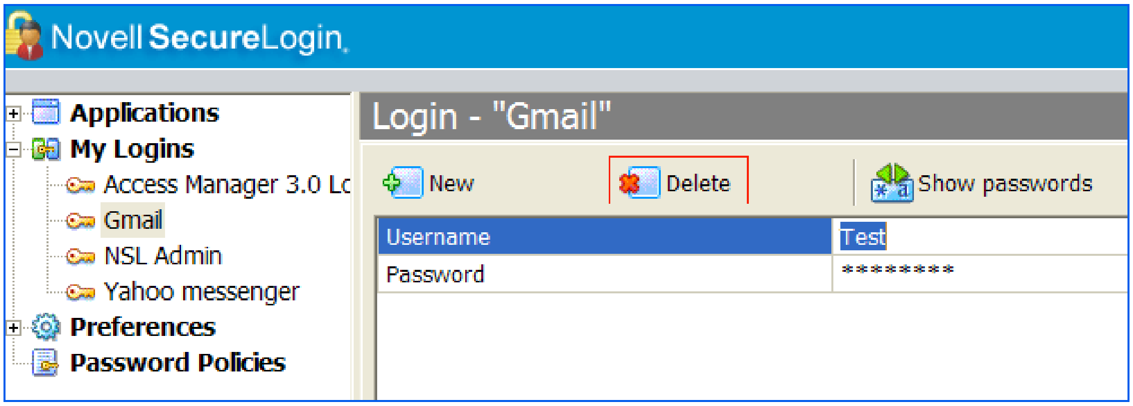
Application	Type	Id
Internet Explorer	Windows	IEXPLORER.EXE

6. Click *OK* to save changes and close the Novell SecureLogin Client Utility.

6.4 Deleting Login Credentials

To delete log in credentials:

1. Open the Novell SecureLogin Client Utility.
2. From the navigation on the left pane, select *My Logins*, then select the credential you want to delete.
3. On the right pane, click the username of the credential that you want to delete.
4. Click *Delete*.



Username	Test
Password	*********

5. Click *Password*.
6. Click *Delete*.

The credential is deleted.

IMPORTANT: Delete only two or three credential sets (usernames and passwords) in one session of the management utilities. This is particularly important when the user's *Security* preference *Store credentials on smart card* is set to *Yes*.

6.5 Recovering a Forgotten Password

The Client Login Extension 3.7 provides password recovery support for applications that are accessed through Novell SecureLogin 7.0 SP1. The password recovery support is available for graphical authentication interfaces such as GINA and Credential Provider for LDAP clients, Novell Client, and Microsoft clients. Clients in the Windows 7 and Windows Vista operating systems support Credential Provider model of graphical authentication interface. Clients in other operating systems support GINA model of graphical authentication interface.

NOTE: To enable the Client Login Extension support for Novell Client in a SecureLogin setup, install Novell Client before installing the Client Login Extension tool.

The password recovery support through Client Login Extension tool is also available for locked workstations and for workstations in which user operations are controlled by Desktop Automation Services (DAS).

To know more about using Client Login Extension tool for recovering forgotten passwords, see the Client Login Extension Guide (http://www.novell.com/documentation/idm36/idm_cle/data/front.html).

7 Managing Password Policies

SecureLogin provides the password policy functionality to enable you to efficiently and effectively manage user passwords, in order to comply with your organization's security policies.

This section provides information on the following:

- Section 7.1, "About Password Policies," on page 69
- Section 7.2, "Password Policy Properties," on page 70
- Section 7.3, "Creating a New Password Policy," on page 73
- Section 7.4, "Editing a Password Policy," on page 74
- Section 7.5, "Deleting a Password Policy," on page 76
- Section 7.6, "Linking a Policy to an Application," on page 76

7.1 About Password Policies

You can create password policies at a container, OU, Group Policy, and user object level. Policies set at the container or organizational unit level are inherited by all associated directory objects. Password policies set at the user object level override all higher-level policies. Password policies are linked to application definitions through scripting and are not applied to directory objects. You can do this by creating a password policy in the *Password Policies* pane and then linking the policy to the application definition using the `RestrictVariable` command. However, the application definition is applied at the directory object.

Password policies are comprised of one or more password rules applicable to one or more single sign-on enabled applications and to specific directory objects. You can configure password policies in the *Password Policy Properties tables* of the Administrative Management utilities.

SecureLogin remembers the passwords and handles password changes after they expire on the back-end application. For example, after 30 days or when users decide to change their password. The SecureLogin password management functionality includes the capability to set password expiry duration and generate passwords that comply with specified password policies.

Password policies are typically created to match existing password policies. You should consult application owners before changing an existing password policy.

To determine the requirements and parameters of the password policy and the applications the password policy applies to, test complex policies on a test user account to ensure that they are viable.

7.1.1 Using Application Definition Wizard to Create Password Policy

You can create password policies through the application definition wizard while enabling application for single sign-on. For details on using the application definition wizard, refer to the *Novell SecureLogin Application Definition Wizard Administration Guide* .

However, you cannot use the wizard to edit or delete password policies.

7.2 Password Policy Properties

Organizations and applications often have rules about the content of passwords, including the required number and type of characters. The *Password Policy Properties* table helps you to create and enforce these password rules through a password policy, and apply this policy to one or more applications.

Table 7-1 *The Password Policy Properties Table*

Policy	Value To Be provided	Description
Minimum length	Whole number	Defines the required minimum number of characters.
Maximum length	Whole number	Defines the required maximum number of characters.
Minimum punctuation characters	Punctuation characters	Defines the minimum number of punctuation characters allowed in a password.
Maximum punctuation characters	Punctuation characters	Defines the maximum number of punctuation characters allowed in a password.
Minimum uppercase characters	Whole number	Defines the minimum number of uppercase characters allowed in a password.
Maximum uppercase characters	Whole number	Defines the maximum number of uppercase characters allowed in a password.
Minimum lowercase characters	Whole number	Defines the minimum number of lowercase characters allowed in a password.
Maximum lowercase characters	Whole number	Defines the maximum number of lowercase characters allowed in a password.
Minimum numeric characters	Whole number	Defines the minimum number of numeric characters allowed in a password.
Maximum numeric characters	Whole number	Defines the maximum number of numeric characters allowed in a password.
Disallow repeat characters	*No*/*Yes*/*Yes, case insensitive*	Disallows the use of repeated characters, or the use of the same successive characters. If this option is set to *No*, characters can be repeated. This is the default value. If this option is set to *Yes*, same alphabetic characters in a different case are considered as different characters. For example, A and a are different. If this option is set to *Yes, case insensitive*, the successive use of the same alphabetic characters in a different case is not allowed.

Policy	Value To Be provided	Description
Disallow duplicate characters	*No*/*Yes*/*Yes, case insensitive*	Disallows the use of the same non-successive characters. If this option is set to *No*, duplicate characters are allowed. This is the default value. If this option is set to *Yes*, the same alphabetic characters in a different case are considered as different characters. For example, A (uppercase) and a (lowercase) are different. If this option is set to *Yes, case insensitive*, duplication of the same alphabetic characters in a different case is not allowed.
Disallow sequential characters	*No*/*Yes*/*Yes, case insensitive*	Disallows the use of successive characters in an alphabetical order. If this option is set to *No*, sequential characters are allowed. This is the default value. If this option is set to *Yes*, sequential characters in a different case are considered as non-sequential. For example, a and b and non-sequential. If this option is set to *Yes, case insensitive*, sequential characters in different cases is disallowed.
Begin with an uppercase character	*No*/*Yes*	This parameter requires a password to start with an uppercase character. The default value is *No*. If this option is set to *Yes*, all other policies that indicate that a password must begin with a particular character or in a specific manner are disabled. **IMPORTANT:** Only one type of character can be designated as the first value of a password.
End with an uppercase character	*No*/*Yes*	Enforces the use of an uppercase letter at the end of a password. The default value is *No*. If this option is set to *Yes*, all other policies that indicate that a password must end with a particular character or in a specific manner are disabled.
Prohibited characters	Keyboard characters	Defines a list of characters that cannot be used in a password. **NOTE:** There is no need of a separator in the list of prohibited characters. For example, @#$%&*

<table>
<tr><th>Policy</th><th>Value To Be provided</th><th>Description</th></tr>
<tr><td><em>Begin with any Alpha character</em></td><td><em>No</em>/<em>Yes</em></td><td>This parameter requires a password to start with an alphabetical letter that is, [a-z] or [A-Z].
The default value is <em>No</em>.
If this option is set to <em>Yes</em>, it automatically disables all other policies that specify what the first character of the password should be.</td></tr>
<tr><td><em>Begin with any number</em></td><td><em>No</em>/<em>Yes</em></td><td>Enforces the use of a numeric character as the first character of the password.
The default value is <em>No</em>.
If this option is set to <em>Yes</em>, it automatically disables all other policies that specify what the first character of the password should be.</td></tr>
<tr><td><em>Begin with any symbol</em></td><td><em>No</em>/<em>Yes</em></td><td>This parameter requires a password to start with a symbol. These characters are:
~!@#$%^&*()_+|-=\\{}[]:\\";'<>?/,.`
The default value is <em>No</em>.
If this option is set to <em>Yes</em>, it automatically disables all other policies that specify what the first character of the password should be.</td></tr>
<tr><td><em>End with any Alpha character</em></td><td><em>No</em>/<em>Yes</em></td><td>Enforces the use of an alphabetic character as the last character of the password.
The default value is <em>No</em>.
If this option is set to <em>Yes</em>, it automatically disables all other policies that specify what the password should end with.</td></tr>
<tr><td><em>End with any number</em></td><td><em>No</em>/<em>Yes</em></td><td>Enforces the use of a numeric character as the last character of the password.
The default value is <em>No</em>.
If this option is set to <em>Yes</em>, it automatically disables all other policies that specify what the password should end with.</td></tr>
<tr><td><em>End with any symbol</em></td><td><em>No</em>/<em>Yes</em></td><td>This parameter requires a password to end with a symbol. These characters are:
~!@#$%^&*()_+|-=\\{}[]:\\";'<>?/,.`
The default value is <em>No</em>.
If this option is set to <em>Yes</em>, it automatically disables all other policies that specify what the password should end with.</td></tr>
</table>

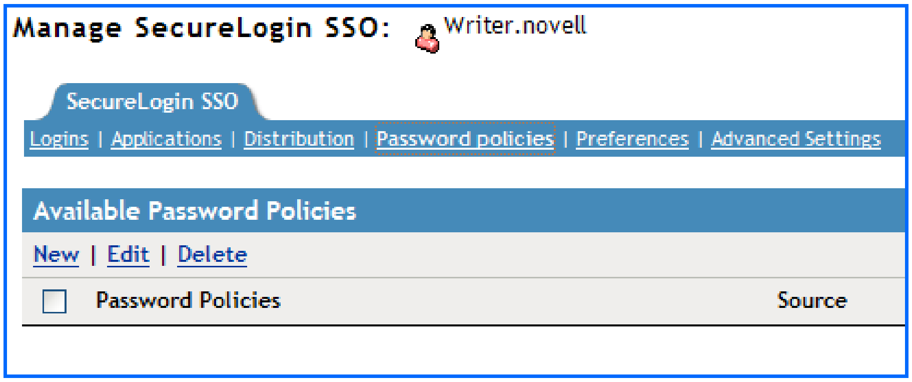
7.3 Creating a New Password Policy

To create a new password policy:

1 Access the Administration Management Utility.

For information on accessing the Administrative Management utility, see "Accessing iManager"in the *Novell SecureLogin Installation Guide* and, or, "iManager Plug-In".

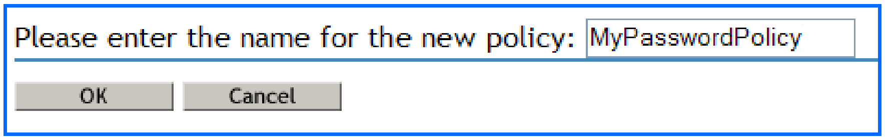
2 Click *Password Policies*. The Password Policies page is displayed.


Manage SecureLogin SSO: Writer.novell
SecureLogin SSO
Logins | Applications | Distribution | Password policies | Preferences | Advanced Settings
Available Password Policies
New | Edit | Delete
□ Password Policies
Source

3 Click *New*. The New Password Policy dialog box is displayed.

It is important to use a unique name for all logins, applications, and password policies. Password policies cannot have the same name as any other SecureLogin attribute. Typically, organizations employ the naming convention ApplicationNamePwdPolicy, for example, LotusNotesPwdPolicy.

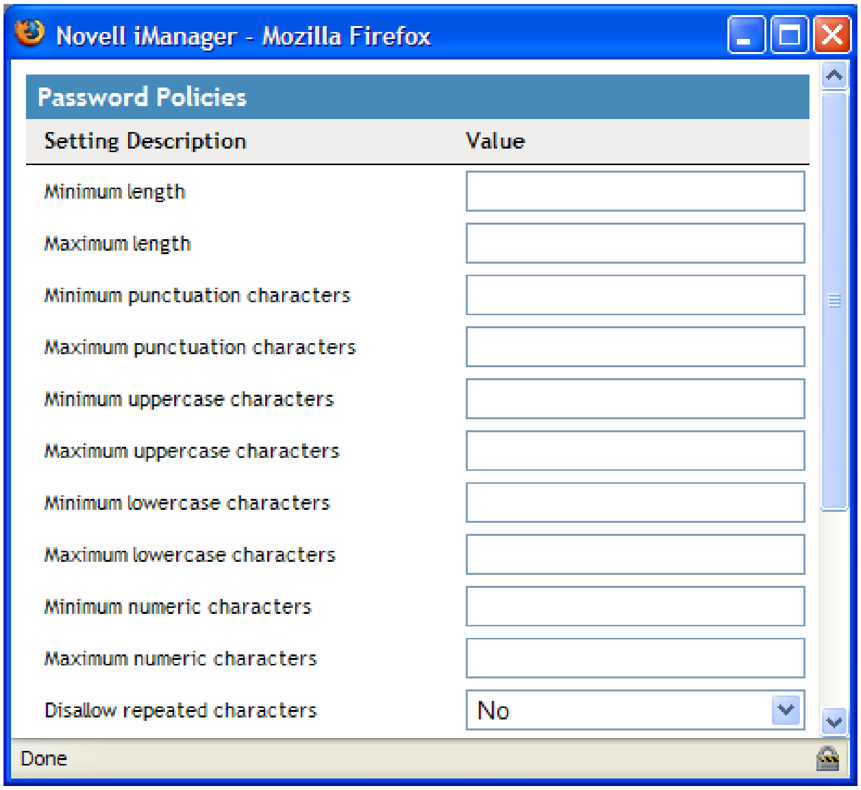
4 In the *Enter a name for the new password policy* field, specify a name for the policy. The new policy is added under the Password Policies.


Please enter the name for the new policy: MyPasswordPolicy

5 Click *OK*. The new password policy is added.

6 Click the new password policy. The Password policy properties table is displayed.

The table contains *Description* and *Value* columns. Most policy rules are not enforced and do not have a default value. Values are either *Yes*, *No*, or a whole number.



Password Policies

Setting Description	Value
Minimum length	
Maximum length	
Minimum punctuation characters	
Maximum punctuation characters	
Minimum uppercase characters	
Maximum uppercase characters	
Minimum lowercase characters	
Maximum lowercase characters	
Minimum numeric characters	
Maximum numeric characters	
Disallow repeated characters	No

7 In the *Description* column, locate the policy you want to change, then either select the appropriate value from the drop-down list or enter the required text field values in the adjacent *Value* column.

8 Click *Apply* to save changes.

9 Click *OK* to close the Administrative Management utility.

IMPORTANT: Password policies are linked to applications by using the SecureLogin application definition command `RestrictVariable`. You can use this command to apply password policies to one or more applications.

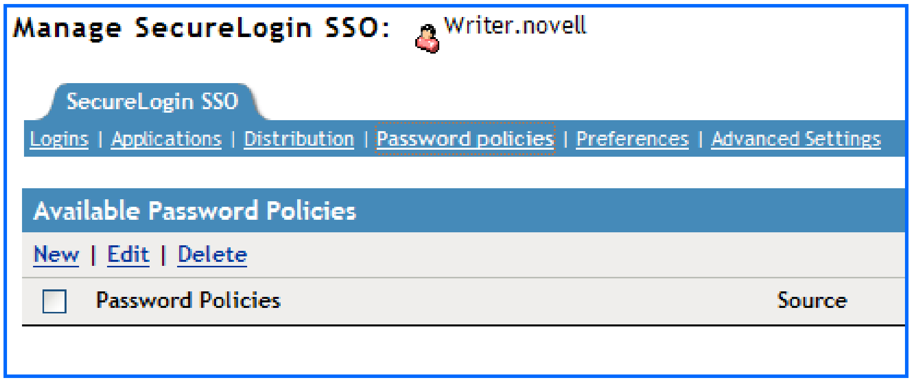
7.4 Editing a Password Policy

You can change a password policy by adjusting the parameters of each rule, or by having no parameters for a rule.

1 Access the Administration Management Utility.

For information on accessing the Administrative Management utility, see “Accessing iManager” in the *Novell SecureLogin Installation Guide* and, or, “iManager Plug-In”.

2 Click *Password Policies*. The Password policies page is displayed.


Manage SecureLogin SSO: Writer.novell
SecureLogin SSO
Logins | Applications | Distribution | Password policies | Preferences | Advanced Settings
New | Edit | Delete

Available Password Policies

□	Password Policies	Source

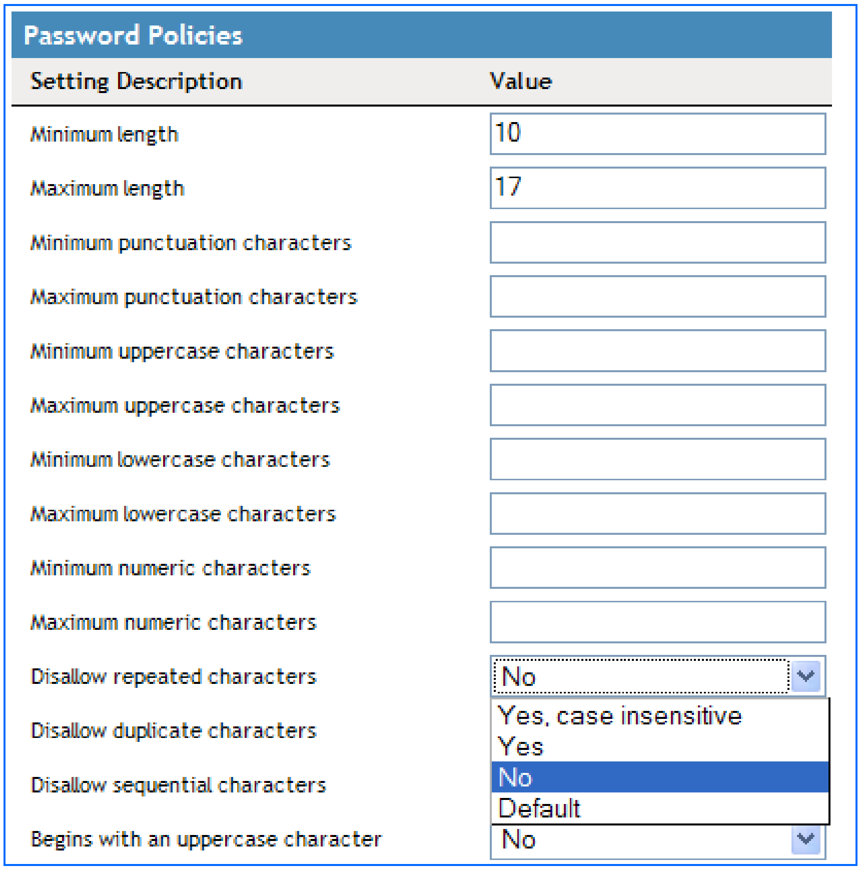
3 Click the password policy that you want to change. The policy details are displayed.

4 In the *Description* column, locate the description you want to change, then in the *Value* column, select the appropriate value from the drop-down list.

IMPORTANT: If you are using the application definition wizard to create and edit password policies, the values of the password policy cannot be changed.

For example, when creating a new password policy if the value of *Disallow repeated characters* is set to *No*, you cannot change it later through the wizard.

This is an expected behavior. You must use the Administrative Management Utility to create and edit the password policy. We do not recommend using the wizard.


Password Policies

Setting Description	Value
Minimum length	10
Maximum length	17
Minimum punctuation characters	
Maximum punctuation characters	
Minimum uppercase characters	
Maximum uppercase characters	
Minimum lowercase characters	
Maximum lowercase characters	
Minimum numeric characters	
Maximum numeric characters	
Disallow repeated characters	No
Disallow duplicate characters	
Disallow sequential characters	
Begins with an uppercase character	No

5 Click *Apply* to save changes.

6 Click *OK* to close the Administrative Management utility.

7.5 Deleting a Password Policy

To delete a password policy:

1 Access the Administration Management Utility.

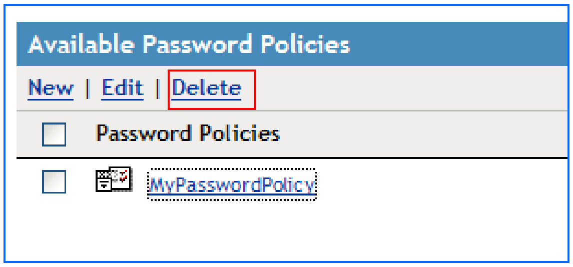
For information on accessing the Administrative Management utility, see "Accessing iManager" in the *Novell SecureLogin Installation Guide* and, or, "iManager Plug-In".

2 Click *Password Policies*. The password policies page is displayed.

3 Click the password policy that you want to delete.

4 Click *Delete*. The Password policy is deleted from the Password policies list.

You can also delete a Password policy by right-clicking the Password policy in the left or right pane of the Administrative Management utility and selecting the *Delete* option.



5 Click *Apply*.

6 Click *OK*.

7.6 Linking a Policy to an Application

You can set or select a password policy, while enabling applications for single sign-on using the application definition wizard. You can also link the password policies to applications by using the SecureLogin application definition command `RestrictVariable`. With this command, you can apply the password policies to one or more applications, as in the example below.

The following definition restricts the `$Password` variable to the Finance password policy. The user's password must match the policy when he or she saves the credentials. When the password requires changing, the application generates a new password based on the policy randomly because Random is included in the definition at ChangePassword.

```
# Set the Password to use the Finance Password Policy
RestrictVariable $Password FinancePwdPolicy
# Login Dialog Box
Dialog
   Class #32770
   Title “Login”
EndDialog
Type $Username #1001
Type $Password #1002
# Change Password Dialog Box
Dialog
   Class #32770
   Title “Change Password”
EndDialog
Type $Username #1015
Type $Password #1004
ChangePassword $Password Random
Type $Password #1005
Type $Password #1006
Click #1
```

The following example uses an application definition to restrict the `?NewPwd` variable to the Finance password policy. The user’s current password ($Password) is saved and used when the application starts for the first time and prompts the user to enter the credentials. When the password expires, the password policy is enforced on any new password.

```
# Set the Password to use the Finance Password Policy
RestrictVariable ?NewPwd FinancePwdPolicy
# Log on Dialog Box
Dialog
Class #32770
Title "Log on"
EndDialog
Type $Username #1001
Type $Password #1002
Click #1
# Change Password Dialog Box
Dialog
Class #32770
Title "Change Password"
EndDialog
Type $Username #1015
Type $Password #1004
ChangePassword ?NewPwd Random
Type ?NewPwd #1005
Type ?NewPwd #1006
Set $Password ?NewPwd
Click #1
```

8 Managing Smart Card Integration

The use of a smart card with Novell SecureLogin is based on the enterprise preference to have users utilize a smart card to log on and store their single sign-on data or to encrypt their directory data using a Public Key Infrastructure (PKI).

To continue working with Novell SecureLogin, you must manually add the entry and set the value to File.

The secondary store entry under `HKLM/Protocom/SecureLogin/Security` is deleted when the installer is modified to remove smart card support.

If you are using smart card authentication for the Citrix login prompt, enter the smart card PIN manually, because the PIN is not cached for the Citrix server authentication.

This section provides information on the following:

- Section 8.1, "How Novell SecureLogin Uses Smart Cards," on page 79
- Section 8.2, "Installing Novell SecureLogin for Smart Cards," on page 83
- Section 8.3, "Configuring SecureLogin for Smart Cards," on page 85
- Section 8.4, "Using PKI Encryption for the Datastore and Cache," on page 87
- Section 8.5, "Lost Card Scenarios," on page 89
- Section 8.6, "Smart Card with DAS Integration," on page 94
- Section 8.7, "Disconnected Login using NESCM," on page 95
- Section 8.8, "SecureLogin in Kiosk Mode," on page 96
- Section 8.9, "Enable Pin Caching for Smart Card," on page 97
- Section 8.10, "Changing Smart Card Login Password on Expiry," on page 97

8.1 How Novell SecureLogin Uses Smart Cards

This section provides information on the following:

- Section 8.1.1, "Prerequisites," on page 80
- Section 8.1.2, "Using Smart Card to Log In to Workstation," on page 80
- Section 8.1.3, "Strong Authentication Methods," on page 80

8.1.1 Prerequisites

SecureLogin supports ActivClient, Gemalto (formerly Axalto), AET SafeSign, Athena, and Fujitsu mPollux DigiSign smart card middleware only. ActiveClient 6.2 is supported on 32-bit and 64-bit systesm on all platforms.

To enable smart card support with Novell SecureLogin, the *Use smart card* option must be selected during installation, regardless of the administrator's intended preferences for setting the Novell SecureLogin security preference *Require smart card is present for SSO and administration operations*.

IMPORTANT: Contact Novell Support for information on other cryptographic service providers.

If you are using Novell Enhanced Smart Card Method (NESCM) as NMAS™ Client Method, NESCM is supported on Microsoft Windows XP SP3 and Microsoft Windows 2003 Server only.

Refer Section 8.2, "Installing Novell SecureLogin for Smart Cards," on page 83 in the *Novell SecureLogin Installation Guide*for more information on enabling smart card support during installation and deployment.

NOTE

When you use eDirectory to create a certificate for a smart card user, ensure that the key usage options *Digital Signature* and *Key Encipherment* are checked.

8.1.2 Using Smart Card to Log In to Workstation

Novell SecureLogin allows a user to alternate their log in method by using smart card.

However, a user can only log in by using a smart card to access the SecureLogin credentials only if the smart card option is selected during installation.

If the smart card option is not selected during installation, a user attempting to access SecureLogin on the workstation is forced to log in with his or her username and network password.

8.1.3 Strong Authentication Methods

The following sections explain the strong authentication methods used in Novell SecureLogin.

Advanced Authentication

Novell SecureLogin uses `AAVerify` command to enforce strong security on applications and functions that are cannot enforce strong security, natively. Use the command in conjunction with Novell SecureLogin re-authentication feature or Novell Modular Authentication Services (NMAS) and enforce users to log in with smartcard.

For details of the `AAVerify` application definition command, see the *Novell SecureLogin Application Definition Guide*.

- "New Functionality in the AAVerify Command" on page 81
- "The New ?IsPin Variable" on page 81
- "Recommended Configuration" on page 81
- "Example Application Definition" on page 82
- "Reauthenticating a Predefined Web Application" on page 82

New Functionality in the AAVerify Command

The existing version of the `AAVerify` command relies on Novell Modular Authentication Services (NMAS) or anyother advanced authentication method like smartcard, being deployed at the backend to process any reauthentication calls.

The new `AAVerify` command was developed specifically provide a secure method to reauthenticate a user successfully before populating the Novell SecureLogin credentials for designated sensitive applications. In an enterprise or corporate environment, a sensitive application is one where a Novell SecureLogin application definition is applied calling for reauthentication.

To process the reauthentication request, the new `AAVerify` command now takes into account the method by which users are currently logged in, as well as their directory connectivity status.

If users have logged in with a username and password, they are prompted to reauthenticate by using the password, regardless of whether they are offline or online.

If users have logged in with a smart card, they are prompted to reauthenticate by using the original smart card PIN, regardless of whether they are offline or online.

The new `AAVerify` command is independent of NMAS and can be used to enforce strong user-friendly re-authentication by using a smart card and PIN or password without installing NMAS.

The new `AAVerify` command caters to a mixed environment where either of the following conditions exists:

- A user might log in to a number of workstations by using a combination of both smart card or password authentication
- A scenario where several users might log in to one workstation by either smart card or password authentication.

The New ?IsPin Variable

`?IsPin` is a new Novell SecureLogin variable available in Microsoft Active Directory mode only.

The `?IsPin` variable is automatically generated when a user logs in and stores, information based on whether the user has logged in to the workstation by using a smart card and PIN, or has logged in by using a password.

When the `?IsPin` variable is called from an application definition, it indicates the following:

- If the returned value is true, it means that the user has logged in by using a smart card, and only the PIN value is passed through to the Novell SecureLogin.
- If the returned value is false, it means that the user has logged with a password.

NOTE: The `?IsPin` variable is updated only at a login and is not updated at a screen unlock.

Recommended Configuration

The *Use smart card option* option is normally based on your preference to have the Novell SecureLogin users utilize a smart card to store the single sign-on data or to encrypt their user's directory data by using a Public Key Infrastructure (PKI).

If you decide to allow users to log in to their workstations by using a smart card and reauthenticate against their smart card, then the *Use smart card option* option must be selected during the installation regardless of the option set for *Require smart card is present for SSO and administration operations*.

NOTE: We recommend that you use a smart card configuration policy to lock the screen on card removal to ensure that the smart card belongs to the currently logged-in user.

Example Application Definition

The following application definition shows how to call the `AAVerify` command based on the login method. It uses the Notepad application. After the Notepad application is started, the `AAVerify` command is invoked to prompt the user to reauthenticate, using the login method for the workstation.

```
Dialog
Class Notepad
EndDialog

OnException AAVerifyFailed Call AAVerifyFailed
OnException AAVerifyCancelled Call AAVerifyCancelled

If ?isPin Eq “true”
  AAVerify -method "smartcard" ?result
Else
  AAVerify -method "password" ?result
EndIf
ClearException AAVerifyFailed
ClearException AAVerifyCancelled

Type $username
Type \n
Type $password
Type \n
Sub AAVerifyFailed
   MessageBox "Reauthentication failed."
   EndScript
EndSub

Sub AAVerifyCancelled
MessageBox "Reauthentication cancelled."
EndScript
EndSub
## EndSection: "Login Window"
```

Reauthenticating a Predefined Web Application

If the new `AAVerify` command is used to reauthenticate a Web browser-based application or if the *Prompt for device authentication for this device* option is enabled for Web applications, then the predefined application definition for the Web browser must be applied for that particular user to avoid confusion when prompting for reauthentication.

One Time Password

The use of multiple passwords places high maintenance overheads on large enterprises. This results in significant cost where users use and manage multiple logins. The calls to helpdesk to reset forgotten password, providing all password when a new employee joins, or deleting the logins when an employee quits can be high in cost.

A one time password (OTP) reduces the cost, particularly with regard to calls to the help desk to reset a forgotten password, or to ensure that all passwords are provisioned when a new user starts, or deleted when existing user leaves the organization.

SecureLogin integrates with ActivIdentity's one time password authentication functionality and provides you access to the `GenerateOTP` application definition command, which can be used to generate synchronous authentication and asynchronous authentication soft token support for smart card user authentication.

Smart Card Password Login

ActivIdentity's Smart Card Password Login (SCPL) provides smart card-based Windows login that is not PKI-based. SCPL, when used in conjunction with SecureLogin, stores and manages a user's Windows login and SecureLogin credentials. It provides efficient network login by allowing a user to simply insert their smart card and enter their PIN.

Network Authentication

Network authentication is the verification of a user's login credentials before granting access to a network or operating system. Users typically authenticate to a network using one of the following methods:

- Password
- Biometric device (fingerprint or iris scan)
- Smart card and PIN
- Token

When a user authenticates successfully and the operating system loads, SecureLogin starts and manages the login credentials to the user's single sign-on-enabled applications.

If you want to enforce biometric, smart card, or token authentication at the application (or transaction) level, `AAVerify` can be used with SecureLogin to prompt the user to re-authenticate before SecureLogin retrieves their credentials and logs in to single sign-on enabled applications.

You can also integrate network authentication methods such as ActivIdentity's SCPL with Novell SecureLogin to manage user's Windows login credentials (user name, password, and network selection). SCPL provides secure and convenient network log in by allowing a user to simply insert the smart card and enter the PIN to gain network access. SCPL retrieves the user's Windows username and password from the smartcard and automatically enters these into the Windows Graphical Identification and Authorization (GINA) interface after a user enters his or her PIN.

Smartcard Application Reauthentication

You can configure SecureLogin to reauthenticate an application using the SecureLogin Administrative Management Utility or application definition wizard. To use this, enable *Prompt for device re-authentication for this application* and configure the *Re-authentication method*.

For more details refer Chapter 10, "Reauthenticating Applications," on page 113.

8.2 Installing Novell SecureLogin for Smart Cards

8.2.1 Client Setup

During the installation of Novell SecureLogin the smart card option can be selected by the administrator to enable a Novell SecureLogin user to utilize a smart card to encrypt their directory data using a Public Key Infrastructure (PKI) token.

Existing ActivClient smart card settings is used by Novell SecureLogin if they are detected (highly recommended) unless the administrator chooses otherwise.

The administrator can optionally select an alternative cryptographic service provider (Microsoft Crypto API) from a drop-down list. Novell SecureLogin supports ActivClient, Gemalto (formerly Axalto), AET SafeSign, Athena, and Fujitsu mPollux DigiSign smart card middleware. Contact Novell Support if your organization uses any other cryptographic service provider.

8.2.2 Server Side Administration Preferences

Novell SecureLogin is a highly configurable and flexible product and numerous preferences and options are available to the system administrator to implement and enforce corporate directory policy across an enterprise.

Corporate policies may include, but are not limited to, enabling strong application security, how SSO data is encrypted and stored, how password and passphrase policies are implemented and enforced, and setting of management procedures for lost smart card scenarios.

In the case of strong security requirements, administrators should be fully aware of the implications of linking the use of Novell SecureLogin to a smart card and disabling the passphrase functionality.

Various combinations and permutations of configuring Novell SecureLogin for use with smart cards are covered in following sections.

8.2.3 Minimum Requirements

For general information about the minimum requirements for using smart cards with Novell SecureLogin, see the *Novell SecureLogin Installation Guide*for your directory environment.

8.2.4 Supported Configurations

SecureLogin supports the following smart card middleware:

- ActivClient version 6.2 or later.
- Gemalto (formerly Axalto) 5.3 hotfix 11
- AET SafeSign 2.3.0
- Athena Middleware v5.22
- Fujitsu mPollux DigiSign v3.1.9

NOTE: SecureLogin might work with other smart card vendor middleware but these are untested and are not supported.

While installing SecureLogin with smart card option selected, select the appropriate cryptographic service provider and PKCS#11 dynamic link library file path. If the appropriate version of PKCS#11 library file is not present during installation, SecureLogin installs without smart card support. However, if a required library file is missing errors can occur.

For example, if the PKCS#11 wrapper library file `aetpksse.dll` is missing, the error message `Access to smart card failed` is shown when the Access Manager attempts to access the smart card. To avoid this error, ensure that the `aetpksse.dll` file is available at `C:\WINDOWS\system32\`.

If ActivClient is installed after SecureLogin is installed, the registry key settings must be changed manually; to activate smart the card support, uninstall or re-install SecureLogin.

PKCS 11 Library Path

Smart Card Middleware	PKCS 11 Library path
ActivClient 6.2	`C:\Program Files\ActivIdentity\ActivClient\acpkcs211.dll`
ActivClient versions previous to 6.2	`C:\Windows\Sytem32\acpkcs211.dll`
Gemalto	`C:\Program Files\Gemalto\DotNet PKCS11\gtop11dotnet.dll`
AET SafeSign	`C:\Windows\System32\aetpksse.dll`
Athena Middleware	`C:\Windows\System32\asepkcs.dll`
Fujitsu mPollux DigiSign	`C:\Program Files\Fujitsu Services\Fujitsu mPollux DigiSign Client\Cryptoki.dll`

If smart card middleware is installed after SecureLogin is installed, the registry key settings for cryptographic service provider and PKCS#11 dynamic link library file path must be changed manually; to activate smart the card support, uninstall or re-install SecureLogin.

NOTE: Manually configuring a third party smart card PKCS #11 link library assumes a high level of understanding of the crypto-graphic service provider's product. System administrators are encouraged to use the ActivClient smart card support with Novell SecureLogin whenever possible.

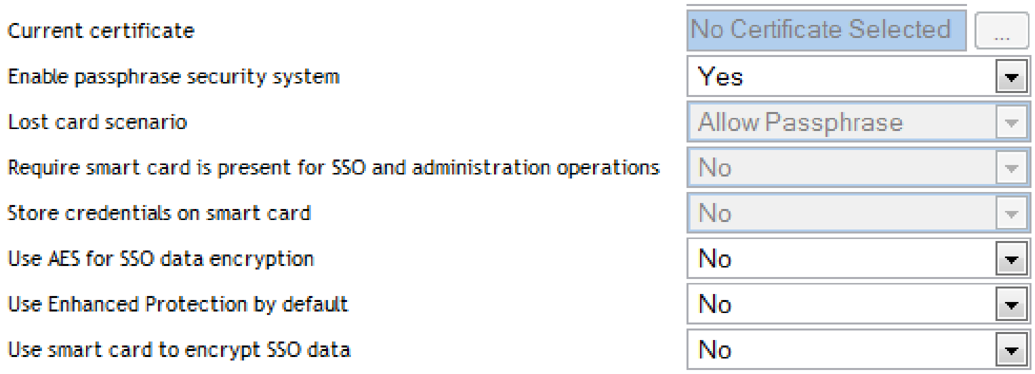
For detailed instructions about installing Novell SecureLogin for use with smart cards and cryptographic tokens, see the *Novell SecureLogin Installation Guide*for your directory environment.

8.3 Configuring SecureLogin for Smart Cards

No two organizations have the same environment and requirements, SecureLogin includes a number of options that determine SecureLogin's behavior, such as how single sign-on data is encrypted (that is, using the smart card or a passphrase question and answer) and how to handle scenarios such as lost cards.

To configure the preferences, use the iManager in eDirectory environments, MMC plug-in for Active Directory environments, and SecureLogin Manager in LDAP v3-compliant directories such as Sun, Oracle, and IBM.

1. Launch the Administrative Management utility (iManager, SLManager, or MMC snap-ins).
2. Click *Preferences*. The Preferences Properties table is displayed.
3. In the *Setting Description* column, go to *Security* and select the appropriate preferences.



Current certificate	No Certificate Selected
Enable passphrase security system	Yes
Lost card scenario	Allow Passphrase
Require smart card is present for SSO and administration operations	No
Store credentials on smart card	No
Use AES for SSO data encryption	No
Use Enhanced Protection by default	No
Use smart card to encrypt SSO data	No

4 Click *Apply*.

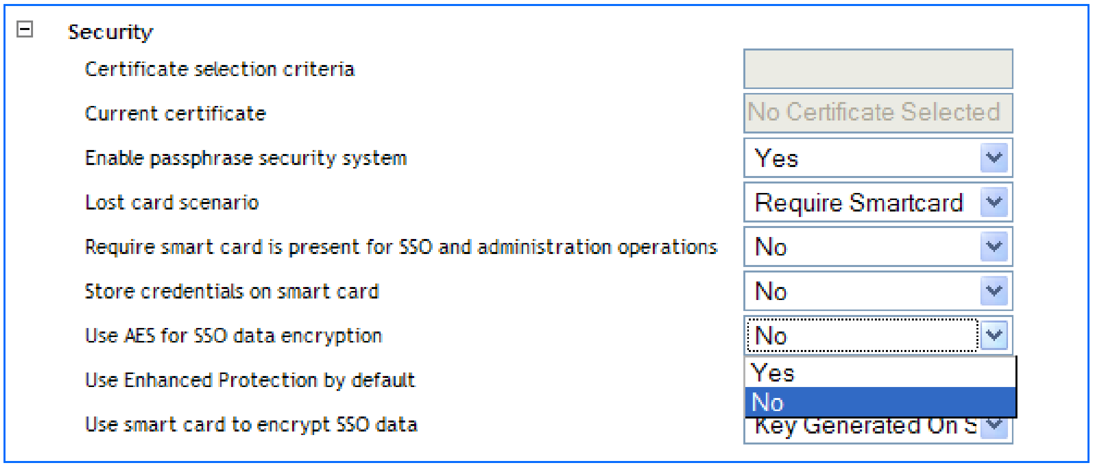
5 Click *OK*.

The following sections explain the various security preferences:

8.3.1 Using AES for SSO Data Encryption

This option determines the level and standard of encryption used to encrypt single sign-on data stored on the smart card by allowing the use of AES instead of triple DES.

Figure 8-1 *Using AES for SSO Data Encryption*



Security

Certificate selection criteria	
Current certificate	No Certificate Selected
Enable passphrase security system	Yes
Lost card scenario	Require Smartcard
Require smart card is present for SSO and administration operations	No
Store credentials on smart card	No
Use AES for SSO data encryption	No
Use Enhanced Protection by default	
Use smart card to encrypt SSO data	Key Generated On S

If you select *No*, a 168-bit key used with triple DES (EDE) in Cipher-Block Chaining (CBC) mode is used to encrypt the user's single sign-on credentials.

NOTE: The input key for DES is 64 bits long and includes 8 parity bits. These 8 parity bits are not used during the encryption process, resulting in a DES encryption key length of 56 bits. Therefore, the key strength for Triple DES is actually 168 bits.

If you select *Yes*, then a 256-bit key used with AES (EDE) in CBC mode is used to encrypt the user's credentials.

If a previous version of SecureLogin has been implemented with passphrases enabled and if this option is set to *Yes*, users must answer with a passphrase before data can be decrypted and reencrypted by using AES.

8.4 Using PKI Encryption for the Datastore and Cache

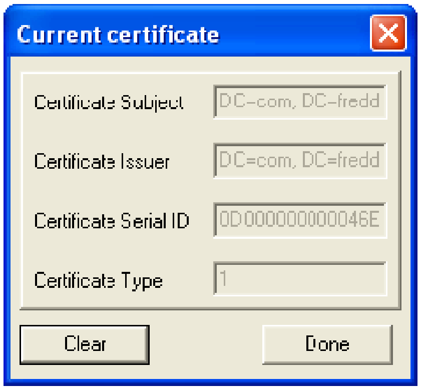
If PKI credentials are used to encrypt Novell SecureLogin data with the passphrase security system off (set to *No*), you should consider implementing a key archive/backup and recovery. If key archive/backup and recovery is not implemented and the passphrases security system is not enabled, the users can never decrypt their Novell SecureLogin data if they lose their smart card because the private key is stored on the lost smart card.

Without private key recovery, you have to clear the user's Novell SecureLogin data store and reset users' application passwords before they use Novell SecureLogin again. This is a high security solution but is inconvenient to end users as they cannot Novell SecureLogin access without the smart card.

- Section 8.4.1, "Choosing a Certificate," on page 87
- Section 8.4.2, "Certificate Selection Criteria," on page 88
- Section 8.4.3, "Current Certificate," on page 89

8.4.1 Choosing a Certificate

When a smart card is configured to use PKI credentials to encrypt single sign-on data, SecureLogin retrieves the serial number of the current certificate and locates the certificate in the certificate store as specified in the relevant SecureLogin preferences. SecureLogin then loads the associated private key and attempts to decrypt the user key with the private key.



Certificate Subject: DC=com, DC=fredd

Certificate Issuer: DC=com, DC=fredd

Certificate Serial ID: 0D000000000046E

Certificate Type: 1

If the decryption fails or the certificate is not located, a smart card is present, and a certificate that matches the selection criteria is not located, then Novell SecureLogin assumes that a recovered smart card is in use. It then attempts to decrypt the user key with each key pair stored on the card.

IMPORTANT: If you using PKI encryption and the certificate selection criteria depends on the certificate's friendly name, disable the Microsoft certificate propogation.

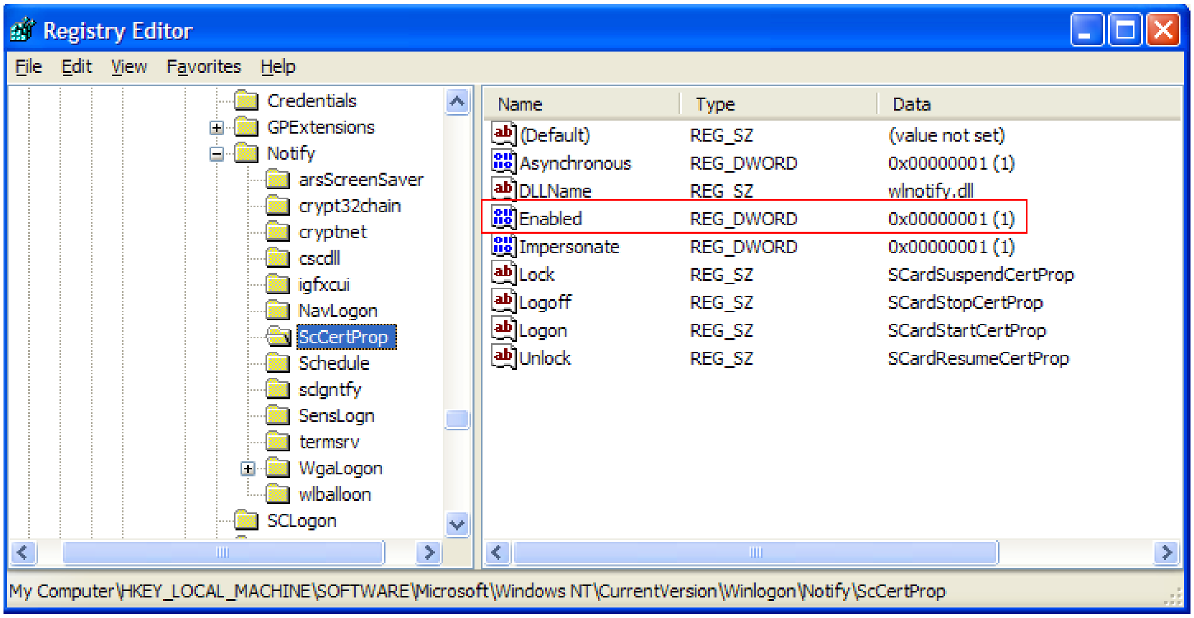
Because the windows certificate propogation method does not propagate the certificate friendly name, you cannot successfully start Novell SecureLogin.

To disable the Microsoft certificate propogation, set the registry key value to 0.

1. On the Windows *Start* menu, click *Start* > *Run* to display the Run dialog box.
2. Type `regedit` then click *OK* to open the Registry Editor.
3. Browse to the `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon\Notify\ScCertProp`

4. Create a DWORD Value named Enabled.
5. Set the value of the DWORD to 0.
6. Exit the Registry Editor.

Figure 8-2 *Setting the DWORD Value for Disabling Microsoft Certificate Propogation*



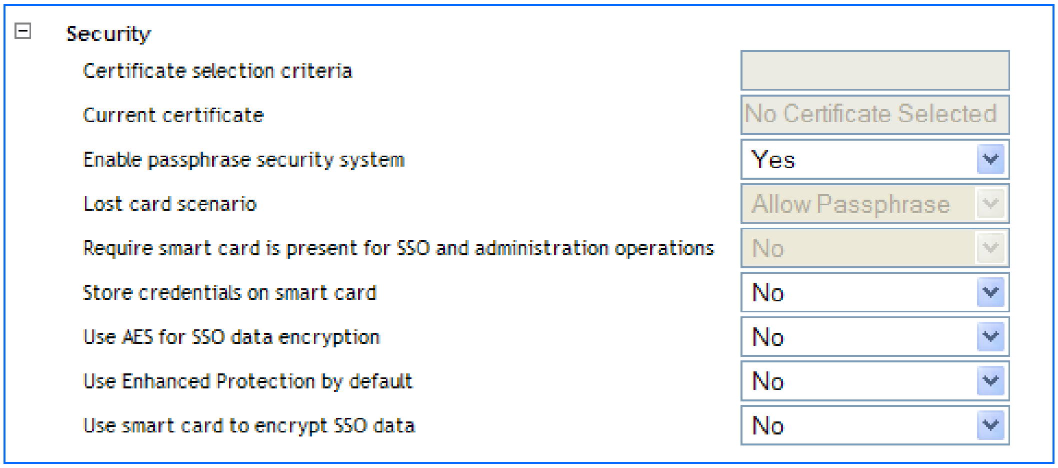
Name	Type	Data
(Default)	REG_SZ	(value not set)
Asynchronous	REG_DWORD	0x00000001 (1)
DLLName	REG_SZ	wlnotify.dll
Enabled	REG_DWORD	0x00000001 (1)
Impersonate	REG_DWORD	0x00000001 (1)
Lock	REG_SZ	SCardSuspendCertProp
Logoff	REG_SZ	SCardStopCertProp
Logon	REG_SZ	SCardStartCertProp
Unlock	REG_SZ	SCardResumeCertProp

My Computer\HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon\Notify\ScCertProp

8.4.2 Certificate Selection Criteria

The *Certificate Selection Criteria* option allows you to select an encryption or authentication certificate to encrypt user's single sign-on information in the directory.

Figure 8-3 *Certificate Selection Criteria*



Security

Certificate selection criteria	
Current certificate	No Certificate Selected
Enable passphrase security system	Yes
Lost card scenario	Allow Passphrase
Require smart card is present for SSO and administration operations	No
Store credentials on smart card	No
Use AES for SSO data encryption	No
Use Enhanced Protection by default	No
Use smart card to encrypt SSO data	No

The certificate selection criteria determine which certificate to select if multiple certificates are in use (for example, if an enterprise has configured an Entrust certificate for single sign-on encryption and a Microsoft certificate for login and or, authentication).

If only one certificate is used, the field is blank and the certificate is detected automatically and set to *User Certificate*. When entering certificate selection criteria, no special formatting is required and the search string is not case sensitive. Wildcards are not used and a search matches if the search text is a substring of the certificate subject field. SecureLogin attempts to match against certificate subject, issuer, and friendly name in the following order:

1. Certificate Subject
2. Certificate Issuer
3. Friendly Name

For example if the subject is

```
CN=Writer,OU=Users,OU=Accounts,OU=APAC,DC=Novell,DC=Int
```

Then Writer is a valid search value, as are *Accounts*, *APAC*, and *Int*. The prefixes CN=, OU=, or DC= are not required.

Similarly, if the *Certificate Issuer* is

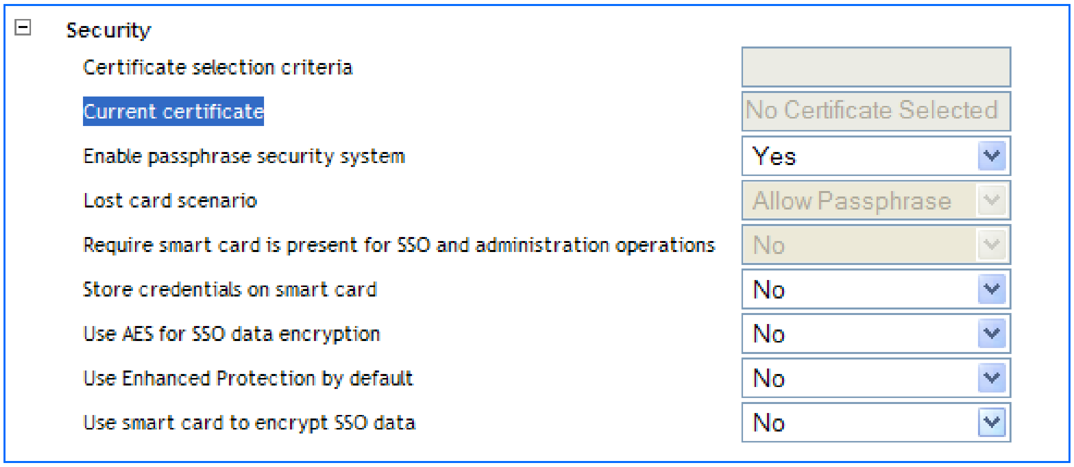
```
CN=IssuingCA1,OU=AD,DC=undiscovered,DC=com
```

Then *IssuingCA1* is a valid search value, as are *AD*, *undiscovered*, and *com*.

8.4.3 Current Certificate

This option displays the certificate that is currently being used by SecureLogin to encrypt a user's single sign-on data.

Figure 8-4 *Current Certificate*



⊟ Security

Certificate selection criteria	
Current certificate	No Certificate Selected
Enable passphrase security system	Yes
Lost card scenario	Allow Passphrase
Require smart card is present for SSO and administration operations	No
Store credentials on smart card	No
Use AES for SSO data encryption	No
Use Enhanced Protection by default	No
Use smart card to encrypt SSO data	No

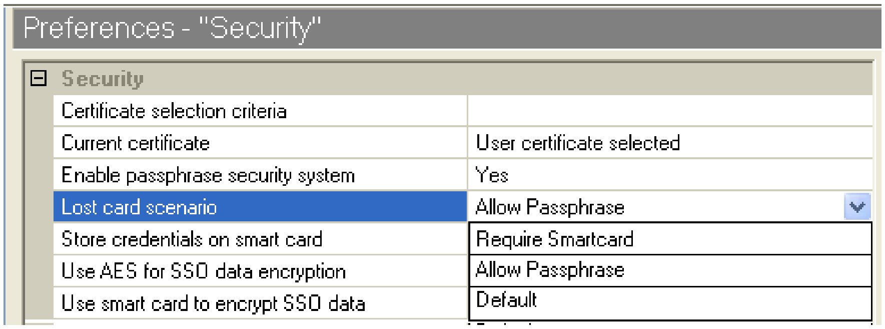
8.5 Lost Card Scenarios

- Section 8.5.1, "Lost Card Scenario Preference," on page 90
- Section 8.5.2, "Requiring a Smart Card," on page 91
- Section 8.5.3, "Allowing a Passphrase," on page 91
- Section 8.5.4, "Passphrases for Temporary Access," on page 91
- Section 8.5.5, "Using a Card Management System," on page 92

8.5.1 Lost Card Scenario Preference

The *Lost Card Scenario* option determines how SecureLogin handles a user forgetting, losing or damaging a smart card. The *Lost Card scenario* option can only be used if, the *Enable passphrase security system* option is enabled, that is set to either *Yes* or *Hidden*.

NOTE: For users upgrading from Novell SecureLogin version 5.5, setting *Enable passphrase security system* to *Hidden* is equivalent to setting the old *Disable passphrase security system* to *Off*.



Preferences - "Security"

Security	
Certificate selection criteria	
Current certificate	User certificate selected
Enable passphrase security system	Yes
Lost card scenario	Allow Passphrase
Store credentials on smart card	
Use AES for SSO data encryption	
Use smart card to encrypt SSO data	

If the lost smart card is used to encrypt single sign-on data and a card is lost, stolen, or damaged, and key escrow or recovery is not used, the user does not have access to single sign-on data unless *Enable passphrase security system* is set to *Yes* or *Hidden*.

- If *Enable passphrase security system* is set to *Yes*, if the user has previously set a passphrase, and if *Lost card scenario* is set to *Allow Passphrase*, the user is prompted to answer with his or her passphrase before SecureLogin is available.
- If *Enable passphrase security system* is set to *Hidden*, the user is not prompted for the answer and SecureLogin loads seamlessly.

Allow Passphrase

This preference allows the user to start Novell SecureLogin using their passphrase if their smart card is not available. The *Enable passphrase security system* preference must be set to Yes or Hidden for this to work. Hidden replaces a user-generated passphrase with a system-generated passphrase, effectively removing the need for the user to remember the passphrase answer.

IMPORTANT: For the user to decrypt data using their passphrase, the passphrase must already have been set. Administrators cannot simply toggle the *Enable passphrase security system* preference on the day the user forgets their smart card unless the user has previously set a passphrase (or had it randomly generated using Hidden).

NOTE: Administrators can manually disable inheritance of higher level preferences by selecting the Yes option for *Stop walking here* in the Novell SecureLogin Administrative Management Utility, Preferences – General options.

Default

The default preference is to allow the user to start Novell SecureLogin using their passphrase, unless it inherits a *Lost card scenario* preference from a higher-level container.

8.5.2 Requiring a Smart Card

The *Require smart card* option prevents a user from starting single sign-on without his or her smart card. This option is for high security implementations where organizations want to tie the use of a user's single sign-on credentials to the user's smart card. This means that the user cannot access single sign-on with any other method; that is, they cannot use a username and password without the smart card.

IMPORTANT: If the *Require smart card* option is changed while the user is logged in, refreshing the cache using the *Advanced > Refresh Cache* option from the taskbar does not refresh the *Lost card scenario* option.

The user must log out and log in again (or restart SecureLogin) for the new option to take effect.

8.5.3 Allowing a Passphrase

The *Allow passphrase* option must be used in conjunction with the *Enable passphrase security system* option. It allows the user to start SecureLogin by using a passphrase if the smart card is not available. The passphrase security system must be set to *Yes* or *Hidden* for this setting to apply.

The *Hidden* option replaces a user-generated passphrase with a system-generated passphrase, effectively removing the need for the user to remember the passphrase answer.

IMPORTANT: For the user to decrypt data using a passphrase, the passphrase must already be set. You cannot simply toggle the *Enable passphrase security system setting* to on the day the user forgets a smart card unless the user has previously set a passphrase (or had it randomly generated by using the *Hidden* option).

The *Default* option allows the user to start SecureLogin by using a passphrase if the smart card is not available through the *Allow Passphrase* option. Alternatively, this option inherits the *Lost Card scenario* preference set by the higher-level container.

You can manually disable inheritance of higher-level options by selecting the *Yes* option for *Stop walking here* (SecureLogin Administrative Management utility > *Preferences* > *General* options.)

8.5.4 Passphrases for Temporary Access

There are a number of options available that permit access if a user loses or forgets his or her smart card. For example, If a user loses or forgets his or her smart card and the *Lost card scenario* option is set to *Require smart card*, you can grant temporary access to systems by resetting the user's password. The user is then required to log in and enter the passphrase. This option is possible only if the *Enable passphrase security system* is turned on.

However, the user should not expect easy or automatic access to the system. Users should understand that, a strong and secure solution has been implemented and that they have the responsibility of looking after their own smart cards.

8.5.5 Using a Card Management System

Enterprise server or web-based card management system (CMS) software enables corporations to implement and easily manage smart card-based identity management, provisioning, and authentication devices and enforce policy across geographically-dispersed locations.

These systems provide a complete and flexible solution to manage the issuance, administration, and configuration required for the successful and seamless smart card integration with SecureLogin 6.0 and later and Smart Card Password Login.

Novell CMS provides a complete and flexible solution to manage the issuance, administration and configuration required for a successful and seamless smart card integration with Novell SecureLogin and Smart Card Password Login (SCPL). It can be configured to perform key escrow, archive and recovery as described throughout this document.

- "Restoring a Smart Card Using Card Management System" on page 92
- "Accessing Without a Card Management System" on page 92
- "PKI Credentials" on page 93
- "Key Generated on Smart Card" on page 94

Restoring a Smart Card Using Card Management System

You must then reset the user's corporate passwords and issue a new smart card (with a new key pair) before the user can log in and reconfigure the single sign-on applications using SecureLogin again.

The user must manually enter all application credentials into SecureLogin the first time he or she logs in after the data was cleared from the directory.

Enterprises should consider implementing key escrow, archiving, or backup through a suitable CMS to allow a user's encryption key to be recovered in the event of a lost or damaged smart card.

The use of a CMS is crucial if an enterprise opts to deploy corporate smart cards with a very high level of security by disabling the *Enable passphrase security system option* combined with using the *Store credentials on smart card* set to *Yes* and the *Use smart card to encrypt SSO* data options of *PKI credentials* or *Key generated on smart card options*.

In the event of a lost or damaged smart card, the user can never decrypt their single sign-on data because the key stored on the smart card is not recoverable.

It is recommended that you extensively test the CMS and smart card restoration techniques before selecting the high security options described above that tie single sign-on to the user's smart card.

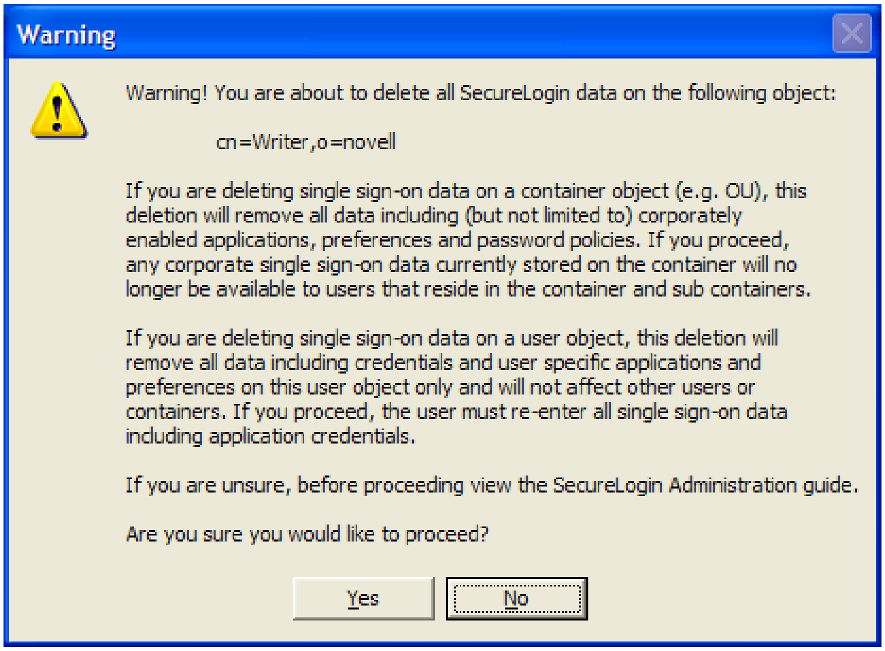
The procedure to reset a user's data store is described in Section 2.6, "Deleting or Re-setting User Data," on page 18.

Accessing Without a Card Management System

If an enterprise opts to deploy corporate smart cards without a suitable card management system (CMS) user key escrow, archiving, and backup system combined, you can still create a very high level of security by setting *Enable passphrase security system* to *No* and selecting the *Use smart card to encrypt SSO data* options of *PKI credentials* or *Key generated on smart card* options. However, in the event of a lost or damaged smart card the user can never decrypt the single sign-on data because the key stored on the smart card is not recoverable.

WARNING: Deleting the user's single sign-on datastore permanently deletes the user's corporate applications, credentials, options, and user policies.

If you still decide to delete the user's existing single sign-on configuration data store, delete it from the *Advanced Setting* > *Datastore* tab.



Warning! You are about to delete all SecureLogin data on the following object:

cn=Writer,o=novell

If you are deleting single sign-on data on a container object (e.g. OU), this deletion will remove all data including (but not limited to) corporately enabled applications, preferences and password policies. If you proceed, any corporate single sign-on data currently stored on the container will no longer be available to users that reside in the container and sub containers.

If you are deleting single sign-on data on a user object, this deletion will remove all data including credentials and user specific applications and preferences on this user object only and will not affect other users or containers. If you proceed, the user must re-enter all single sign-on data including application credentials.

If you are unsure, before proceeding view the SecureLogin Administration guide.

Are you sure you would like to proceed?

The administrator must then reset the user’s corporate passwords and issue a new smart card (with a new key pair) before the user can log on and reconfigure their single sign-on enabled applications using Novell SecureLogin again.

The user will have to re-enter all their application credentials into Novell SecureLogin the first time it is used after having them deleted from the directory.

PKI Credentials

If the *Use smart card to encrypt SSO* data option is set to use *PKI credentials* to encrypt a user's single sign-on data and *Enable passphrase security system* is set to *No*, in the event of a lost or damaged smart card the user can never decrypt the single sign-on data because the key stored on the smart card is the only key that can be used for decryption and is not recoverable unless key archiving and recovery are implemented.

If a CMS-based key archive is used, then the encryption key needs to be recovered to the new smart card, the single sign-on data unencrypted, and an administrator needs to chose a new certificate to encrypt the user’s data.

If you are using the enterprise CMS-based recovery system, you must issue the user a replacement smart card based on a CMS backup of the user's original key.

Key Generated on Smart Card

Similarly, if the *Use smart card to encrypt SSO* data option is set to use *Key generated on smart card* to encrypt a user's single sign-on data, then in the event of a lost or damaged smart card the user can never decrypt the single sign-on data because the key stored on the smart card and is not recoverable.

You should consider setting the *Enable passphrase security system* option to *Yes* when the *Key generated on smart card* option is used to provide an alternative mechanism for decrypting single sign-on data if the smart card is lost/stolen/damaged.

Using the enterprise CMS-based recovery system, the administrator must issue the user a replacement smart card based on a CMS backup of the user's original key. The replacement card includes the recovered private key and a new key pair so data can be decrypted using the old key and re-encrypted using the new key.

8.6 Smart Card with DAS Integration

In the earlier versions of SecureLogin, Active Directory authentication of the workstation was used to log in to SecureLogin.With SecureLogin 7.0 SP1 Hotfix 2 and later, you can enable users to log in to SecureLogin separately by using the smart card credentials.

With SecureLogin 7.0 SP2, you can enable users to log in to SecureLogin separately by using the smart card credentials

To enable this behaviour:

1 On the Windows desktop, click *start* > *Run* to display the Run dialog box.

2 Enter `regedit,` then click *OK* to open the Registry Editor.

3 Browse to the `HKEY_LOCAL_MACHINE\SOFTWARE\Protocom\SecureLogin\NSLADAuth`.

4 Create `DWORD NSLADAuth` and set the value of `NSLADAuth` to 1.

5 Exit the Registry Editor.

6 Log out from the workstation and log in again.

7 Launch the Novell SecureLogin.

This feature can be effectively used for Desktop sharing using DAS. To enable smart card with DAS you have to use `on-cardmon` and card-insert elements.

This feature enable users to log in by using the Smart Card credentials in Desktop Automation Services, the `on-cardmon` element is modified. The `card-insert` and `LoginAction` attributes are added to the `on-cardmon` element. For more information on these new attributes, see "on-cardmon" on page 186 in Administering Desktop Automation Services.

8.6.1 Fast user switch using Smart Card in Active Directory Mode

The changes in smart card and Desktop Automation Services allows switching of users using smart card in Active Directory mode.

1 Log in to the workstation where you want to launch the Novell SecureLogin.

2 Configure `actions.xml` to hide and unhide the desktop using the smart card fast user switch.

3 Insert the smart card.

   The SecureLogin PinPrompt dialog box is displayed prompting you to enter a valid PIN.

4 Enter the valid PIN.

SecureLogin is launched successfully for the smart card user.

8.7 Disconnected Login using NESCM

With this feature enabled, LDAPAuth will encrypt and store the Windows workstation or the AD domain user password locally and retrieve it when required, hence the user need not re-enter the workstation password from the next login onwards.

With NESCM as the login method, this feature is supported in the LDAP Gina or Credential Provider mode with eDirectory. When logging in with NESCM in either online or offline mode, just entering the PIN is sufficient.

8.7.1 Prerequisites

- ActivClient version 6.2 or later / Gemalto PKCS11 for .NET V2+
- NICI v2.7.6
- NMAS v3.5.0
- NESCM v3.0.8

NOTE: Disconnected Login Using NESCM is not supported on Windows server 2003 and Windows server 2008.

8.7.2 Registry Settings

To enable Disconnected Login using NESCM, create the following registry settings:

Registry Path	Registry Type	Registry Name	Registry Value
`HKEY_LOCAL_MACHINE\SOFTWARE\Novell\Login\LDAP`	DWORD	`DisconnectedRequired`	1
	DWORD	`LDAPAuthNMASSelected`	1
	DWORD	`UsePasswordFieldforNMAS`	1
	String	`LDAPAuthNMASSequence`	`Enhanced Smart Card`
	DWORD	`DoNotShutdownNSL`	1
`HKEY_LOCAL_MACHINE\SOFTWARE\Protocom\SecureLogin`	DWORD	`TryRegCredInOffline`	1

8.8 SecureLogin in Kiosk Mode

In Active Directory mode, by default SecureLogin uses the workstation logged in session to login to SecureLogin. User can also login to SecureLogin using different credentials by updating the registry setting:

1. On the Windows desktop, click *start* > *Run* to display the Run dialog box.
2. Enter `regedit,` then click *OK* to open the Registry Editor.
3. Browse to the `HKEY_LOCAL_MACHINE\SOFTWARE\Protocom\SecureLogin\NSLADAuth`.
4. Create `DWORD NSLADAuth` and set the value of `NSLADAuth` to 1.
5. Exit the Registry Editor.
6. Log out from the workstation and log in again.
7. Launch the Novell SecureLogin.

This feature can be effectively used for desktop sharing using DAS. To enable smart card with DAS you have to use `on-cardmon` and `card-insert` elements. For more information on these new attributes, see "on-cardmon" on page 186 in Administering Desktop Automation Services.

NOTE: This feature is not supported with SecureLogin installed in ADAM mode

8.8.1 Kiosk Mode using Smart Card

The changes in smart card and Desktop Automation Services allows switching of users using smart card in Active Directory mode.

1. Log in to the workstation where you want to launch the Novell SecureLogin.
2. Insert the smart card and Launch SecureLogin.

   The *NSL PinPrompt* dialog box is displayed prompting you to enter a valid PIN.
3. Enter the valid PIN.

   The Novell SecureLogin is launched successfully for the smart card user.

8.8.2 Kiosk Mode without using Smart Card

If smartcard is invalid or not present, then you can login to SecureLogin with different credential.

1. Log in to the workstation and launch the Novell SecureLogin.
2. The *NSL Login* dialog box is displayed prompting you to enter a valid username and password.
3. Enter the valid credentials

   The Novell SecureLogin is launched successfully.

NOTE: If the Active Directory user password is expired, user has to change the password through the Windows settings before logging in to Novel SecureLogin. In this case, SecureLogin will not prompt the user to change an expired password.

8.9 Enable Pin Caching for Smart Card

To enable pin caching for smart card, update the registry settings:

1. Browse to `HKEY_LOCAL_MACHINE\Software\Protocom\SecureLogin`.
2. Create a new `DWORD` value `EnableSmartCardPinCache`.
3. Set this value to `1`.

8.10 Changing Smart Card Login Password on Expiry

In eDirectory mode when the user logs in using NESCM (Novell Enhanced Smart Card Method) and the user password is expired, SecureLogin detects the expired password and changes automatically on behalf of the logged in user. To enable this, update the registry settings:

1. Browse to `HKEY_LOCAL_MACHINE\Software\Protocom\SecureLogin`.
2. Create a new `DWORD` value `ChangePasswordOnExpiry`.
3. Set this value to `1`.

NOTE: This feature is supported only with SecureLogin installed in eDirectory Novell Client mode without selecting *Novell SecretStore Client*.

The `ChangePasswordOnExpiry` feature does not work with complex eDirectory password policy settings in SecureLogin.

9 Enabling Terminal Emulator Applications

This sections provides information on enabling single sign-on for terminal emulator applications, single sign-on support for MEDITECH applications, and the application that are exluded for single sign-on.

It consists of the following sections:

For detailed explanation on enabling single sign-on for Windows, Web, and Java applications, refer the *Novell SecureLogin Application Definition Wizard Administration Guide* .

9.1 Enabling Applications for Single Sign-On

Novell SecureLogin has the following features:

- Predefined applications for single sign-on to access a wide range of commercially available applications.
- The ability to detect applications for which a predefined application exists. For example, if SecureLogin detects a SAP login dialog box, then SecureLogin prompts the user with an option to allow SecureLogin to automatically enable the application for single sign-on.

  Predefined applications for commonly used applications are provided with the SecureLogin application, and with each new version, more are developed and made available to the Novell customers.
- Wizards and application definitions to facilitate single sign-on to almost any new or proprietary application if a predefined application is not available. This helps you or Novell Support to build an application definition for almost any proprietary application or upgrade.
- Support for single sign-on-enabling of most standard terminal emulator applications.
- Additional single sign-on tools, such as the Window Finder and LoginWatch, which help you enable even the most difficult applications for single sign-on.

  NOTE: You can enable terminal emulators for single sign-on by using the Terminal Launcher tool.
- It stores the login information requirements for applications including:

Table 9-1 *Login Information Stored by Novell SecureLogin*

Credentials, including but not limited to:	◆ Username ◆ UserID ◆ Login ID ◆ Password ◆ PINs ◆ Domain ◆ Database names ◆ Server IP address
Responses to dialog boxes, messages and windows events, for example:	◆ Login ◆ Incorrect credentials ◆ Password expiry and reset ◆ Error messages, including non-compliance to password rules ◆ Account locked ◆ Database locked

Before SecureLogin can enable an application for single sign-on for a particular user, it must learn the user's application credentials so that SecureLogin can encrypt and store them for future logins, unless it is used in conjunction with Identity Management solutions such as Novell Identity Manager.

When a user starts an application for the first time after the application was enabled for single sign-on, SecureLogin prompts the user for application credentials, and then encrypts and stores them in the directory against the user object. The credentials are passed automatically to the application for subsequent logins.

Automated single sign-on is achieved by using proprietary application definitions. Application definitions are managed in directory environments through SecureLogin management utilities, including the Administrative Management utility, iManager plug-in, and Active Directory MMC plug-in. Locally and in standalone deployments, application definitions are managed in the Novell SecureLogin Client Utility or distributed by using the advanced offline signed and encrypted method.

You can create application definitions with the Novell SecureLogin application definition wizard. Single sign-on enabled application definitions may also be created, modified or deleted in the *Applications* pane of the management utilities. Regardless of the origin of the application definition, when an application is enabled single sign-on for, it is added to and maintained in the Applications Properties Table.

9.2 Enabling Terminal Emulator Applications

You can configure terminal emulators for single sign-on in the application definition editor in the Administrative Management utility, in the Novell SecureLogin Client Utility, and the Terminal Launcher tool.

To enable a terminal emulator for single sign-on, you must run `tlaunch.exe`, which you configure in Terminal Launcher, and link to the configuration in an application definition.

Terminal Launcher helps you configure terminal emulator applications for single sign-on.

Contact Novell Support for information on using a ViewNow terminal emulator.

The following sections document these procedures:

- Section 9.2.1, “Creating and Saving a Terminal Emulator Session File,” on page 101
- Section 9.2.2, “Building a Terminal Emulator Application Definition,” on page 101
- Section 9.2.3, “Running a Terminal Launcher,” on page 102
- Section 9.2.4, “Creating a Terminal Emulator Desktop Shortcut,” on page 105
- Section 9.2.5, “Setting Terminal Launcher Command Line Parameters,” on page 106

In the following sections, we use Eicon Aviva. Although these procedures apply to most terminal emulators, the application definition and other configuration information might differ for each emulator application. Contact Support for help.

Typically, the session file already exists and you need to configure Terminal Launcher to point to the relevant file.

9.2.1 Creating and Saving a Terminal Emulator Session File

Prior to enabling any terminal emulator for single sign-on, you must identify or create a session file that includes all the required settings for the server connection and any other parameters required for deployment to users. Terminal Launcher is configured to run this session file when launching the emulator. Any modifications to the session must be saved to this file. The session file can be saved locally or on the server.

1. Start the terminal emulator application.
2. Connect to the required host.
3. Change the terminal emulator settings as required.
4. Save the session. The default directory is usually the application’s installation directory.
5. On the *Connection* menu, click *Disconnect*.The session file remains loaded, but you have disconnected from the host.
6. On the *File* menu, click *Save* [session name] to save changes to the session file.
7. Exit the terminal emulator application.

9.2.2 Building a Terminal Emulator Application Definition

1. Open the Novell SecureLogin Client Utility of SecureLogin by double-clicking , or by selecting *Start* > *Programs* > *Novell SecureLogin* > *Novell SecureLogin.*
2. Select *File* > *New* > *Application*. The New Application dialog box is displayed.
3. Select *New Application Definition*.
4. In the *Type* drop-down list, click *Terminal Launcher*.
5. In the *Name* field, specify a name for the application definition (in this example, Eicon Aviva), then click *OK*. The new application definition is added to the Applications pane.
6. Double-click the new application definition. The *Details* tab is displayed.
7. Click the *Definition* tab. The application definition editor is displayed.
8. Delete the default text displayed in the text box: `# place your application definition here`
9. In this example for Attachmate, type the following in the text box:

```
WaitForText "WELCOME TO ATTACHMATE"
Type @E
WaitForText "ENTER USERID -"
Type $Username
Type @E
WaitForText "Password  ===>"
Type $Password
Type @E
WaitForText " Welcome to Attachmate"
WaitForText "***"
Delay 1000
Type @E
```

You must type the screen syntax accurately in the application definition editor; otherwise it will fail to operate. Wherever possible, cut and paste the text directly from the emulator screen into the editor.

10. Click the *Details* tab.
11. Ensure that the *Enabled* check box is selected.
12. Click *OK*.

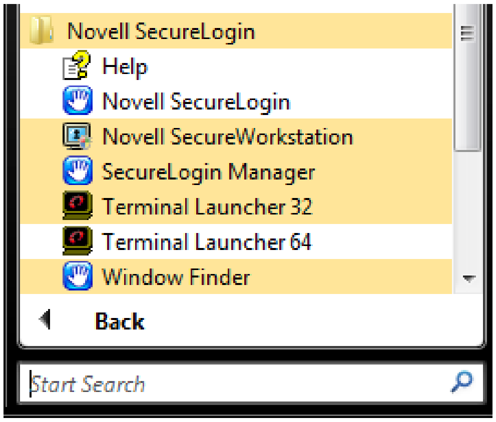
9.2.3 Running a Terminal Launcher

Terminal applications require Terminal Launcher to execute for single sign-on. After you create the application definition in the Management utility, you must configure it to start Terminal Launcher. A shortcut is created to enable the user to run Terminal Launcher and the terminal emulator from the desktop with automated single sign-on to the application or server.

IMPORTANT: For successfully using Terminal Launcher on Windows XP SP3, the screen resolution must be 1024 by 768 pixels.

1. Select *Start* > *Programs* > *Novell SecureLogin* > *Terminal Launcher*. The Terminal Launcher dialog box is displayed.

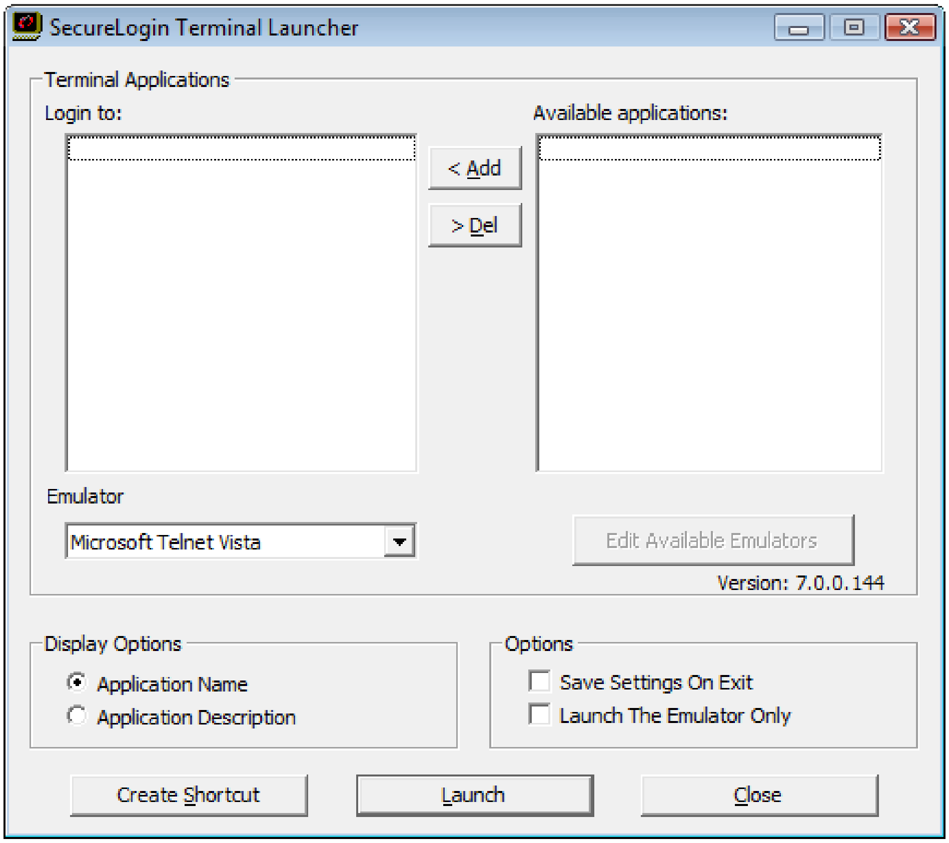
   This release of Novell SecureLogin provides two Terminal Launcher shortcuts : one each for 32-bit and 64-bit. To launch *Terminal Launcher 32* or *Terminal Launcher 64*, click *Start* > *All Programs* > *Novell SecureLogin* > *Terminal Launcher 32* or *Terminal Launcher 64*.

   Use *Terminal Emulator 32* to to enable 32-bit emulator sessions. Use *Terminal Emulator 64* to enable 64-bit emulator sessions.

2. In the *Available applications list*, click the required application definition (in this example, Eicon Aviva).
3. Click *Add* to move the selected application to the *Login to* list.

4 Click *Edit Available Emulators*. The Available Emulators dialog box is displayed.



Emulator: Microsoft Telnet Vista

Version: 7.0.0.144

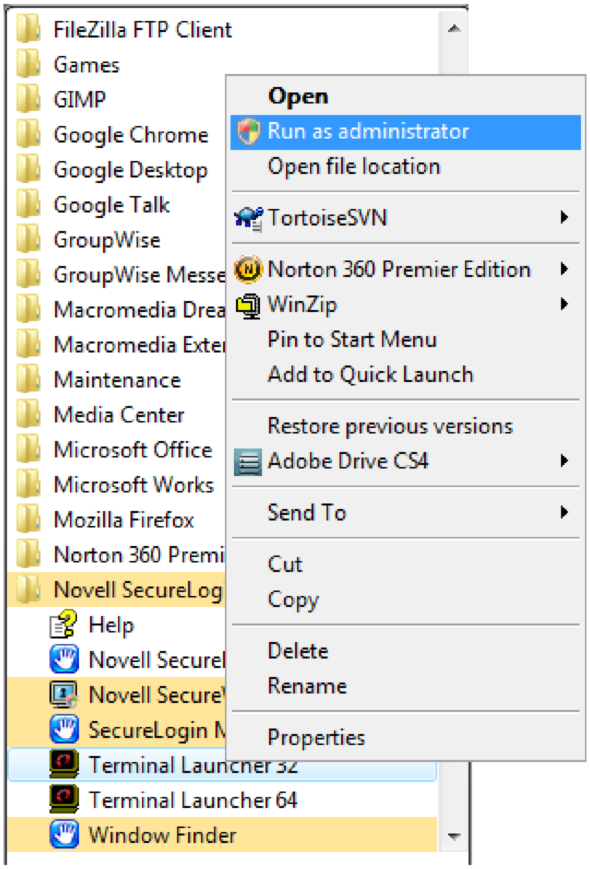
● Application Name
○ Application Description

□ Save Settings On Exit
□ Launch The Emulator Only

If you launch Terminal Launcher as a normal user on Microsoft Windows Vista 32-bit or 64-bit platforms, the *Edit Available Emulator* button is dimmed. You must have administrator rights to edit the `TLaunch.ini` file. To edit the `TLaunch.ini` file:

4a Click *Start* > *All Programs* > *Novell SecureLogin*, select *Terminal Emulator 32* or *Terminal Launcher 64*.

4b Right-click on *Terminal Launcher 32* or *Terminal Launcher 64*, then select *Run as administrator*.



5 In the *Available Emulators* list, click *Eicon Aviva*.

6 Click *Edit*. The HLLAPI Emulator Configuration dialog box is displayed.

7 In the *Emulator Path* field, specify the emulator executable's location.

8 In the *Home Directory* field, specify the emulator's home directory.

9 In the *HLLAPI DLL* field, specify the file name and path.

10 In the *Session Files* field, select and delete the current session files.

11 Click *Add*. The Emulator Session File dialog box is displayed.

12 Browse and select the configured session file.

13 Click *OK* to close the Emulator Session File dialog box.

14 Click *OK* to close the HLLAPI Emulator Configuration dialog box.

15 Click *Done* to close the Available Emulators dialog box.

16 In the Terminal Launcher dialog box, ensure that Eicon Aviva is selected in the Emulator drop-down list.

17 Under *Options*, select the *Save Settings On Exit* check box.

18 Click *Close*.

You can choose to start emulator applications in Terminal Launcher; however, users might not have access to Terminal Launcher. To simplify login for users, a desktop shortcut is created.

To successfully automate single sign-on, Terminal Launcher must start before the terminal emulator application, so the desktop shortcut includes the command to run Terminal Launcher first and then the emulator application.

IMPORTANT: Record the exact name given to the terminal emulator in the Terminal Launcher dialog box, because it is referred to in the desktop shortcut.

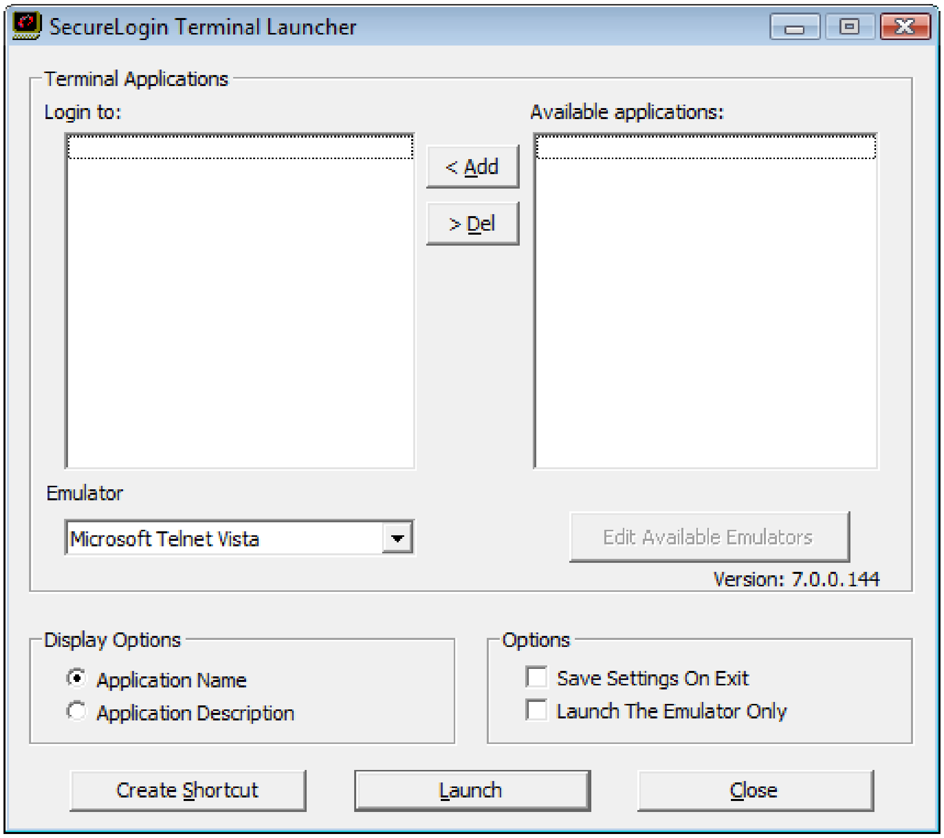
9.2.4 Creating a Terminal Emulator Desktop Shortcut

Using a terminal emulator, you can create a shortcut either for a 32-bit or 64-bit version of the same emulator. However, you cannot create a shortcut for both the 32-bit and 64-bit version of the same emulator. Any attempt to create a shortcut for the other version overwrites the existing shortcut.

For example, creating a shortcut for an emulator of 64-bit overwrites an already existing shortcut for the same emulator of 32-bit.

Do the following to create a shortcut for an application or a server:

1 Select *Start* > *Programs* > *Novell SecureLogin* > *Terminal Launcher*. The Terminal Launcher dialog box is displayed.



Emulator: Microsoft Telnet Vista

Version: 7.0.0.144

● Application Name
○ Application Description

□ Save Settings On Exit
□ Launch The Emulator Only

2 Click *Create Shortcut*. The Terminal Launcher Shortcut Options dialog box is displayed.

3 Select *Location* > *Desktop*.

4 Select the appropriate options from *Options.*

NOTE: *Quiet mode* and *Suppress errors* are the default options.

5 In the *Command Line* field, ensure that the following parameters are included (in this example, `/auto /e"Attachmate" /pAttachmate /q /s`):

Parameter	Description
`/auto`	Indicates to Terminal Launcher that the following is a parameter requesting the execution of a terminal emulator application that is configured for single sign-on. This parameter is mandatory.
`/e[application name]`	Initiates the execution of the terminal emulator.
`/p[Terminal Launcher config name]`	Initiates execution of the application created in Terminal Launcher.
`/q`	Quiet mode (no Cancel dialog box).
`/s`	Suppress errors.

6 Add additional parameters as required.

7 Click *Create*.

The shortcut is created on the desktop and you can deploy it to users in the preferred mode for your organization.

8 Click *Close* to close the Terminal Launcher dialog box.

9 Double-click the short cut.

The terminal emulator application is executed with Terminal Launcher and the Enter your credentials dialog box is displayed.

10 In the *Enter login credentials* fields, specify your username and password.

11 Click *OK*.

SecureLogin stores the login credentials and uses them to log on to the application or a server. Subsequently, double-clicking the desktop shortcut logs the user directly on to the application or a server.

9.2.5 Setting Terminal Launcher Command Line Parameters

To run the required terminal emulator, Terminal Launcher command line parameters are included in the desktop shortcut command. For more information, see Section 9.2.4, “Creating a Terminal Emulator Desktop Shortcut,” on page 105.

The following table lists the parameters (also referred to as switches) you can set in conjunction with commands.

Table 9-2 *Terminal Launcher Command Line Parameters*

Parameter	Description
`/auto`	Indicates to Terminal Launcher that the following is a parameter requesting the execution of a terminal emulator application that is configured for single sign-on. For example: `C:\<....>\TLaunch.exe /auto /pApplication1` **NOTE:** This parameter is mandatory.
`/p[platform/application/Application Definition name]`	Initiates the execution of the terminal emulator as listed in the *Terminal Launcher Login to* field. To run multiple applications from the same command, add `/p[TL application/Application Definition name]` You can run up to fifteen applications simultaneously from the shortcut command line. For example: `C:\<....>\TLaunch.exe /auto /eAttachmate /pApplication1 /pApplication2` **NOTE:** You must type the emulator name exactly as it appears in the *Terminal Launcher Available Emulators* drop-down list.
`/b`	Specifies the background authentication mode.
`/e[emulator name]`	The parameter `/e[Terminal Launcher config name]` initiates the execution of the terminal emulator as listed in the *Terminal Launcher Available Emulators* drop-down list. **NOTE:** You must type the emulator name exactly as it appears in the *Terminal Launcher Available Emulators* drop-down list.
`/h[hllapi short name]`	Commands `TLaunch.exe` to connect to the specified HLLAPI session.
`/k[executable name]`	Quits (kills) the specified executable prior to launching the terminal emulator.
`/m`	Enables multiple concurrent connections to specified sessions. This parameter is required for background authentication.
`/n`	Starts the selected terminal emulator without executing a SecureLogin application definition. For example: `C:\<....>\TLaunch.exe /auto /n` **NOTE:** This parameter does not function with VBA emulators. It overrides `/p` option.
`/n[number 1-15]`	Starts the specified number of terminal emulator sessions without executing SecureLogin application definition. For example: `C:\<....>\TLaunch.exe /auto /n3` **NOTE:** This parameter does not function with VBA emulators. It overrides `/p` option.
`/q`	*Quiet Mode* (no Cancel dialog bSox). For example: `C:\<....>\TLaunch.exe /auto /q`

Parameter	Description
`/s`	Suppress errors.
`/t`	Unlimited timeout during connection. For example: `C:\<....>\TLaunch.exe /auto /eAttachmate /pBackground /b /t /m /hA /s /q`
`/x [Shared Access Rights]`	Setting EHLLAPI shared access for read and write permission between multiple EHLLAPI sessions. For example: `C:\<....>\TLaunch.exe /auto /eAttachmate /pBackground /b /t /m /hA/s /q /xSUPER_WRITE`
`/c`	Allows the application to close iin case of any errors. For example: `C:\<....>\TLaunch.exe /auto /c /Application` Application refers to the terminal emulator application configured for single sign-on.

`/hwnd`	Use this parameter to pass an application handle to the terminal launcher. This parameter indicates the application window the terminal launcher should interact with.
	For example: This is an application definition script that uses `GetHandle` command to get the handle and passes it to TLaunch.exe using the `/hwnd` parameter.
	`GetReg`
	`"HKLM\Software\Microsoft\Windows\CurrentVersion\App Paths\SLProto.exe\Path" ?SLLocation`
	`If ?SLLocation eq "<NOTSET>"`
	`EndScript`
	`EndIf`
	
	`GetHandle ?PuttyHWND`
	`Strcat ?TLaunch ?SLLocation "tlaunch.exe"`
	`Strcat ?TLaunchHWND "/hwnd" ?PuttyHWND`
	`Run ?TLaunch "/auto" "/ePutty" "/l" "/pPutty - Detection and`
	`Login" "/t" "/q" "/s" ?TLaunchHWND`

Table 9-3 *List of session options for EHLLAPI shared access support*

Parameter	Description
`/xWRITE_WRITE`	By default the application has write access and allows only supervisory application to concurrently connect to its presentation space (`WRITE_SUPER`). Using `WRITE_WRITE` parameter allows other applications with predictable behavior to share the presentation space. For example: `C:\<....>\auto /e"Attachmate" /Tlaunch_script /q /s /xWRITE_WRITE`
`/xSUPER_WRITE`	Allows other applications to have write access permissions, while the originating application may only perform supervisory functions.
`/xWRITE_SUPER`	Allows other applications to perform supervisory functions, while the originating application has complete control of the session.

Parameter	Description
`/xWRITE_READ`	Allows other applications that perform read-only functions to share their session, while the originating application has complete control of the session.
`/xWRITE_NONE`	Does not allow any other applications to share the presentation space.
`/xREAD_WRITE`	Allows other applications to write to the session, while the originating application has read-only access.

For more information, see Emulator Programming.

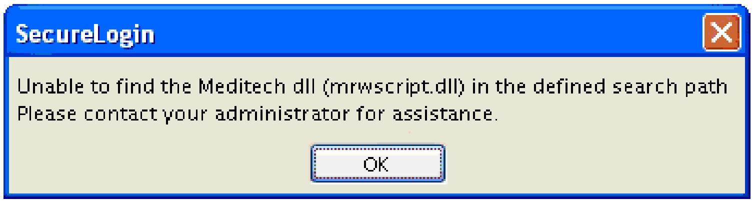
9.3 Support for the MEDITECH Predefined Application

Novell SecureLogin supports MEDITECH 3.*x* and 4.*x*. It is dependant on the mandatory presence of the MEDITECH `mrwscript.dll`. The `.dll` file is provided by MEDITECH and must be installed during the installation of the MEDITECH application on the workstation.

NOTE: If you are an existing customer of Meditech, you can obtain the `mrwscript.dll` as part of your MEDITECH support agreement.

During the installation of the predefined MEDITECH application, SecureLogin detects the presence of the file and immediately warns, if the file cannot be located.

Figure 9-1 *MEDITECH Warning Message*



Unable to find the Meditech dll (mrwscript.dll) in the defined search path
Please contact your administrator for assistance.

9.4 Applications Excluded for Single Sign-On

Although Novell SecureLogin facilitates you to enable single sign-on for Windows, Web, and Java applications; some applications cannot be enabled for single sign-on. The applications that cannot be enabled include certain installers, Novell SecureLogin and Windows system files. Enabling these applications might affect your computer's performance or create a security risk.

These applications are hard-coded and are excluded from single sign-on.

Table 9-4 *Applications excluded from Single Sign-On*

setup.exe	Nwadmn95.exe	acsagent.exe
_isdel.exe	loginw95.exe	adamconfig.exe
msiexec.exe	NWTray.exe	rdbgwiz.exe
MSDEV.exe	loginw32.exe	ProtocomSysTray.exe
devenv.exe	scrnlock.scr	ac.aac.run.exe

SLBroker.EXE	MMC.EXE	SLBroker64.EXE
tlaunch.exe	slwinsso.exe	slwinsso64.exe
SLProto.exe	SLManager.exe	SLManager64.exe
nswebsso.exe	sllock.scr	tlaunch64.exe
Nwadmn32.exe	ConsoleOne.exe	SLProto64.exe
Nwadmnnt.exe	SLLauncher.exe	

9.4.1 Modifying the List

Although the applications disabled for single sign-on are hardcoded, you can modify the behavior by creating a text file at the <*Novell SecureLogin Install path*> For example, at `C:\Program Files\Novell\SecureLogin\` and name it exclude.ini.

NOTE: Despite its extension, the exclude.ini file is not in an `.ini` file format.

You can open this file in any text editor and make the changes. You can extend or modify the list.

You can modify the file in the following ways:

- "Extending the List of Applications" on page 110
- "Including Applications for Single Sign-On" on page 110
- "Disabling the Default Behavior" on page 111

Extending the List of Applications

If you want to disable more applications apart from the hardcoded applications, add the names of the application to the exclude.ini file. For example, you can add `grpwise.exe` to the exclude.ini file. With this, GroupWise is also disabled for single sign-on.

NOTE: If you add an existing application to the list of applications in the exclude.ini file, it does not impact the original list. For example, if you add `SLProto.exe` to the exclude.ini file, it does not impact the function although it is listed twice.

Including Applications for Single Sign-On

If you want to enable only a set of applications for single sign-on, use `Include` keyword in exclude.ini file

In the exclude.ini file add the `Include` keyword to enable an executable for single sign-on. By including the Include keyword, the list is converted to an include list.

For example, when you add

```
Include

Trillian.exe
```

Trillian application is enabled for single sign-on. The next time you log in, you are prompted to enable single sign-on.

Disabling the Default Behavior

If you want to define a custom list for disabling the applications for single sign-on, include the `NoDefault` keyword. When you include the NoDefault keyword, the hardcoded applications are overrided.

For example, if you modify the list as:

```
NoDefault
```

```
NMCL32.exe
```

the hardcoded applications that are disabled for single sign-on is not read by Novell SecureLogin. Instead, the executables listed with the `NoDefault` keyword in the exclude.ini file are considered and all the applications listed in the file are disabled for single sign-on.

10 Reauthenticating Applications

With Novell SecureLogin, when a user runs an applications, Novell SecureLogin seamlessly retrieves the user's application credentials and authenticates in the background so that the user is not promoted to specify the password. You can also configure Novell SecureLogin to prompt the user for stronger authentication to all or specific applications.

Individual applications can be re-authenticated against an advanced device where Novell SecureLogin is used in conjunction with for example: Novell® NMAS™ infrastructure. This does not require you to run a dedicated application definition.

You can configure Novell SecureLogin to request application reauthentication by using one of the following methods:

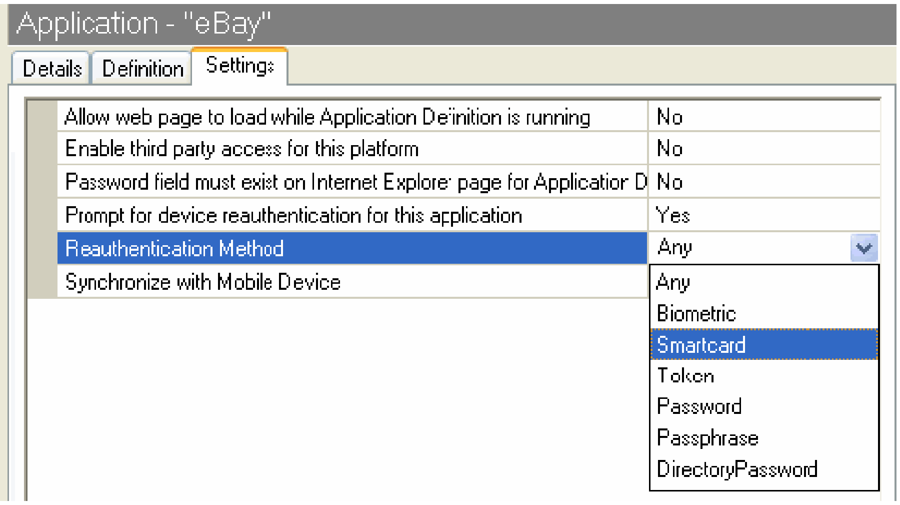
- Section 10.1, "Using the Administrative Management Utility to Reauthenticate Applications," on page 113
- Section 10.2, "Using the Application Definition Wizard to Reauthenticate Applications," on page 114
- Section 10.3, "Using the AAVerify Command to Reauthenticate Applications," on page 114

NOTE: For environments that use the Novell NMAS infrastructure, you can add the NMAS method in the *Reauthentication Method* (in the wizard login form definition screen) value by providing a free text string from Novell.

10.1 Using the Administrative Management Utility to Reauthenticate Applications

Use the procedure in this section if you have NMAS in place against an application:

1. Launch SLManager.
2. Click *Applications*. The Application pane is displayed.
3. Double-click the application that you want to use for reauthentication.
4. Click the *Settings* tab. The Settings Properties table is displayed.
5. Set the value for *Prompt for device reauthentication for this application* to *Yes*.
6. From the *Reauthentication Method* drop-down list, select the device that you will use for reauthentication. Click *Any* if you want the user to choose from any of the available methods.



Allow web page to load while Application Definition is running	No
Enable third party access for this platform	No
Password field must exist on Internet Explorer page for Application D	No
Prompt for device reauthentication for this application	Yes
Reauthentication Method	Any
Synchronize with Mobile Device	

NOTE: This option is not available through the iManager SSO plug-in

10.2 Using the Application Definition Wizard to Reauthenticate Applications

When creating an application definition to handle an application login screen through the application definition wizard, you can configure to reauthenticate applications.

Refer the *Novell SecureLogin Application Definition Wizard Administration Guide* for detailed information.

10.3 Using the AAVerify Command to Reauthenticate Applications

Use the `AAVerify` command to enforce stronger application-based reauthentication such as biometric, token, or smartcard login authentication. The applications cannot enforce these natively.

The `AAVerify` command requests the pre-configured strong reauthentication method before Novell SecureLogin retrieves and enters the username and password for the application.

For more information on the `AAVerify` command, read "AAVerify " in the *Novell SecureLogin Application Definition Guide*.

11 Managing Application Definitions

This section provides information on the following:

11.1 Responding to Application Messages

When building an application definition for an application using the wizard, it is very important to respond appropriate to any message that the wizard displays. You must include actions for each of these messages in the application definition for Novell SecureLogin to function correctly.

11.2 Responding to Login Notifications

A login notification is a message that the application displays after Novell SecureLogin has submitted the credentials to notify you. For example, the login notification might indicate that you have specified a wrong password.

You can define how Novell SecureLogin must handle login notifications in your application definition. Refer the for information on configuring Novell SecureLogin to handle login notifications.

11.3 Adding Support for Password Changes

Depending on your organization's policies regarding password expiration, users might be required to change their passwords on a regular basis. Each time user password is changed for an application that is enabled for single sign-on, SecureLogin must update the password data. To ensure that user password changes are updated in SecureLogin, it is important to configure SecureLogin to respond to the Change Password dialog box.

You can configure SecureLogin to automatically generate a new password (according to password policy, if required) whenever the Change Password dialog box is displayed. A randomly generated password is safer than user-defined, reusable passwords.

11.4 Responding to Change Password Notification

A change password notification is a message that the application displays after a Novell SecureLogin has submitted a new password. This might be either a confirmation or error message. This notification is important to Novell SecureLogin because it must update credentials of the application when they are updated by the user. If a password change notification is not defined Novell SecureLogin prompts the user to define the notification, after changing the password.

12 Adding Multiple Logins

Novell SecureLogin allows you to enable multiple logins for single sign-on to the same application. Before enabling your additional logins for single sign-on, make a list, including usernames and passwords, with a name to uniquely identify the login.

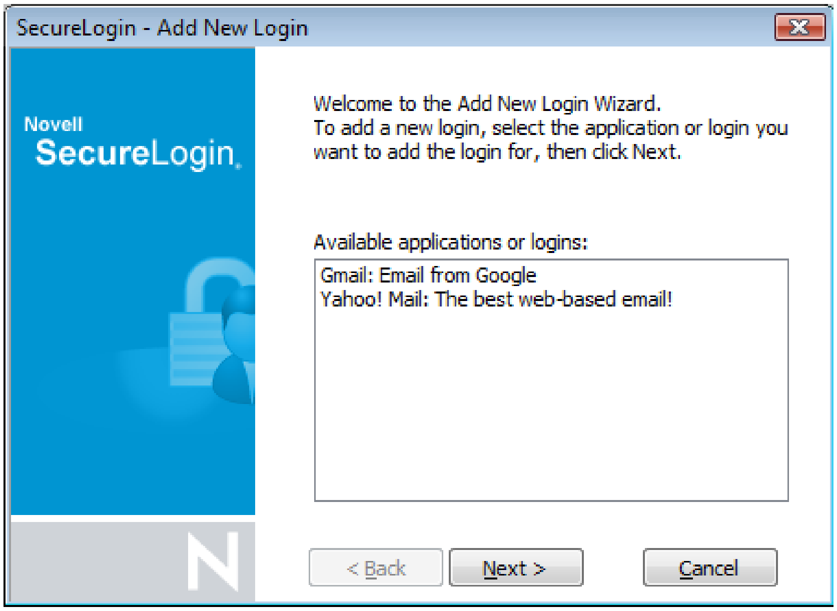
The following is an example list:

Table 12-1 *List of Additional Logins*

Name	User Name	Password
Administrator	admin	123456
Support	help	abcdef
User	test1	xyz123

When the list is completed, use it to provide information as you complete the following procedure:

1. Enable the first account for single sign-on.
2. In the notification area (system tray), right-click the Novell SecureLogin icon, then select *New Login*. The Add New Login Wizard Welcome page is displayed.



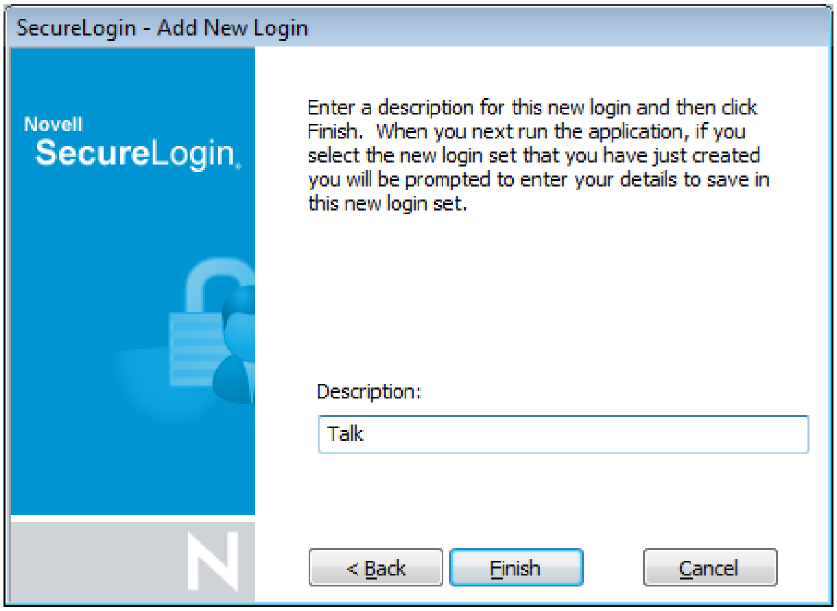
Welcome to the Add New Login Wizard.
To add a new login, select the application or login you want to add the login for, then click Next.

Available applications or logins:

Gmail: Email from Google
Yahoo! Mail: The best web-based email!

3. Select the application for which you want to add another login. Let us consider, Gmail.
4. Click *Next*.

5 In the *Description* field, specify a descriptive name for the login. For example, Talk.



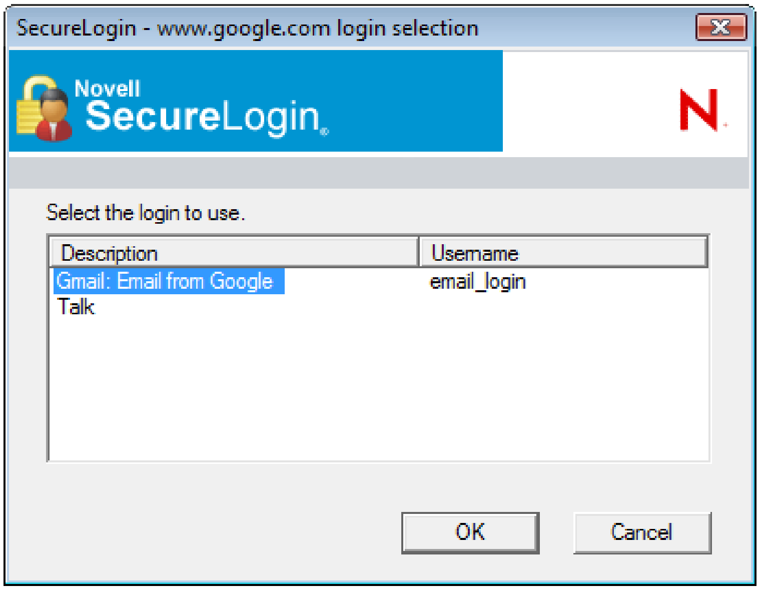
Enter a description for this new login and then click Finish. When you next run the application, if you select the new login set that you have just created you will be prompted to enter your details to save in this new login set.

Description: Talk

6 Click *Finish*.

7 Start the application.

The `[application]` login selection dialog box is displayed.



Select the login to use.

Description	Username
Gmail: Email from Google	email_login
Talk	

8 Select the required login credential set, then click *OK*.

SecureLogin enters the credentials, and you are automatically logged on to the application.

13 Distributing Configurations

This section provides information on the following:

13.1 About Distributing Configurations

SecureLogin preferences, application definitions, password rules, and credentials are collectively the SecureLogin configured user environment. You can deploy and maintain this environment at all object levels, including by file import or backup to stand-alone users and through Group Policy Objects in Active Directory networks.

A single sign-on environment that is configured at the container, organizational unit, or Group Policy level is inherited by all associated directory objects in the hierarchy.

Eenable applications for single sign-on locally, in a test user account, then copy to the container, OU or Group Policy level for mass deployment. This applies to all SecureLogin configurations, including password policies and preferences. Lower-level settings that you manually configure always override higher-level settings. Therefore, configuration at the user object level overrides all higher level configuration settings. You can manually disable inheritance by selecting *Yes* next to *Stop walking here* in the *Preferences* Properties table.

13.2 Distributing Configurations Within Directory Domains

There are two options for distributing the single sign-on-configured environment within the domain:

- **Corporate Redirection:** Specifies the object from which the selected object will inherit its SecureLogin configuration settings.
- **Copy SecureLogin Configuration:** Replicates and stores the SecureLogin environment from one directory object to another.

Choose the appropriate option based on the additional information in the following table:

Table 13-1 *SecureLogin Configuration Options*

If	Then
◆ Multiple containers or organizational units require the same SecureLogin environment, and you want to manage configuration from one directory object. ◆ Inheritance from a higher level than the object selected for Corporate Redirection is not required. ◆ The container or OUs are on the same directory tree.	Click *Corporate redirection*.
Do not use Corporate redirection across a LAN or WAN.	
◆ You want to distribute configurations within the same domain across a LAN or WAN. ◆ You want to quickly replicate a complete SecureLogin configuration environment from one object to another in the directory. ◆ You do not want to use XML files to distribute SecureLogin configuration data.	Click *Copy SecureLogin configuration*.

13.3 Setting Corporate Redirection

The Corporate Redirection policy distributes SecureLogin settings of a specified object, which can be a container or an organizational unit, to another directory. When this policy is enabled, the receipient directory ignores the SecureLogin settings of its parent directory and inherits the SecureLogin settings of the specified object. The inherited SecureLogin configurations can include enabled applications, password rules, or any other settings.

Before you set corporate redirection, the Administrative Management utility must be active.

Corporate redirection cannot be applied to a group object because they are not part of the hierarchy but linked to it.

Consider the following example:

1. Create two directory containers (OU's) under `O=novell`:
   - `ou_apps`
   - `ou_users`
2. Create a user (`user1`) in `ou_users` (`user1.ou_user.novell`).
3. Create SecureLogin applications and, or define settings on the `ou_apps.novell` container.
4. Set corporate redirection on `ou_users.novell` to point to `ou_apps.novell`. The following is seen:
   - `user1` has applications and settings defined at `ou_apps.novell`.
   - `user1` also has its own applications and settings.

You can configure the *Corporate redirection* preference only to be redirected to a specific organizational unit or container.

- When set to a user, the user does not inherit any SecureLogin preferences from their nominal hierarchy but from the other organizational unit or container.
- When applied to an organizational unit or container, any user in that object does not inherit SecureLogin preferences from its container settings. It inherits from the other organizational unit or container.

To get the correct inheritance, users must be granted the correct rights to inherit from other object. The inheritance process stops at the redirected container. There is no inheritance from the redirected object's hierarchy.

In the following example, the Finance organizational unit is redirected to inherit the SecureLogin configuration from the Development organizational unit.

1. Launch the Administrative Management utility (iManager, SLManager, or MMC snap-ins).
2. Click *Advanced Settings*. The Advanced Settings pane is displayed.
3. Specify the full distinguished name of the object in the *Corporate redirection* field.

   NOTE: The full distinguished name is required to uniquely identify the container or organizational unit.

   In this example, the Development organizationa unit (ou=development,dc=training7,dc=com)
4. Click *Apply*.
5. Click *OK*.

   Click *Applications* to view the application definitions inherited from the object. Click *Preferences* to view the inherited preferences. In this example, the preferences inherited from the Development ou.

   Ensure that you do not overwrite administrator settings when distributing SecureLogin configuration environments. For example, if you set the preference *Allow users to view and change settings* to *No* and then copy this to the container or organizational unit as part of a SecureLogin environment, including the Administrator user object, the administrator cannot view or change SecureLogin settings because they reside in that organizational unit. To prevent this from happening, all administrator user objects should be located in a separate organizational unit, and administrator preferences should be manually configured.

13.4 Setting Corporate Redirection with eDirectory

The Corporate Redirection functionality bypasses the Microsoft Active Directory, Novell eDirectory™ inheritance by specifying the source object from which the current object inherits its single sign-on configuration. Although inheritance is redirected to a specific object, such as a container or organizational unit, local user object settings continue to override the inherited settings.

With the introduction of the eDirectory group membership feature in the Novell SecureLogin, you must make additional attribute assignments to the group objects. This is primarily required when users are using different administrative management utilities such as NWAdmin, ConsoleOne, or iManager.

IMPORTANT: This is required if you wish to use group management after upgrading to Novell SecureLogin 6.1, 6.1 SP1, or later.

To use the eDirectory group membership feature, you must run the new ndsschema tool to correctly set the group, user, and container assignments before upgrading to Novell SecureLogin 7.0.

You can resolve this in one of the following ways:

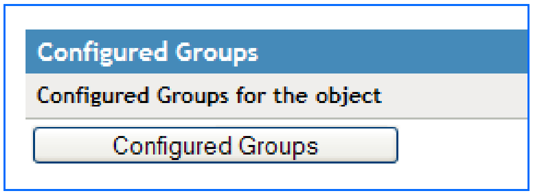
- Run the ndsschema tool to assign the necessary rights and attributes or schema assignments to the group objects.
- Manage through iManager by running the Novell SecureLogin 7.0 plug-in.

13.5 Configuring Groups Within eDirectory

1. Launch the Administrative Management utility (iManager, SLManager, or MMC snap-ins).
2. Specify the distinguished name of the container object you want to modify.

   NOTE: You can modify only container object to configure group.

3. Select *Advanced Settings* > *Configured Groups*. The Group Configuration dialog box is displayed.



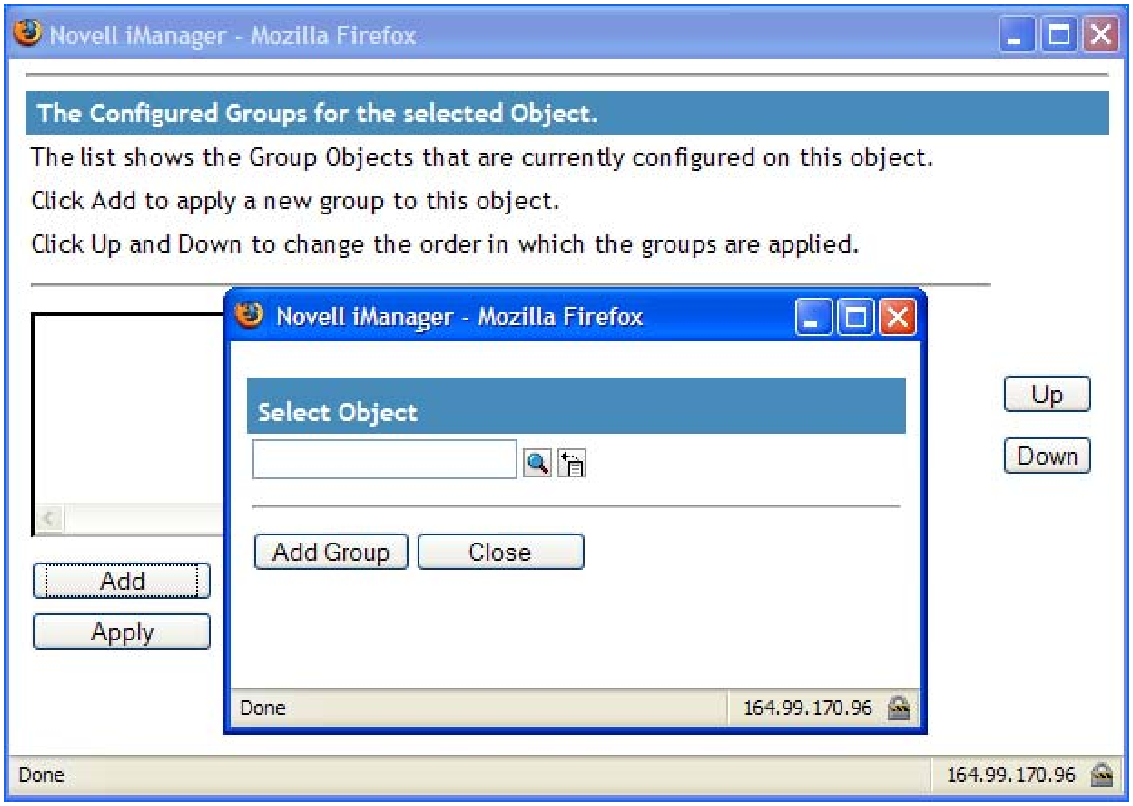
Configured Groups

Configured Groups for the object

4. Click *Add*. The Adding a group dialog is displayed.

   The list shows the group objects configured in the current object.

5. Provide the distinguished name of the group object.


Novell iManager - Mozilla Firefox
Up
Down
Add
Apply
Novell iManager - Mozilla Firefox
Add Group
Close
Done
164.99.170.96
Done
164.99.170.96

The Configured Groups for the selected Object.

The list shows the Group Objects that are currently configured on this object.

Click Add to apply a new group to this object.

Click Up and Down to change the order in which the groups are applied.

Select Object

6 Click *OK* to add the new group object. The Group Configuration dialog is displayed.

Use the *Up* and *Down* options to promote or demote the order in which the group policies are applied.

NOTE: Within the Group Configuration, the higher group takes precedence.

Configured groups can only be set against containers like O and OU and not set against a user object. In such a case, contrary to the earlier statement, the higher container takes the lower precedence.

After you have configured single sign-on settings for Dynamic Group, the configuration is not reflected iManager for member users.

However, the configured settings are available in the Client when Novell SecureLogin is launched.

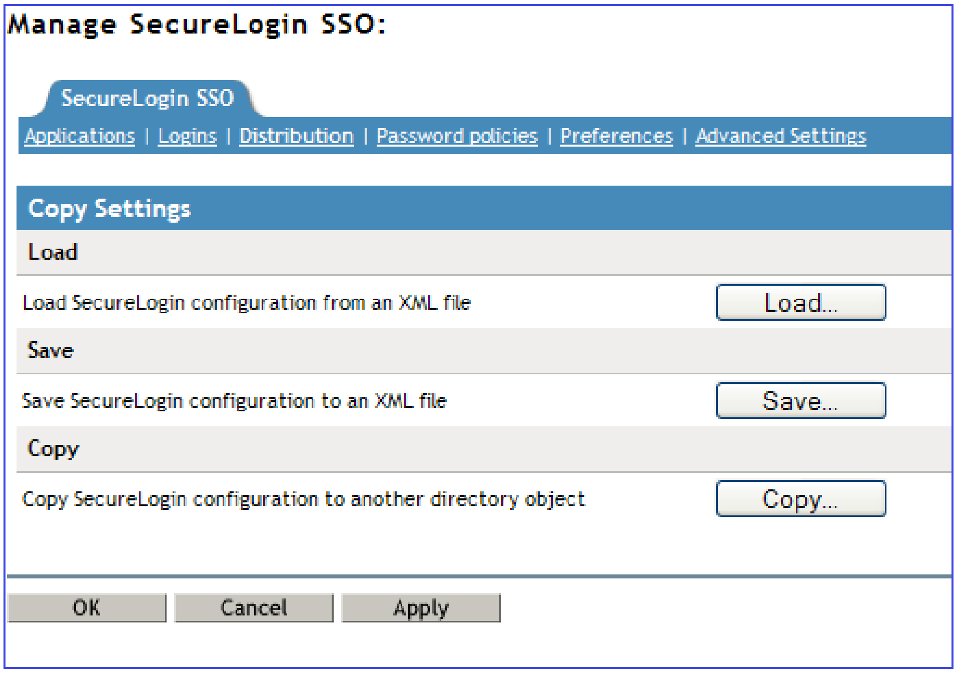
13.6 Copying a Configuration Across Organizational Units

You can copy an object's SecureLogin configuration to another object from the *Distribution* pane in the Administrative Management utility. This functionality replicates the SecureLogin configuration internally in the same directory tree.

NOTE: In the following example, the Development organizational unit SecureLogin environment is copied to the Finance organizational unit.

1 Launch the Administrative Management utility (iManager or SLManager).

2 Click *Distribution*. The Distribution pane is displayed.



Manage SecureLogin SSO:

SecureLogin SSO
Applications | Logins | Distribution | Password policies | Preferences | Advanced Settings

Copy Settings

Load

Load SecureLogin configuration from an XML file

Save

Save SecureLogin configuration to an XML file

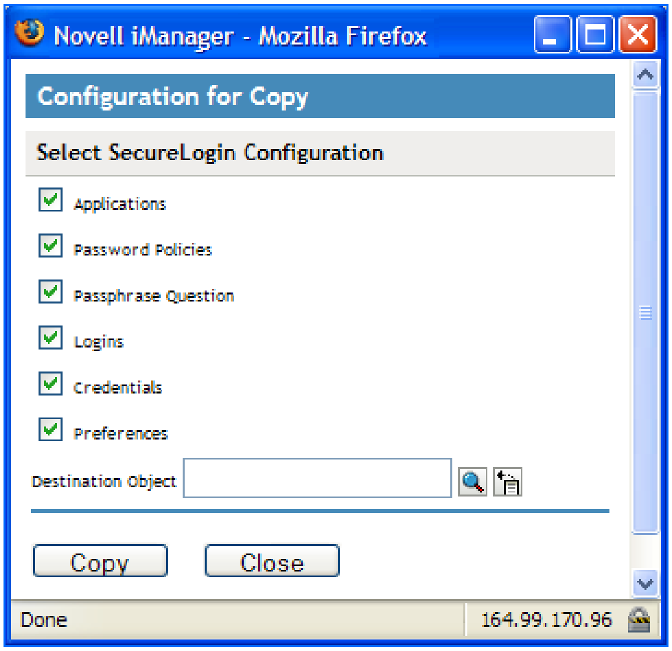
Copy

Copy SecureLogin configuration to another directory object

3 Click *Copy*. The Copy dialog box is displayed.

4 Under *Select SecureLogin Configuration,* select or clear the appropriate check boxes.

Configuration	Function
Applications	Copies, exports, or imports all configured application definitions, as displayed in the Applications pane.
Credentials	Copies, exports, or imports all credentials as displayed in the Logins pane, excluding passwords for copy settings and uninterrupted export/import.
Password Policies	Copies, exports, or imports password policies as displayed in the Password Policies Properties table
Preferences	Copies, exports, or imports all preferences manually set in the Preferences pane.
Active Passphrase Question	Provides users with a selection of passphrase questions. This option copies, exports, or imports only the passphrase question the user has responded to.



Configuration for Copy

Select SecureLogin Configuration

☑ Applications

☑ Password Policies

☑ Passphrase Question

☑ Logins

☑ Credentials

☑ Preferences

Destination Object

5 In the *Destination Object* drop-down list, click the name of the object or type the full distinguished name in the box.

6 Click *Copy*.

If a predefined application or an application definition currently exists in the destination object, a confirmation message appears. It confirms or rejects the overwriting of the imported data.

7 Click *Yes* or *No* as required.

The selected SecureLogin configuration is copied across to the destination user object, organizational unit or container. A confirmation message appears, advising what information has been loaded to the destination object.

8 Click *OK*.

13.7 Creating an Active Directory Group Policy

13.7.1 Group Policy Object Support

Prerequisites:

- Novell SecureLogin is installed with support for group policies.
- The Active Directory Users and Computers snap-in or Group Policy Management Console is open

Using Group Policy object support, you can manage SecureLogin users in Active Directory users at the container, OU, and user object levels.

Group Policy object support is useful for organizations with flat directory structures where a more granular approach is required when applying settings, policies, and application definitions for users. For example, applying a group policy for a global marketing group in a worldwide organization. Several group policies can be defined and applied to any user, group, or container at the directory level. These different policies are then applied to a specific user object or container or organizational unit through the inheritance process.

To limit network traffic during the Group Policy object synchronization, Novell SecureLogin leverages an existing Microsoft Windows feature to specify policy settings that are updated when the group policy object changes.

In the SecureLogin GPextensions in the Windows Registry, set the `NoGPOListChanges` key to 1.

```
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows
NT\CurrentVersion\Winlogon\GPExtensions\{2893059c-1175-11d9-8088-00e018f97d4d
```

For more information on Microsoft Windows Group Policy configuration, see the Microsoft Web site. (http://www.microsoft.com/windows/windows2000/en/advanced/help/ComputerADM.htm)

For information on the Registry `NoGPOListChanges` setting, see the Microsoft Web site. (http://www.microsoft.com/technet/prodtechnol/windows2000serv/reskit/regentry/93807.mspx?mfr=true)

13.7.2 Group Policy Management Console Support

In Novell SecureLogin, you can see the resultant set of single sign-on policy settings that apply to a particular user object when multiple SecureLogin group policies and organizational unit or user object setting are applied through the Microsoft's Group Policy Management Console (GPMC), which now includes support for Resultant Set of Policy (RSOP).

NOTE: The GPMC must be installed on the administrative workstation where you want to see the resultant set of policies.

Resultant Set of Policy Settings

The Resultant Set of Policy (RSOP) is a feature of a group policy that makes the implementation, troubleshooting, and planning of group policies easier and allows you to plan how the group policy changes might affect a targeted user or computer or remotely verify the policies under effect on a specific computer.

When multiple group policy objects are applied to a given user or computer, the policy can often contain conflicting policy settings. For most policy settings, the final value of the setting is set only by the highest precedent Group Policy object that contains that setting.

RSOP assists directory administrators to understand and identify the final set of policies that are applied as well as settings that did not apply as a result of policy inheritance.

In this version of Novell SecureLogin, you can see the final SecureLogin settings that apply to a user when he or she starts Novell SecureLogin. You have the ability to do the following:

- Retrieve the policy applied to the user object in the Microsoft Management Console.
- Retrieve the policy applied to the user object in the SLManager.
- Define from which policy the setting is inherited.

13.7.3 Definition of a Group Policy Object

IMPORTANT: Group policy functionality is enabled during the installation of Novell SecureLogin in Microsoft Active Directory mode. For more information, see the "Installing and Configuring in Active Directory Environment".

For more information about Group Policy Objects (GPOs), go to the Microsoft Web site. (http://technet.microsoft.com/en-us/windowsserver/grouppolicy/default.aspx)

Policy settings are stored in Group Policy Objects (GPOs). Settings for each GPO can be edited using the GPO Editor from within Microsoft's Group Policy Management Console (GPMC).

When an administrator defines a Novell SecureLogin GPO, they can now use the GPMC to add this group policy or edit and configure the SecureLogin settings.

13.7.4 Adding or Editing a Group Policy Object

Policy settings are stored in Group Policy object settings for each Group Policy object can be edited using the Group Policy object editor from Microsoft's GPMC.

The group policy functionality is enabled during the installation of SecureLogin in either Microsoft Active Directory mode. For more information see, "Installing and Configuring in Active Directory Environment"in the *Novell SecureLogin Installation Guide*.

When you define a SecureLogin Group Policy Object, users can use the GPMC to add this group policy or edit and configure the SecureLogin settings.

13.7.5 Installing the GPMC Plug-In

With the Microsoft's GPMC plug-in, you can manage core aspects of Group Policy object across enterprises.

For Microsoft Vista customers, the GPMC snap-in is already integrated in to the operating system.

Existing Windows XP and Server customers can download the `gpmc.msi` installer package at the Microsoft Web site (http://www.microsoft.com/windowsserver2003/gpmc/default.mspx).

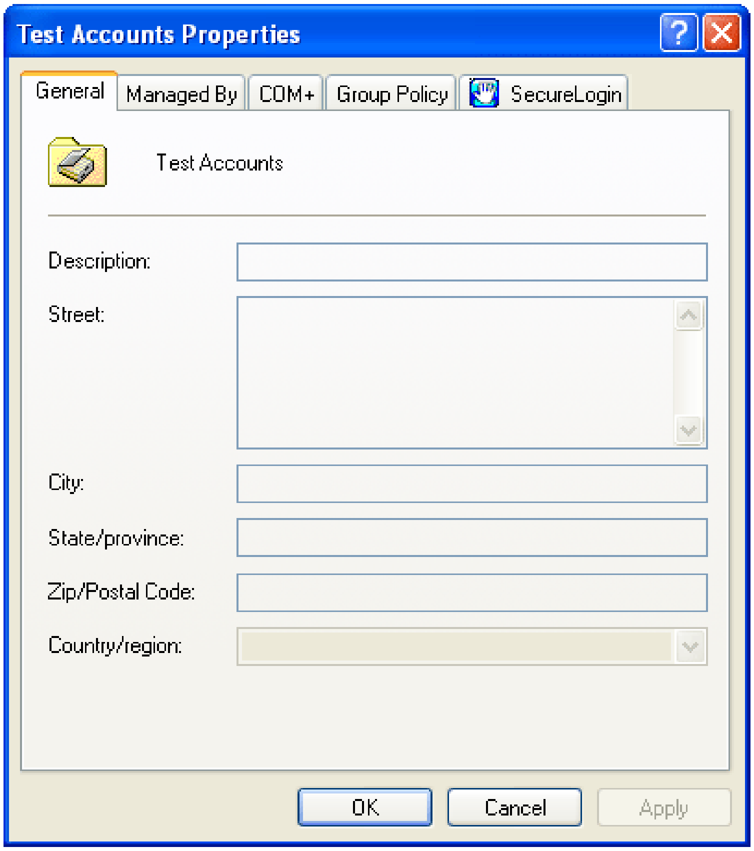
Installing the Microsoft GPMC plug-in simply involves running the gpmc.msi installer package.

NOTE: After installation, the *Group Policy* tab that previously appeared on the Property pages of sites, domains, and organizational units in the Active Directory plug-in is updated to provide a direct link to GPMC. The functionality that previously existed on the original *Group Policy* tab is no longer available because all functionality for managing a Group Policy is available through the GPMC plug-in.

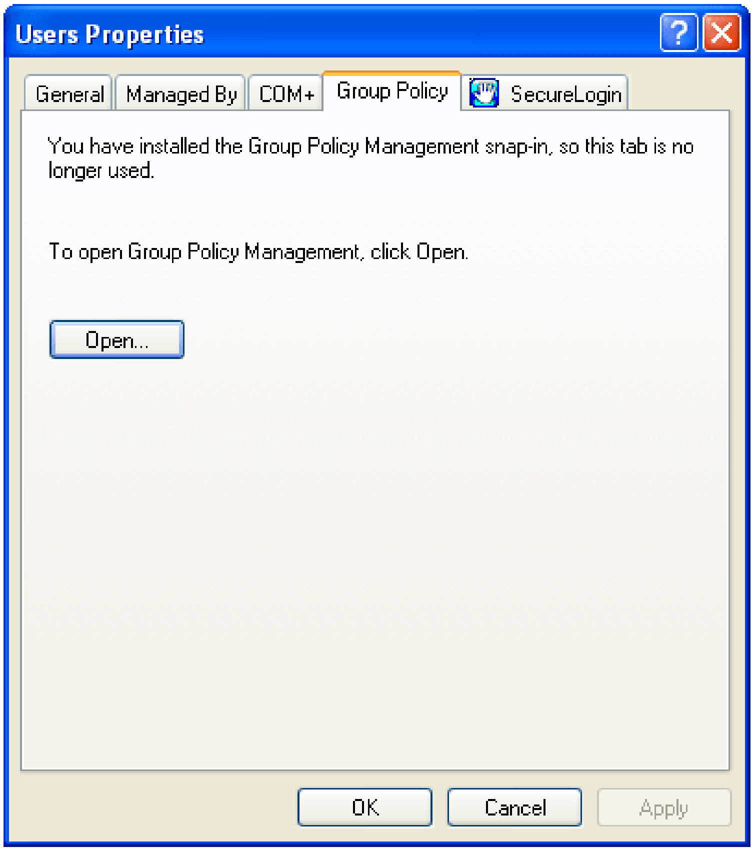
Managing Group Policy Objects through the GPMC

Use any of the following methods to open the GPMC plug-in directly:

- Click *Start* > *Programs* > *Administrative Tools* > *Active Directory Users and Computers*. The Active Directory Users and Computers page is displayed.
- In the navigation tree, right-click the appropriate organizational unit, then click *Properties*. The selected organizational unit page is displayed.



- Click *Group Policy*, then click *Open*.



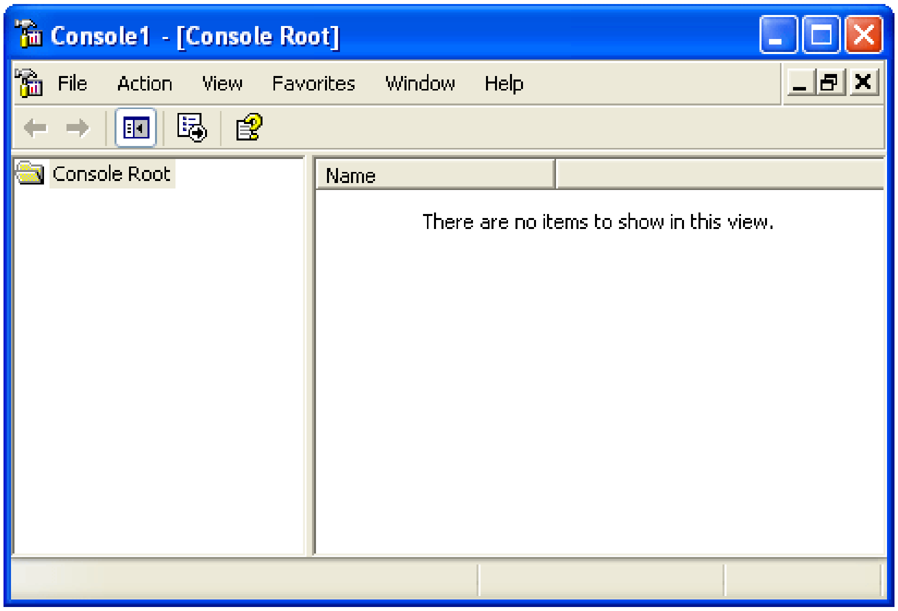
You have installed the Group Policy Management snap-in, so this tab is no longer used.

To open Group Policy Management, click Open.

- Click *Start* > *Programs* > *Administrative Tools* > *Group Policy Management*.
- Click *Start* > *Run*. The Run page is displayed.

1 At *Open*, type `mmc`.

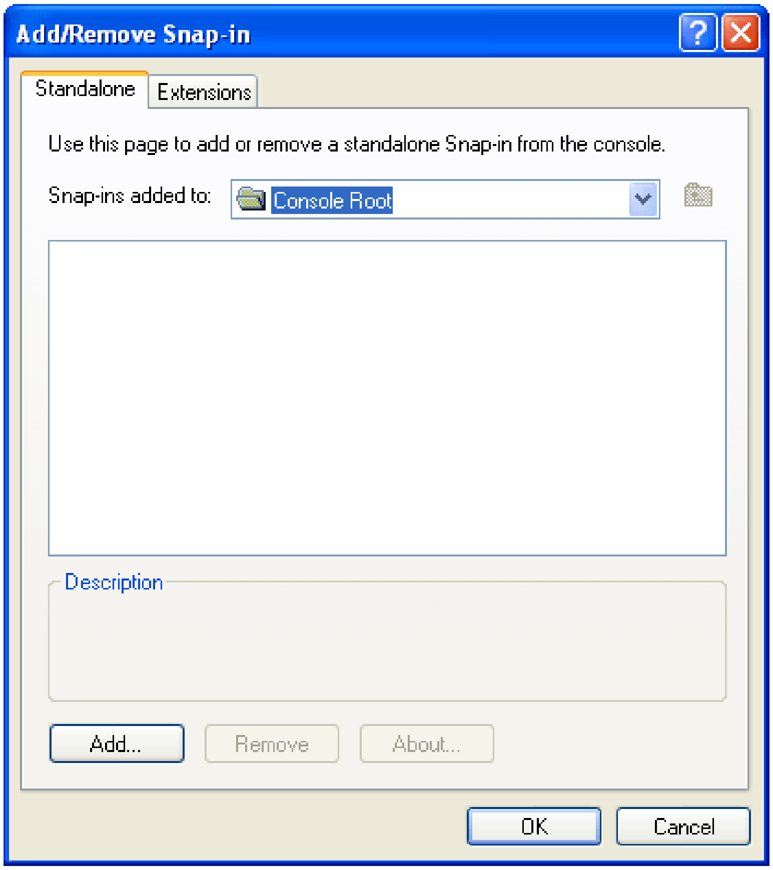
2 Click *OK*. The Management Console is displayed.



There are no items to show in this view.

3 Click *File*.

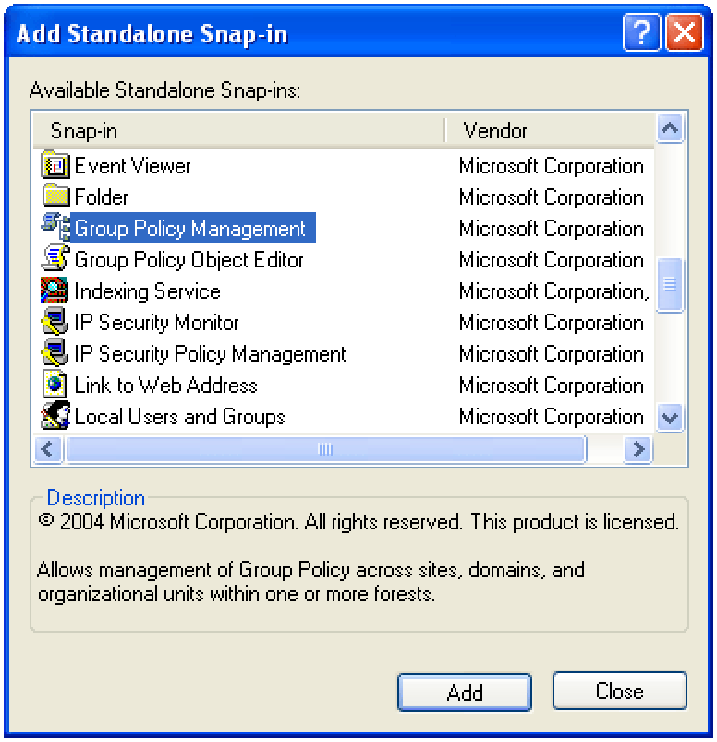
4 Click *Add/Remove Snap-in*. The *Add/Remove* page is displayed.



Use this page to add or remove a standalone Snap-in from the console.

Snap-ins added to: Console Root

5 Click *Add*. The Add Standalone Snap-in page is displayed.



Available Standalone Snap-ins:

Snap-in	Vendor
Event Viewer	Microsoft Corporation
Folder	Microsoft Corporation
Group Policy Management	Microsoft Corporation
Group Policy Object Editor	Microsoft Corporation
Indexing Service	Microsoft Corporation,
IP Security Monitor	Microsoft Corporation
IP Security Policy Management	Microsoft Corporation
Link to Web Address	Microsoft Corporation
Local Users and Groups	Microsoft Corporation

Description

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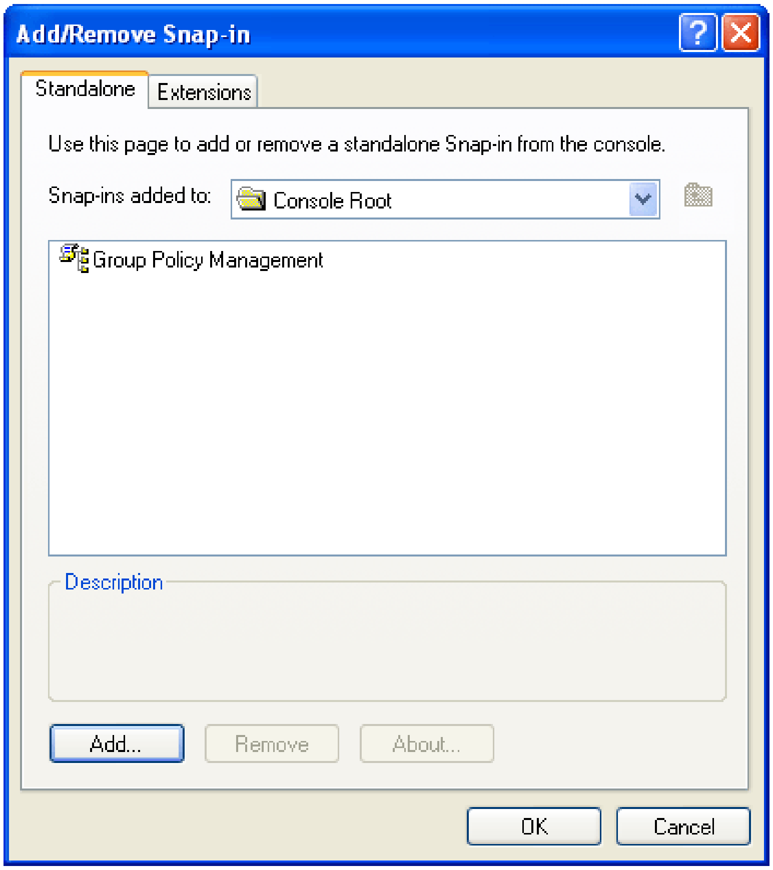
Allows management of Group Policy across sites, domains, and organizational units within one or more forests.

6 Select *Group Policy Management* and then, click *Add*.

7 Click *Close*. The Add Standalone Snap-in page is displayed.



Use this page to add or remove a standalone Snap-in from the console.

Snap-ins added to: Console Root

Group Policy Management

8 Click *OK*. The Group Policy Management page is displayed.

NOTE: When you launch the GPMC for the first time, it loads the forest and domain containing the user object logged in to the computer. You can then specify the forest and domain to be displayed.

When you close the GPMC, it automatically saves the last view and returns that view the next a user opens the console.

13.7.6 Retrieving a Policy Applied to the User Object in GPMC

The definition of the Group Policy Objects are defined by the administrator at the directory level, so changes can now be seen immediately at the OU, container or user object level, depending on the level where the group policies have been applied and the SecureLogin preferences applied.

These settings must follow the rules already defined of inheritance and precedence:

- The *Stop walking here* preference
- The *Corporate Redirection* setting
- The Group Policy object settings and their priorities
- The directory hierarchy settings

The precedence rules are respected and follow the rules already defined:

- The deepest object in the tree has the precedence over any other higher-level object
- The group policies have the lower precedence than all OUs and User objects.

As a consequence of all these processes, the administrator can now see the resultant set of the policies in the user object either through MMC interface or administrative management utilities.

The resultant set of policies are displayed in the bottom left hand corner of the SecureLogin Administration Management utility. They show from which Group Policy the current setting has been inherited.

NOTE: The retrieval of all SecureLogin configuration information is subject to both SecureLogin and native Directory access controls. In the unlikely circumstance that the user has rights to read a Group Policy object but the administrator does not, this system displays incorrect effective configuration information. This is because the administrator simply cannot access the same information as the user, and any mechanism for allowing this would introduce a security problem.

In this specific configuration, if SecureLogin has no way to retrieve the exact policy applied to the user object, then a message is displayed indicating that the information displayed does not correspond to the resultant set of policies applied to this user object. The message *RSOP not available* is displayed in the bottom left side of the Administration Management console.

13.7.7 Retrieving a Policy Applied to the User Object in SLManager

Because the definition of the Group Policy objects are performed by you at the directory level, any changes are now seen immediately at the OU, container, or the user object level, depending on the level where the group policy is applied and the Novell SecureLogin preferences is applied.

14 Exporting and Importing Configurations

The export and import functionality of SecureLogin creates an XML file that is external to the directory. You can distribute and back up this file across directory types, servers, domains, containers, group policies, organizational objects, and user objects.

You can also copy configurations to a container, which is internal to the directory.

You can export or import the following XML file types:

- Unencrypted.
- Encrypted and password-protected.

NOTE: Data exported to XML by iManager can be imported only through iManager.

Data exported to XML by SLManager can be imported only through SLManager.

If you try importing a configuration exported through SLManager, a Java warning message indicating, `java.lang.NullPointerException : null` is displayed.

You cannot export through iManager and import using SLManager or vice versa.

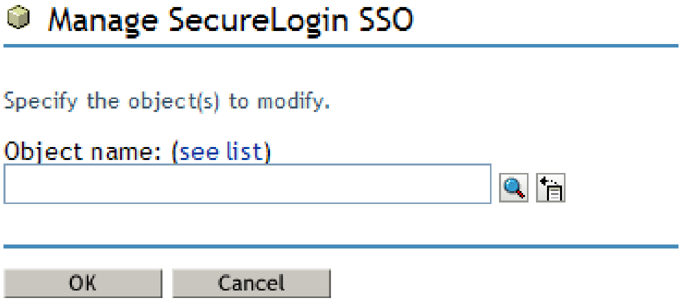
Some of the features explained in this section are available only in SLManager. Such features are explicitly indicated. Otherwise, all the features are available in both the administrative management utilities.

14.1 Exporting XML Settings

If you use iManager to export or import a configuration, you must use iManager only to either export or import. You cannot export through iManager and import using SLManager.

To export XML settings:

1. Log in to iManager.
2. Select *Novell SecureLogin* > *Manage SecureLogin SSO*. The Manage Novell SecureLogin page is displayed.
3. In the object field, specify your object name, then click *OK*.

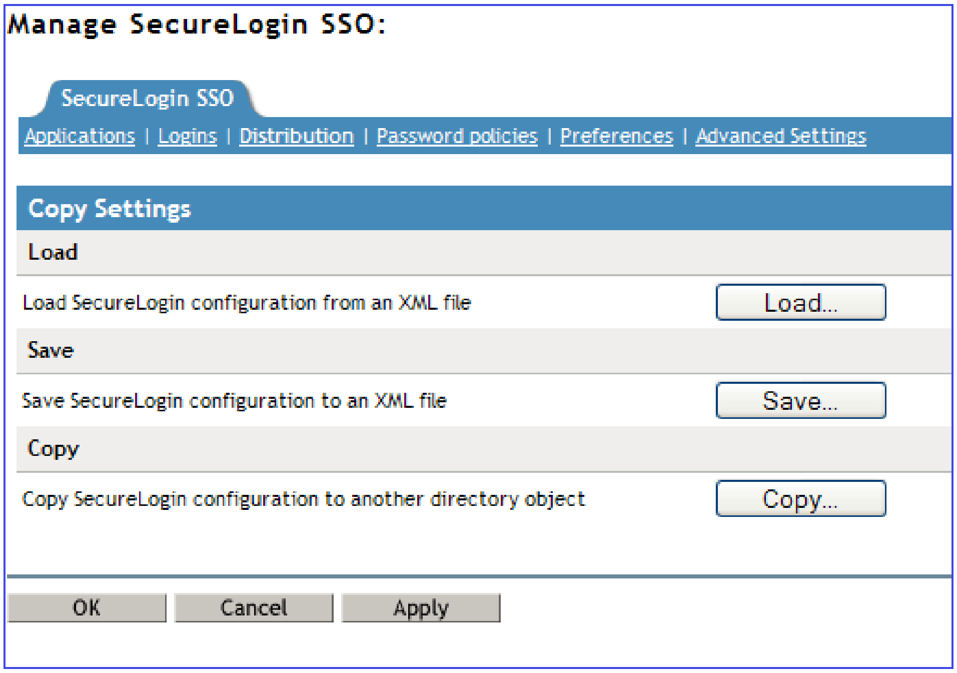


Manage SecureLogin SSO

Specify the object(s) to modify.

Object name: (see list)

4 Click *Distribution*. The distribution details are displayed.



Manage SecureLogin SSO:

SecureLogin SSO
Applications | Logins | Distribution | Password policies | Preferences | Advanced Settings

Copy Settings

Load

Load SecureLogin configuration from an XML file

Save

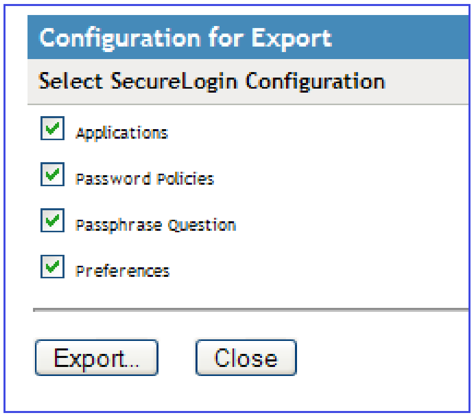
Save SecureLogin configuration to an XML file

Copy

Copy SecureLogin configuration to another directory object

5 Click *Save*. The Configuration for Export dialog box is displayed.

6 Under *Select SecureLogin Configuration*, select the configuration(s) you want to export.



Configuration for Export

Select SecureLogin Configuration

☑ Applications

☑ Password Policies

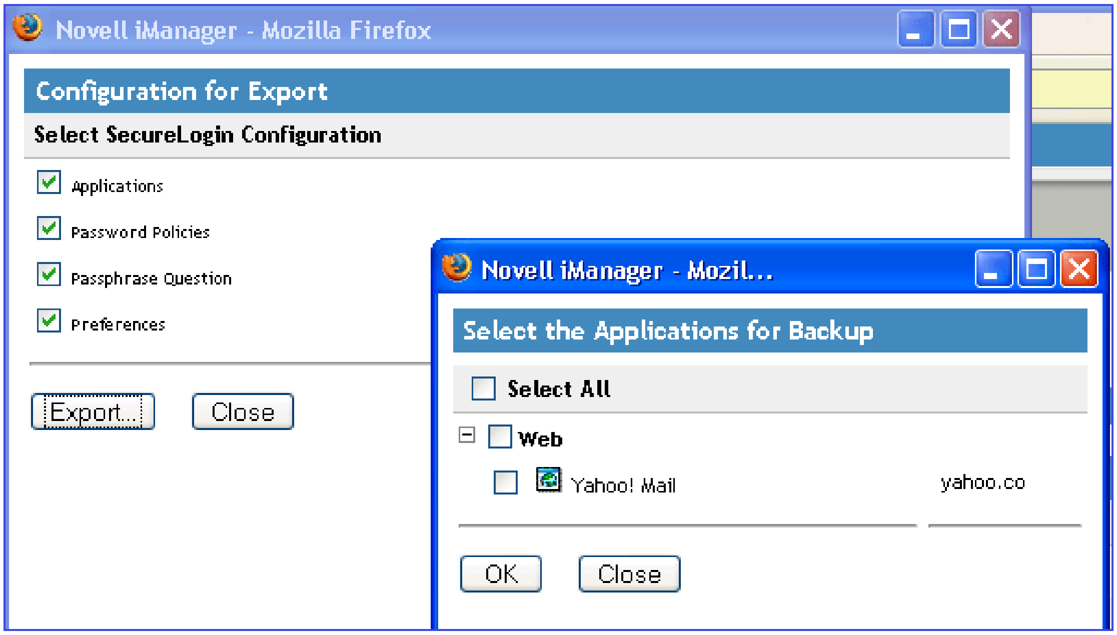
☑ Passphrase Question

☑ Preferences

Configuration	Function
Application	Exports all configured application definitions as displayed in the *Application* pane.
Credentials	Exports all credentials as displayed in the *Logins* pane, excluding passwords for copy settings and unencrypted export or import.
Password Policies	Exports password policies as displayed in the *Password Policies Properties* table.
Preferences	Exports preferences manually set in the *Preferences Properties* tables.

7 Click *Export*. The Select the Applications for Backup page is displayed.

8 Select the applications you want to backup.



Novell iManager - Mozilla Firefox

Configuration for Export

Select SecureLogin Configuration

☑ Applications

☑ Password Policies

☑ Passphrase Question

☑ Preferences

Novell iManager - Mozil...

Select the Applications for Backup

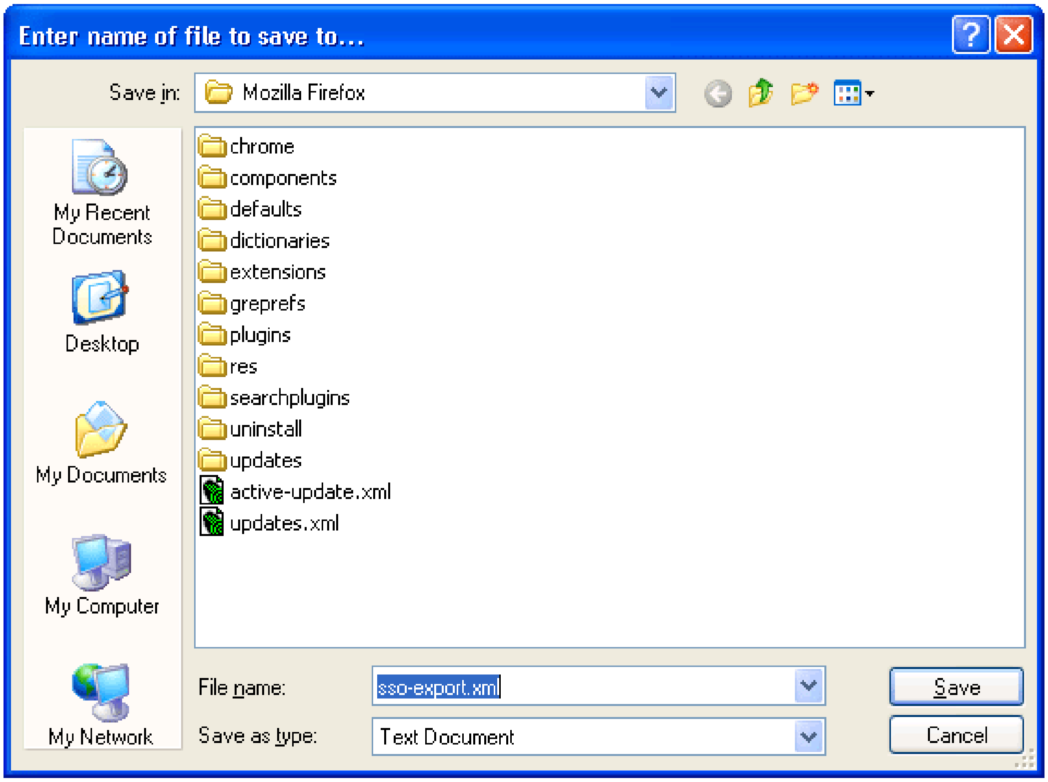
□ Select All

⊟ □ Web

□ Yahoo! Mail yahoo.co

9 Click *OK*. The Save File As dialog box is displayed.

10 Provide a name to the file, select the file location, and click *Save*.



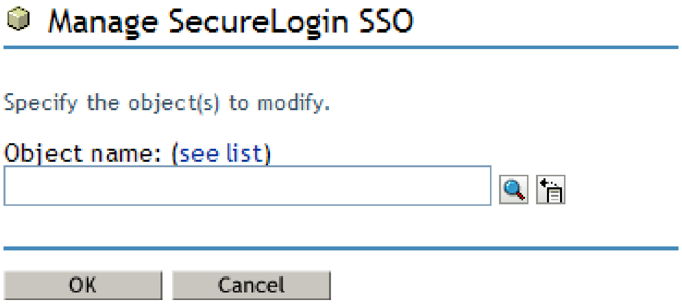
File name: sso-export.xml

Save as type: Text Document

14.2 Importing XML Settings

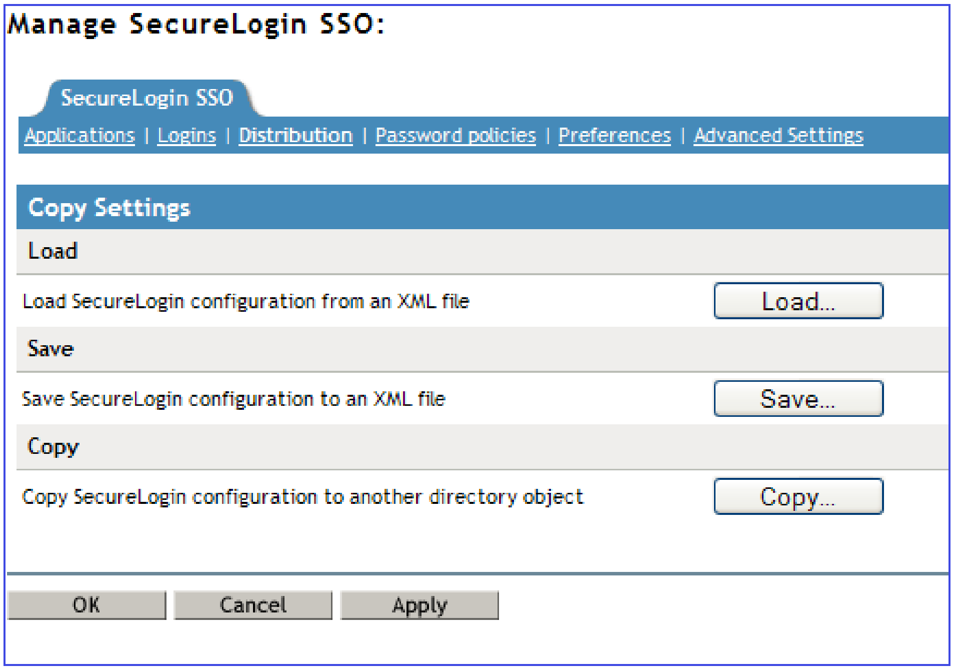
1 Log in to iManager.

2 Select *Novell SecureLogin* > *Manage SecureLogin SSO*. The Manage Novell SecureLogin page is displayed.



3 In the object field, specify your object name, then click *OK*.

4 Click *Distribution*. The Distribution details are displayed.



Manage SecureLogin SSO:

SecureLogin SSO
Applications | Logins | Distribution | Password policies | Preferences | Advanced Settings

Copy Settings

Load

Load SecureLogin configuration from an XML file

Save

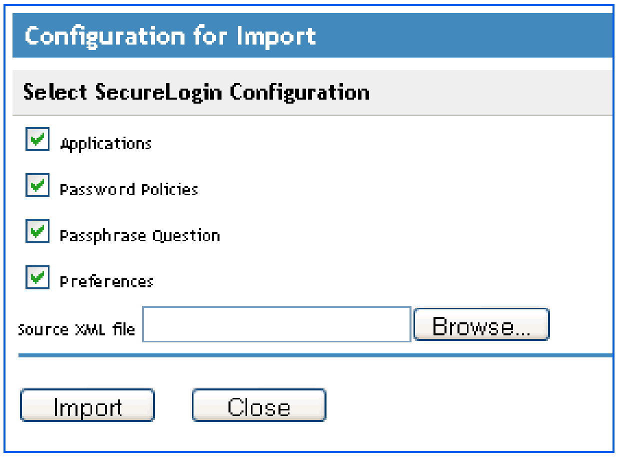
Save SecureLogin configuration to an XML file

Copy

Copy SecureLogin configuration to another directory object

5 Click *Load*. The Select SecureLogin Configuration dialog box is displayed.

6 Under *Select SecureLogin Configuration*, select the configuration(s) you want to import.



Configuration for Import

Select SecureLogin Configuration

☑ Applications

☑ Password Policies

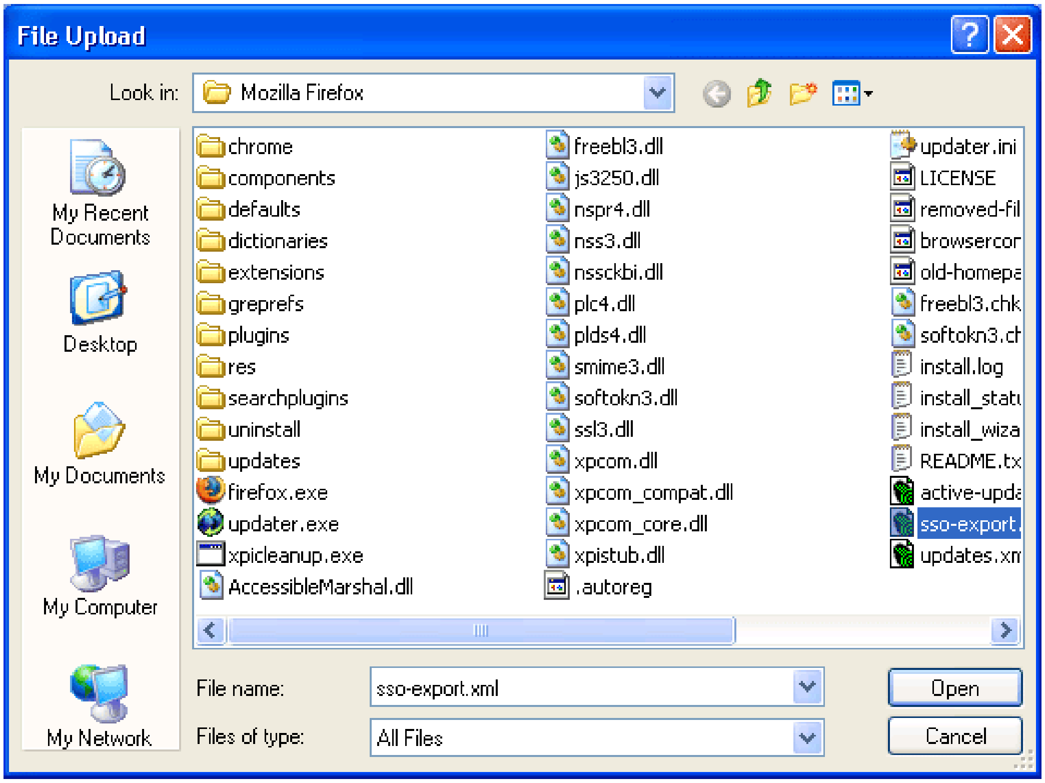
☑ Passphrase Question

☑ Preferences

Source XML file

Configuration	Function
Application	Imports all configured application definitions as displayed in the *Application* pane.
Credentials	Imports all credentials as displayed in the *Logins* pane, excluding passwords for copy settings and unencrypted export or import.
Password Policies	Imports password policies as displayed in the *Password Policies Properties* table.
Preferences	Imports preferences manually set in the *Preferences Properties* tables.

7 Browse to and select the exported XML file.


File Upload

Look in: Mozilla Firefox

File name: sso-export.xml

Files of type: All Files

8 Click *Open* to select the file.

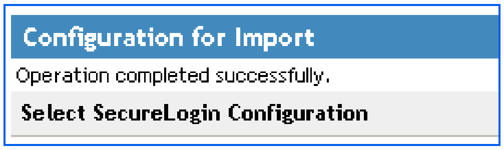
The selected predefined applications and application definitions are copied across to the receiving organizational unit or container.

The selected SecureLogin configuration is copied across to the receiving object.

If predefined applications and application definitions currently exist in the receiving object, a confirmation message is displayed to confirm or reject overwrite with the imported data.

9 Click *Import* to confirm or click *Cancel* to reject overwriting with the imported data.

A SecureLogin message is displayed to confirm SecureLogin data is loaded.


Configuration for Import

Operation completed successfully.

Select SecureLogin Configuration

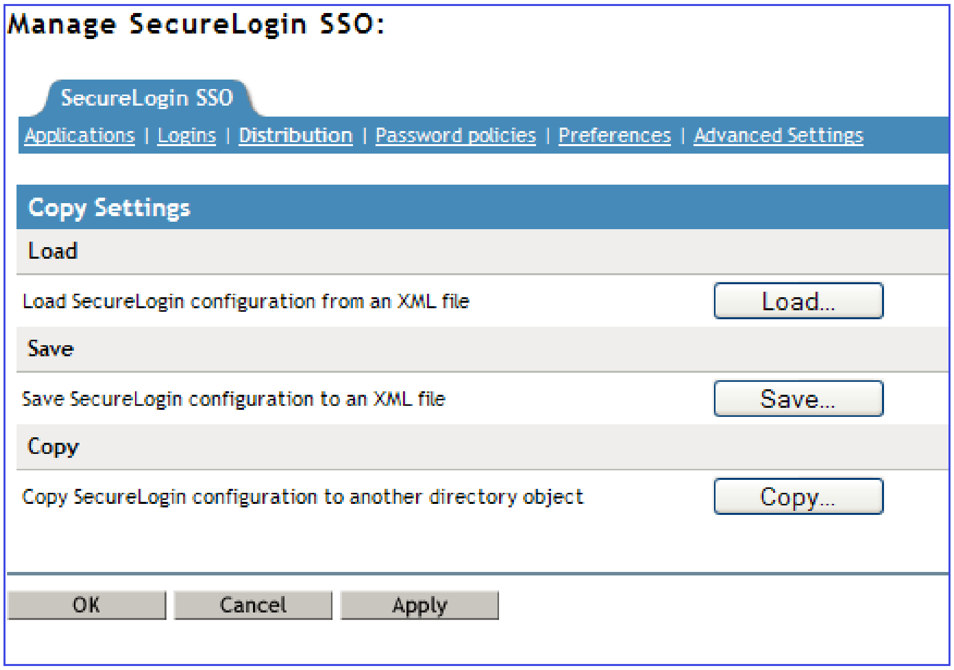
14.3 Copying Settings to the Directory

1 Log in to iManager.

2 Select *Novell SecureLogin* > *Manage SecureLogin SSO*. The Manage Novell SecureLogin page is displayed.

3 In the object field, specify your object name, then click *OK*.

4 Click *Distribution*. The distribution details are displayed.


Manage SecureLogin SSO:

SecureLogin SSO
Applications | Logins | Distribution | Password policies | Preferences | Advanced Settings

Copy Settings

Load

Load SecureLogin configuration from an XML file

Save

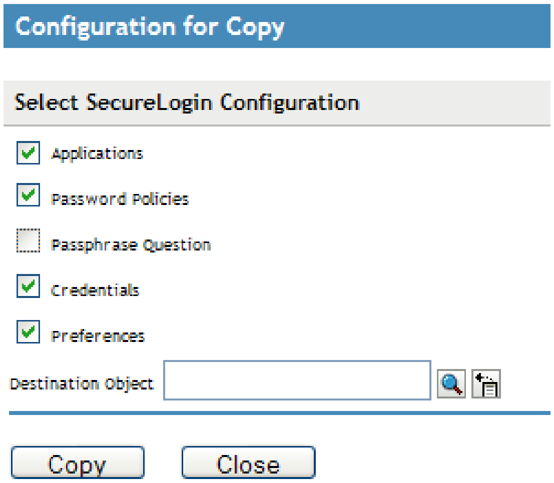
Save SecureLogin configuration to an XML file

Copy

Copy SecureLogin configuration to another directory object

5 Click *Copy*. The Configuration for Copy dialog box is displayed.

6 Under *Select SecureLogin Configuration*, select the configuration(s) you want to copy.


Configuration for Copy

Select SecureLogin Configuration

☑ Applications

☑ Password Policies

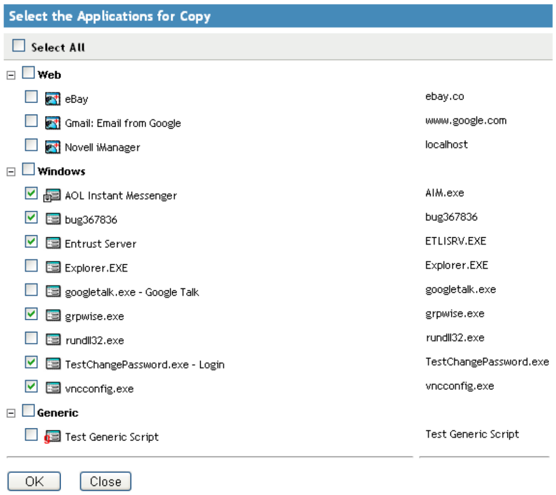
□ Passphrase Question

☑ Credentials

☑ Preferences

Destination Object

6a If you select *Applications*, a list of applications is displayed.



Select the Applications for Copy

□ Select All

⊟ □ **Web**	
□ eBay	ebay.co
□ Gmail: Email from Google	www.google.com
□ Novell iManager	localhost
⊟ □ **Windows**	
☑ AOL Instant Messenger	AIM.exe
☑ bug367836	bug367836
☑ Entrust Server	ETLISRV.EXE
□ Explorer.EXE	Explorer.EXE
□ googletalk.exe - Google Talk	googletalk.exe
☑ grpwise.exe	grpwise.exe
□ rundll32.exe	rundll32.exe
☑ TestChangePassword.exe - Login	TestChangePassword.exe
☑ vncconfig.exe	vncconfig.exe
⊟ □ **Generic**	
□ Test Generic Script	Test Generic Script

6b Select the application you want to copy.

6c Click *OK*.

Similarly, select one or more configuration for copying.

The following table describes the configurations.

Configuration	Function
Application	Copies all or specific configured application definitions as displayed in the *Application* pane. You can select a specific script and deploy it to container after they are created at user level.
Password Policies	Copies password policies as displayed in the *Password Policies Properties* table.
Passphrase Questions	Copies the passphrase question set the administrator or the user.
Credentials	Copies all credentials as displayed in the *Logins* pane, excluding passwords for copy settings and unencrypted export or import.
Preferences	Copies the preferences manually set in the *Preferences Properties* tables.

7 Browse to the container where you want to deploy the configuration. You can deploy individual configuration to different containers. You can deploy specific scripts to container after they are created at user level.

14.4 Exporting Single Sign-On Data in Encrypted XML Files

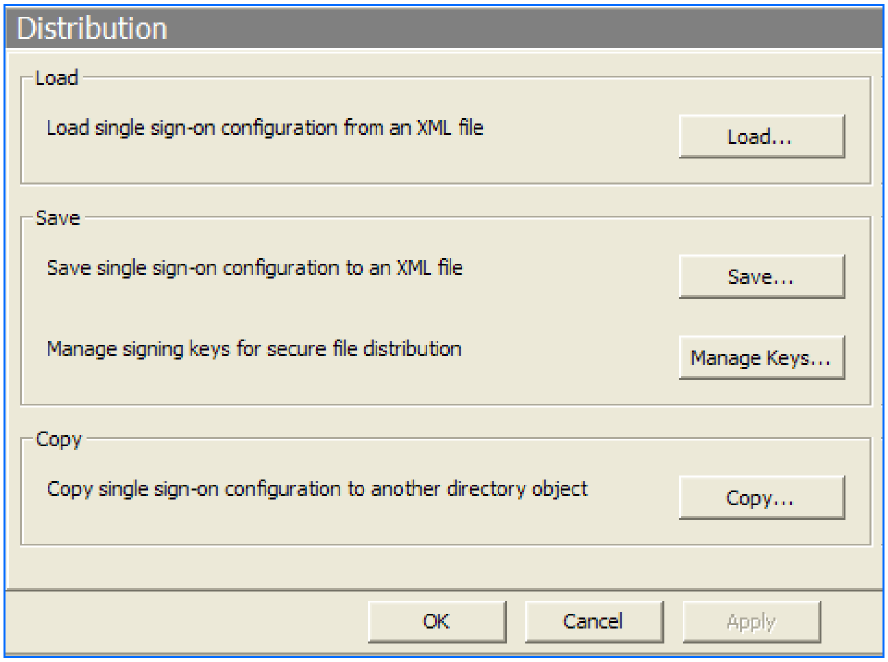
Using SecureLogin Manager (SLManager) you can encrypt and password-protect or digitally sign the exported files to ensure the information is secure. Alternatively, an unencrypted file can also be created for unrestricted distribution.

This option is available only through SecureLogin Manager (SLManager).

1 Launch SecureLogin Manager.

2 In the object field, specify your object name, then click *OK*.

3 Click *Distribution*. The Distribution details are displayed.



Distribution

Load

Load single sign-on configuration from an XML file — Load...

Save

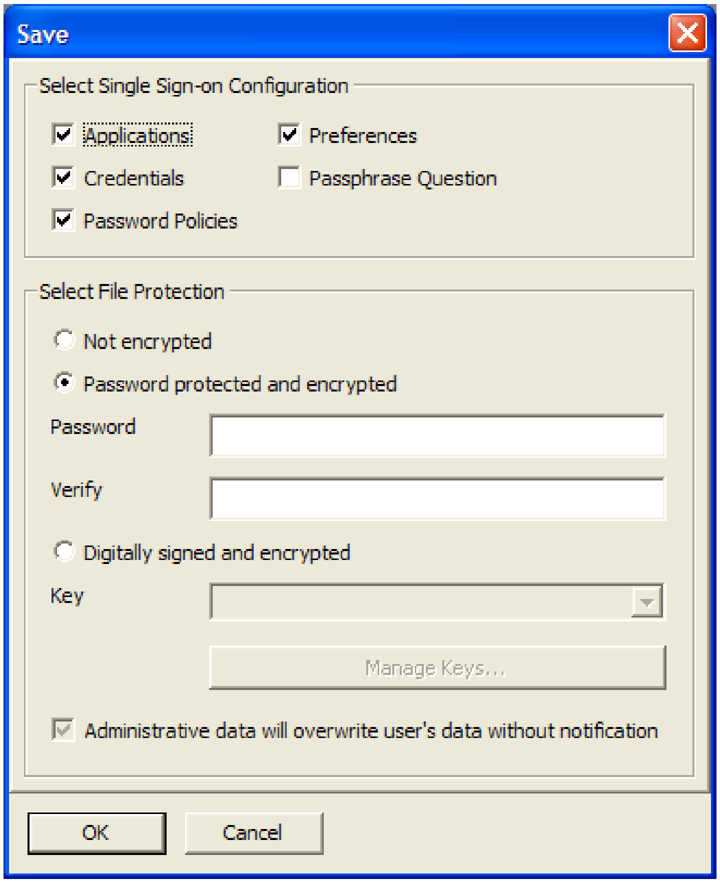
Save single sign-on configuration to an XML file — Save...

Manage signing keys for secure file distribution — Manage Keys...

Copy

Copy single sign-on configuration to another directory object — Copy...

4 Click Save. The save dialog box is displayed.



Save

Select Single Sign-on Configuration

☑ Applications ☑ Preferences

☑ Credentials □ Passphrase Question

☑ Password Policies

Select File Protection

○ Not encrypted

● Password protected and encrypted

Password

Verify

○ Digitally signed and encrypted

Key

☑ Administrative data will overwrite user's data without notification

5 Select the appropriate options. The following table describes the options:

Configuration	Function
Application	Exports all configured application definitions as displayed in the *Application* pane.
Credentials	Exports all credentials as displayed in the *Logins* pane, excluding passwords for copy settings and unencrypted export or import.
Password Policies	Exports password policies as displayed in the *Password Policies Properties* table.
Preferences	Exports preferences manually set in the *Preferences Properties* tables.
Passphrase Question	Provides users with a selection of passphrase questions. This option copies, exports, and imports only those passphrase questions to which the user has responded.

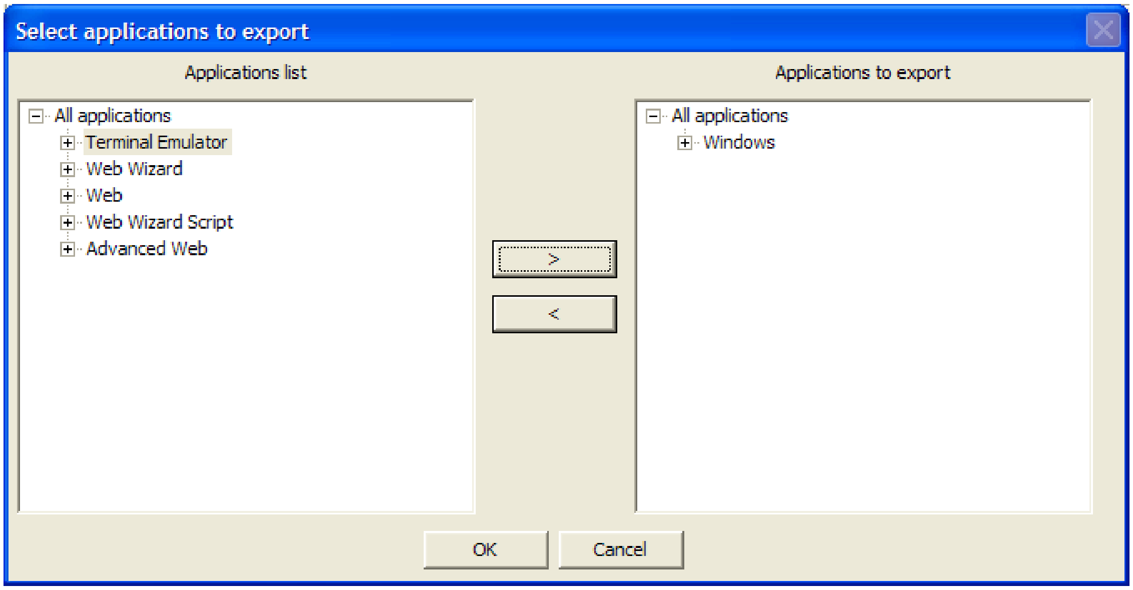
6 From *Select File Protection*, select *Password protected and encrypted*.

7 Specify the password in the *Password* field.

8 Re-specify the password in the *Verify* field.

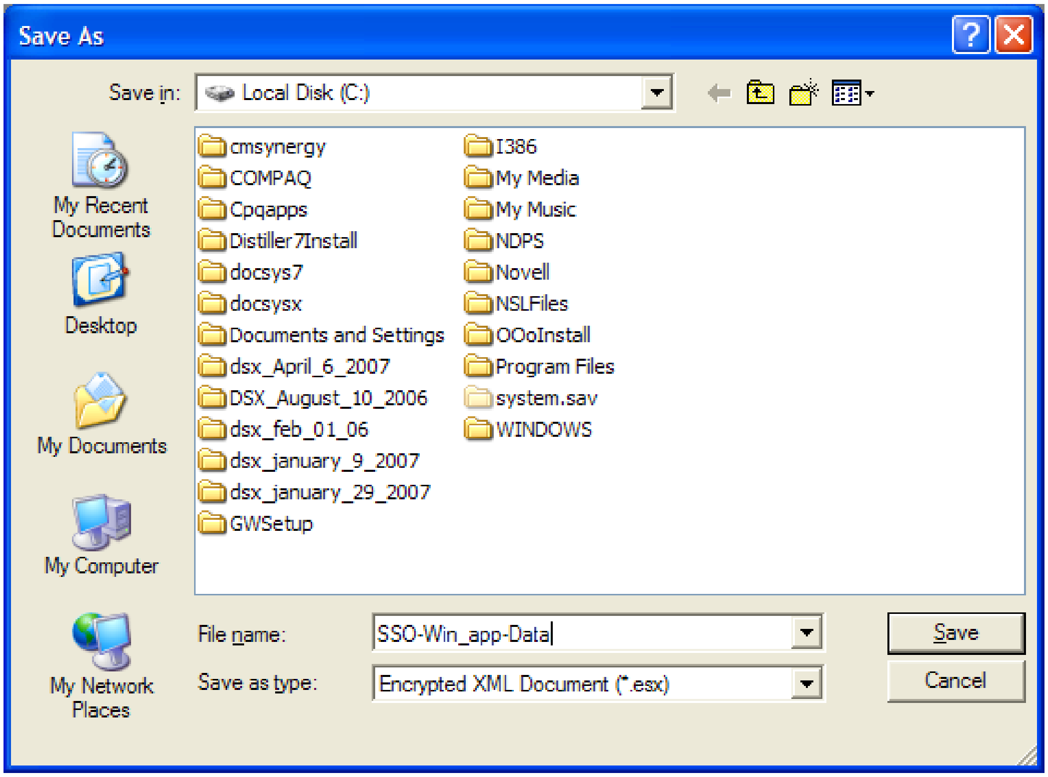
9 Click *OK*. The select application to export dialog box is displayed.

10 Select the applications to be exported, then click *OK*.



11 Select a location to save the file.

12 Specify a name for the file.

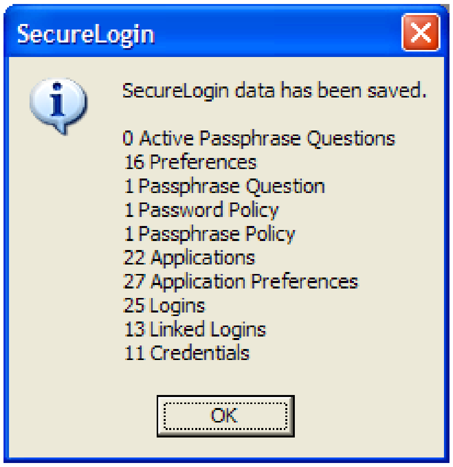


Save in: Local Disk (C:)

File name: SSO-Win_app-Data

Save as type: Encrypted XML Document (*.esx)

13 Click *Save*. The selected SecureLogin configuration is saved and a confirmation message appears indicating the information that is saved.



SecureLogin data has been saved.

0 Active Passphrase Questions
16 Preferences
1 Passphrase Question
1 Password Policy
1 Passphrase Policy
22 Applications
27 Application Preferences
25 Logins
13 Linked Logins
11 Credentials

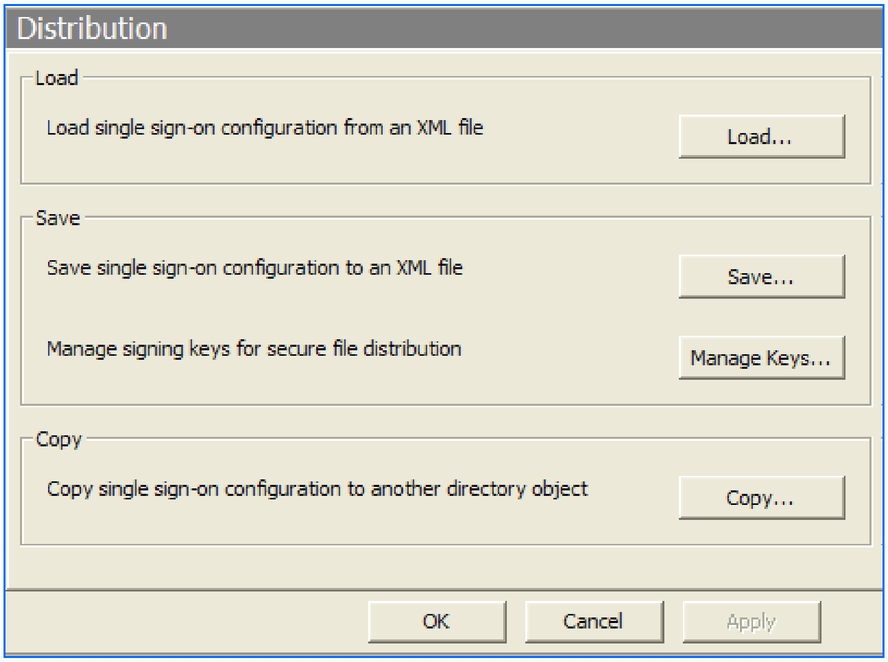
14 Click *OK*.

14.5 Importing Single Sign-On Data in Encrypted XML Files

1 Launch SecureLogin Manager.

2 In the object field, specify your object name, then click *OK*.

3 Click *Distribution*. The Distribution details are displayed.



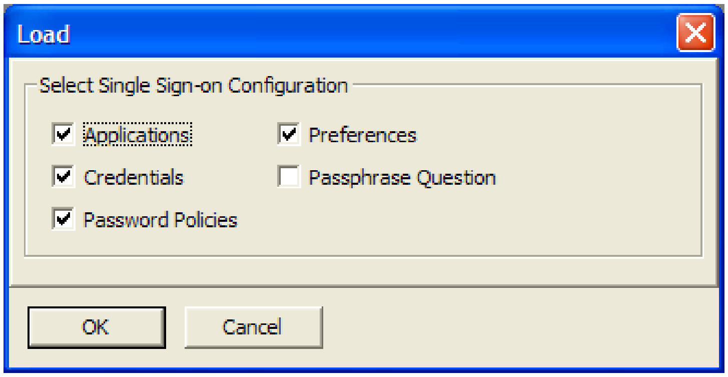
Load single sign-on configuration from an XML file

Save single sign-on configuration to an XML file

Manage signing keys for secure file distribution

Copy single sign-on configuration to another directory object

4 Click *Load*. The load dialog box appears.



☑ Applications

☑ Credentials

☑ Password Policies

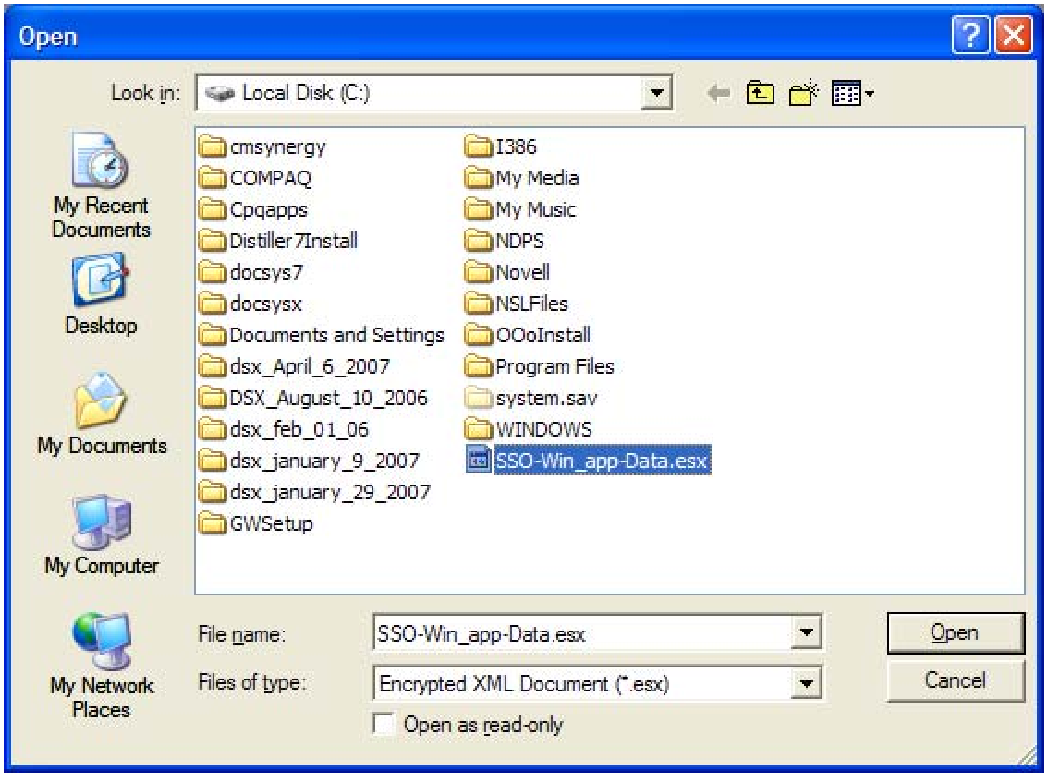
☑ Preferences

☐ Passphrase Question

5 Select the required options. The following table helps you choose.

Configuration	Function
Application	Imports all configured application definitions as displayed in the *Application* pane.
Credentials	Imports all credentials as displayed in the *Logins* pane, excluding passwords for copy settings and unencrypted export or import.
Password Policies	Imports password policies as displayed in the *Password Policies Properties* table.
Preferences	Imports preferences manually set in the *Preferences Properties* tables.
Passphrase Question	Provides users with a selection of passphrase questions. This option copies, exports, and imports only those passphrase questions to which the user has responded.

6. Click *OK*. The open dialog box is displayed.
7. Select the exported encrypted file.

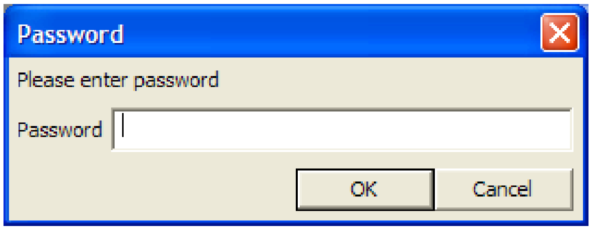


File name: SSO-Win_app-Data.esx

Files of type: Encrypted XML Document (*.esx)

□ Open as read-only

8. Click *Open*. The password dialog box is displayed.

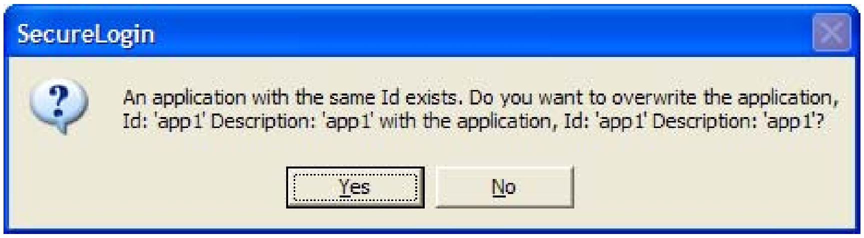


Please enter password

Password

9. Specify the password, then click *OK*.

   If a predefined application or an application definition currently exists in the destination object, you get a confirmation message appears for the applications.

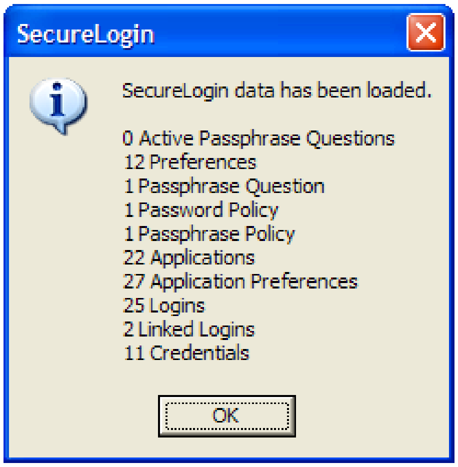


An application with the same Id exists. Do you want to overwrite the application, Id: 'app1' Description: 'app1' with the application, Id: 'app1' Description: 'app1'?

Click *Yes* if you are sure that the imported application definition is preferred over the application definition currently stored in the user cache.

Click No to retain the application definition currently stored in the user cache.

10 If you click Yes, the configuration is copied across to the user object, organizational unit, or container. A confirmation message appears indicating that the information is copied to the destination object.



SecureLogin data has been loaded.

0 Active Passphrase Questions
12 Preferences
1 Passphrase Question
1 Password Policy
1 Passphrase Policy
22 Applications
27 Application Preferences
25 Logins
2 Linked Logins
11 Credentials

11 Click *OK*.

14.6 Creating a Signing Key for Secure Distribution

After you have configured and tested Novell SecureLogin in an user environment, you can create a digital signing key that is embedded in the distribution file (`.msi` file). You can distribute the file through a Web download or e-mail to the users. When users receive the file, they need to double-click the file to load to the local workstation. This updates the following:

- Preferences
- Application definitions
- Password rules
- Credentials

This is collectively known as the SecureLogin configured user environment and, is particularly designed for users who use Novell SecureLogin in standalone mode (such as mobile users) and those who do not frequently connect to the corporate network.

When a digital signing key is created, the key pair is randomly generated by the Novell SecureLogin to increase security.

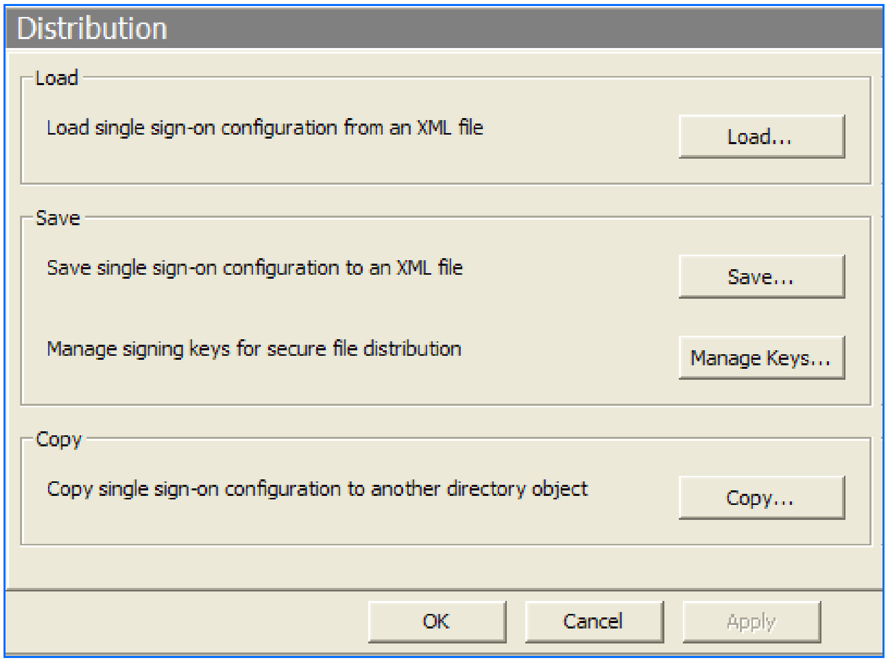
To create a digital signing key:

IMPORTANT: This feature is available only through SecureLogin Manager.

1 Launch SecureLogin Manager.

2 In the object field, specify your object name, then click *OK*.

3 Click *Distribution*. The Distribution details are displayed.



Distribution

Load

Load single sign-on configuration from an XML file

Save

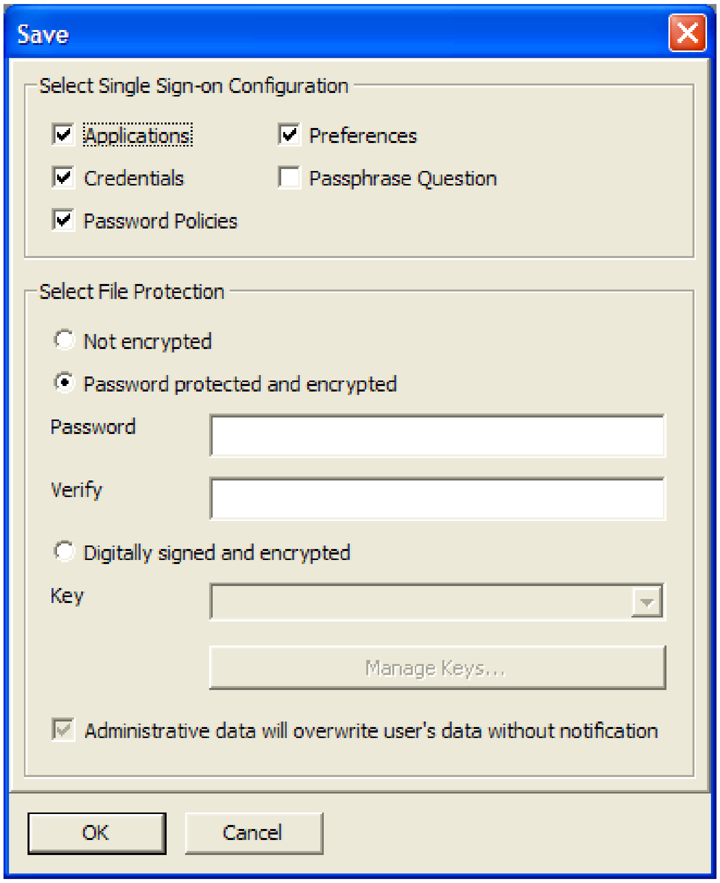
Save single sign-on configuration to an XML file

Manage signing keys for secure file distribution

Copy

Copy single sign-on configuration to another directory object

4 Click *Save*. The save dialog box is displayed.



Save

Select Single Sign-on Configuration

☑ Applications
☑ Preferences
☑ Credentials
□ Passphrase Question
☑ Password Policies

Select File Protection

○ Not encrypted
● Password protected and encrypted

Password

Verify

○ Digitally signed and encrypted

Key

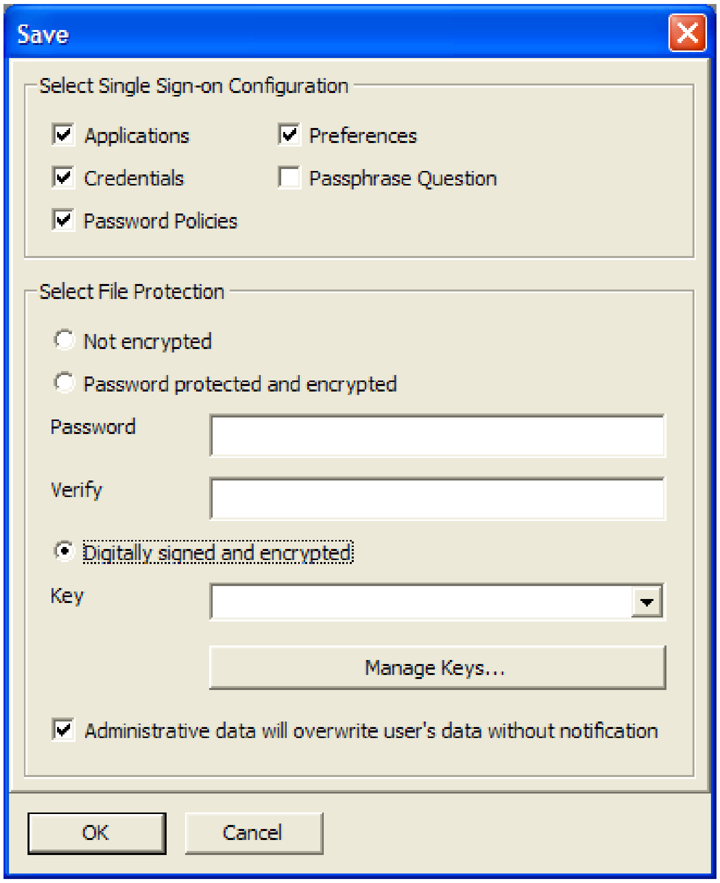
☑ Administrative data will overwrite user's data without notification

5 Select the required options.

6 Under *Select File Protection*, select *Digitally signed and encrypted*.

7 (Optional) Select Administrative data will overwrite user's data without notification.

If this option is selected, the users are prompted before overwriting any data with the configuration settings saved in the `.msi` file.



Save

Select Single Sign-on Configuration

☑ Applications ☑ Preferences

☑ Credentials □ Passphrase Question

☑ Password Policies

Select File Protection

○ Not encrypted

○ Password protected and encrypted

Password

Verify

● Digitally signed and encrypted

Key

☑ Administrative data will overwrite user's data without notification

IMPORTANT: Selecting this option results in the user data being overwritten with the configuration setting in the `.msi` file for any items that are present in both the user's local configuration and the administrative configuration (`.msi` file).

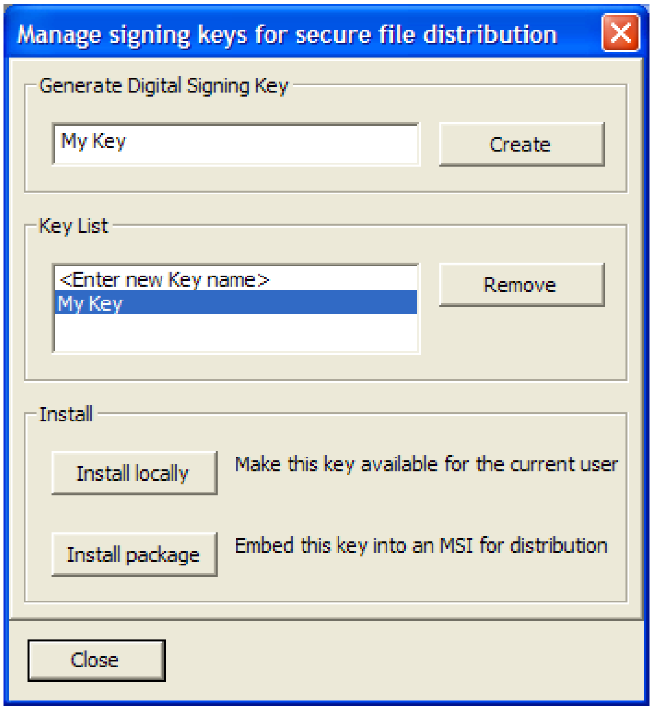
For example, if a user have an application definition configured locally, and a predefined application definition is supplied in the `.msi` file, the `.msi` file application definition overwrites the user's application definition without notification.

However, for example, if a user has configured a Hotmail application definition locally, and a predefined application is not supplied in the `.msi` file, the user's Hotmail application definition is not changed.

8 Click *Manage Keys*. The Manage signing keys for secure file distribution dialog box is displayed.

9 Specify a name for the key in the *Generate Digital Signing Key* field.

10 Click *Create*.



Manage signing keys for secure file distribution

Generate Digital Signing Key: My Key

Key List

<Enter new Key name>

My Key

Install

Install locally — Make this key available for the current user

Install package — Embed this key into an MSI for distribution

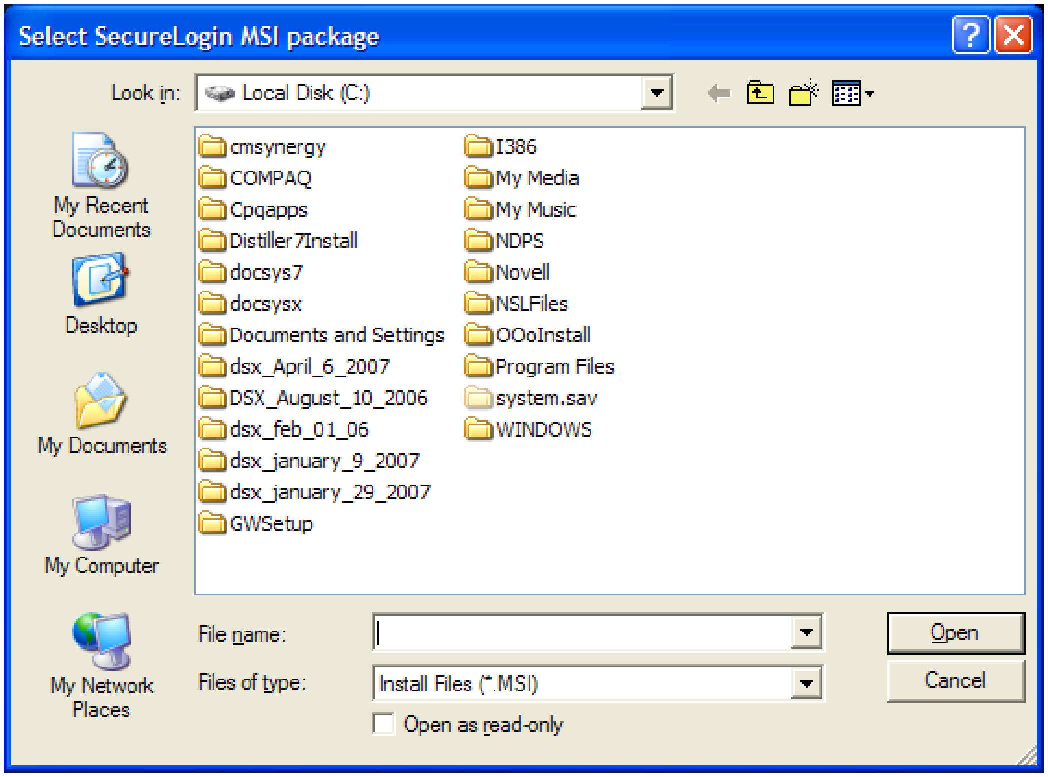
11 From the *Key List*, select the newly created key.

12 Under *Install*, click *Install Package*. The Load Settings dialog box is displayed.

13 Browse to locate the distribution file (`.msi` file) in which you want to embed the key.

14 Click *Open*. A confirmation message that the key is embedded in the `.msi` file is displayed.

15 Click *OK*.



Select SecureLogin MSI package

Look in: Local Disk (C:)

File name:

Files of type: Install Files (*.MSI)

☐ Open as read-only

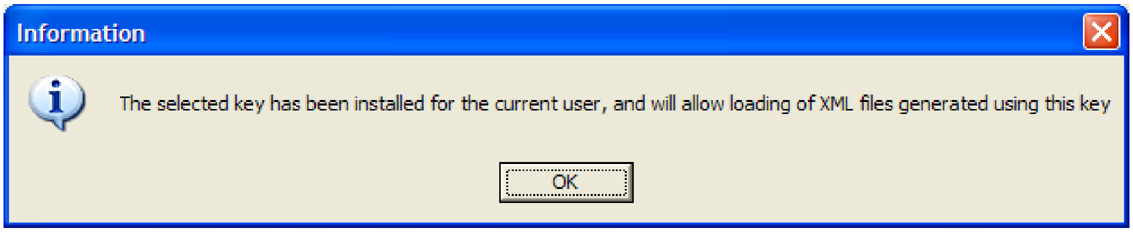
You can now distribute and install the `.msi` file on the user's machine. This allows them to import signs that are signed and encrypted.

After the keys are created, they must not be deleted because they are randomly generated. They key used must correspond to the key that is been previously packaged and with the distributed installer.

14.7 Locally Installing a Digital Signing Key

The *Manage signing keys for secure file distribution* dialog box provides a tool to install a digital signing key locally, enabling loading of XML files generated using this key

1. Log in to iManager.
2. Select *Novell SecureLogin* > *Manage SecureLogin SSO*. The Manage Novell SecureLogin page is displayed.
3. In the object field, specify your object name, then click *OK*.
4. Click *Distribution*. The Distribution details are displayed.
5. Click *Manage Keys*. The Manage signing keys for secure file distribution dialog box is displayed.
6. Specify a name in the *Generate Digital Signing Key* field.
7. Click *Create*.
8. From the *Key List*, select a new key.
9. Under *Install*, select *Install Locally*. A confirmation message appears.



The selected key has been installed for the current user, and will allow loading of XML files generated using this key

10. Click *OK*.

15 Using The SLAP Tool

This section provides information on the following:

- Section 15.1, "About The SLAP Tool," on page 151
- Section 15.2, "The SLAP Syntax," on page 152

15.1 About The SLAP Tool

The SecureLogin Attribute Provisioning (SLAP) tool uses command line options to allow SecureLogin to leverage user data from an organization's provisioning system. Using the SLAP tool, you can import data, in XML format from third-party applications into the SecureLogin user's datastore as well as export information (except user application passwords and the user's passphrases).

Data that can be manipulated includes:

- User variables
- Application definitions
- Organizational settings
- Password policies
- Logins
- Passphrase questions and answers

The SLAP tool command operates as a provisioning tool between SecureLogin data in a directory and in an XML file. The XML schema used is the same as the Copy Settings GUI importer/exporter. In addition to copying settings, the SLAP tool can extract usernames. The SLAP tool cannot export single sign-on sensitive data such as passwords and passphrases.

For example, an organization with 10,000 users in a SAP system, implementing SecureLogin can speed deployment significantly by automating the initial user login. To do this, use a file containing multiple users' username and password combinations from SAP, and use the SLAP tool to import the file into the SecureLogin datastore as a bulk process. The SLAP tool removes the requirement for each user to enter credentials on the first log in to SecureLogin.

If the SLAP tool is used to import data into Novell SecureLogin from either an encrypted or an unencrypted file, and any preferences are set that require the Novell SecureLogin version 6 data store format, then the datastore version must be specified in the file. Preferences that require the version 6 format are:

- EncryptionType
- NRKeySource
- StoreDataOnSmartCard
- UseEnhancedProtectionByDefault

The datastore version is set as:

```
<preference>
   <name>AppliedSSODataStoreVersion</name>
   <value>600000</value>
   <isdatastore/>
</preference>
```

If the value of this preference is not set to 6, 6.0 or 600000 then an error message is returned from the SLAP tool: *Cannot import version 6 datastore preferences into a lower versioned datastore.*

When the SLAP tool is used for initial provisioning of SecureLogin user accounts, before any SecureLogin data has been stored for users, the XML file must include a passphrase question and response. This question/response can be the same for each user and can be changed by the user after deployment.

NOTE: Novell SecureLogin does not need to be running to use the SLAP tool.

15.2 The SLAP Syntax

```
slaptool [-hlaspcPef] -r object_name_file | -o "object" [file ...]
```

The following table describes the command options.

Command	Description
`-h`	Displays a help message and exits (all other options are ignored).
`-l`	Excludes user IDs.
`-v`	Excludes variables.
`-a`	Excludes applications.
`-s`	Excludes settings.
`-S`	Include passwords. Only applies to export operations which include symbols and must be used in conjunction with `-E` for security.
`-p`	Excludes password policies.
`-E password`	Specifies that the generated XML should be encrypted or decrypted using the supplied password. Password must be at least 8 characters long.
-f	Use the current user, for export allow inclusion of password credentials. (cannot be used with `-r` or `-o`).
`-c`	Excludes credsets.

Command	Description

`-d`	Performs delete rather than import.
	For example:
	◆ To delete logins:
	`slaptool -d -o "cn=abc,dc=123" -l`
	◆ To delete applications:
	`slaptool -d -o "cn=abc,dc=123" -a`
	◆ To delete password policy:
	`slaptool -d -o "cn=abc,dc=123" -p`
	NOTE: You can also use `-f`, to perform delete operation for the current user.
	For example, `slaptool -d -f -l`.

`-e`	Performs an export rather than an import.
`-r`	object_name_file Specifies a file containing line-delimited object names on which to perform the operation.
`-o`	object Specifies a particular object on which to operate.

[file]	Specifies one or more `.XML` files from which to read data (or to write to for exporting). No file specification. It reads and writes data from and to the stdin and stdout.
	For example:
	`./slaptool.exe -o "CN=bernie.O=activcard.T=DEVTEST" initial_setup.xml`
	This reads userIDs, applications, settings and password policies from the file initial_setup.xml and writes them out to the object:
	`“CN=bernie.O=activcard.T=DEVTEST”`

`-P`	Exclude Passphrase.
`-k` [password]	Enables the creation of a passphrase answer for individual users in LDAP and Microsoft Active Directory environments. It is mandatory for users to save a passphrase answer on first log in to SecureLogin. The SLAP tool requires password authorization to save user data. The `-k` switch provides the user password, enabling automated creation of the passphrase answer. This answer can be manually changed by users after provisioning. For example, the following command is used to import user data and a passphrase question and answer combination: `slaptool.exe -k password -o context filename.xml` This reads userIDs, applications, settings, and password policies from the file `initial_setup.xml` file and writes them out to the object: `“CN=writer.O=novell.T=DEVTEST”`

NOTE

- If the `-P` switch was not used during the export operation, then you must use either `-P` or `-k` switch during the import operation.
- If `-P` switch was used during export operation, then `-P` or `-k` switch is not required during the import operation.

SLAP Tool Example

The following Perl application definition, created for the example organization discussed previously, assumes that usernames and passwords are stored in a text file named `listofnames.txt`. There is one space between each username and password pair per line.

A XML file, such as the "XML File Example" on page 155 is required to run this application definition, containing the data for import. Where the data is customized on a per user name basis, the string to be substituted is replaced with *usernamegoeshere*.

For example:

```
******************************************************
open FILE,"listofnames.txt";
foreach (<FILE>) {
chomp;                  # Clean string
@lines = split(/\n/);   # Split up string
for each $1 (@lines) {
    @fields = split(/\s/);
    $name = $fields[0];
    $pass = $fields[1];
    open DATAFILE,"source.xml";
    open OUTFILE,">data.xml";
    foreach (<DATAFILE>) { # Write up a file specific to this user
        s/\*usernamegoeshere\*/$name/;
        s/\*passwordgoeshere\*/$pass/;
        # Any other variable substitution can be done here too...
        print OUTFILE "$_";
   }
    close DATAFILE;
    close OUTFILE;
   system "slaptool.exe -k \"$pass\" -o 
\"CN=$name.O=myorg.T=OURCOMPANY\" data.xml";
        }
}
close FILE;
unlink 'data.xml';
****************************************************
```

Using an XML file called `source.xml`, run the application definition with the data that is to be imported. For example, you can manually export data from a single user setup with the value for the username replaced with the string "*usernamegoeshere*".

NOTE: The example application definition does not include error handling.

XML File Example

```
<?xml version="1.0"?>
<SecureLogin>
   <passphrasequestions>
      <question>Please enter a passphrase for SLAP testing.</question>
   </passphrasequestions>
   <passphrase>
      <activequestion>Please enter a passphrase for SLAP 
testing.</activequestion>
      <answer>passphrase</answer>
   </passphrase>
   <logins>
      <login>
         <name>fnord</name>
         <symbol>
            <name>username</name>
            <value>bob</value>
         </symbol>
         <symbol>
            <name>Password</name>
            <value>test</value>
         </symbol>
      </login>
<login>
         <name>notepad.exe</name>
         <symbol>
            <name>username</name>
            <value>asdf</value>
         </symbol>
         <symbol>
            <name>Password</name>
            <value>test</value>
         </symbol>
      </login>
      <login>
         <name>testlogin</name>
         <symbol>
            <name>username</name>
            <value>Novell</value>
         </symbol>
         <symbol>
            <name>Password</name>
            <value>test</value>
         </symbol>
      </login>
    </logins>
</SecureLogin>
```

16 Managing the Workstation Cache

This section provides information on the following:

16.1 About the Workstation Cache

The SecureLogin cache is an encrypted local copy of SecureLogin data. It allows users who are not connected to the network (or working offline using a laptop) to continue to use SecureLogin even if the directory becomes unavailable.

User data includes credentials, preferences, policies, and SecureLogin application definitions, except when you use a smart card for storing credentials. By default, a cache file is created on the workstation as part of SecureLogin installation. The cache file stores user data locally and is synchronized regularly with the user's data in the directory. You can set this in the Administrative Management utility. You can also disable cache synchronization, storing all user data in the directory.

Depending on the type of installation, the cache is stored:

- In the users profile directory. For example

  `%APPDATA%\SecureLogin\Cache`

  or
- In the user's profile. For example:

  `C:\Program Files\SecureLogin\Cache`

  On Microsoft Windows Vista: `C:\Users\<Username>\Appdata\Roaming\SecureLogin\Cache`

Directory and workstation caches are synchronized regularly, by default every five minutes, and whenever the user logs off or on to the workstation. When changes are made, either by the user on the workstation or the administrator in the directory, single sign-on user data is compared and updated during synchronization. Any settings configured by the user through the Credentials Management tool on the local workstation take precedence over those made in the directory.

If you require full administrative control of a user's SecureLogin environment, you can disable the user's access to administration tools through the settings in the Preferences Properties table. This prohibits users from overriding your changes while configuring changes on the workstation.

NOTE: The SecureLogin cache refresh interval is by default five minutes. You can change the default in the Preferences Properties table.

Because SecureLogin data is stored in the directory, existing directory backups also back up SecureLogin data. In addition, the local cache synchronizes with the directory for further redundancy of data. Backing up or restoring by using the SecureLogin menu options is typically performed by users who have been disconnected from the network for long periods of time, such as weeks or months.

Using workstation backup and restore, users can securely back up their SecureLogin cache in stand-alone or directory deployments. All user data, including passwords and passphrases, is saved in a password-protected, encrypted XML file.

16.2 Creating a Backup File

1. In the notification area (system tray), right-click the Novell SecureLogin icon, then select *Advanced* > *Backup User Information*. The Save Settings dialog box is displayed.
2. Select a folder to store the backup file. The file can be stored in any location.
3. In the *File name* field, specify a name for the backup file.
4. Click *Save*. The Password dialog box is displayed.
5. In the *Password* field, specify a password.

   SecureLogin verifies if the password matches the policy (for example, is the length of the password 8 characters). If the password matches the policy, a confirmation message appears.
6. Click *OK*.

   The encrypted and password-protected backup file is saved, and a confirmation message appears.
7. Click *OK*.

16.3 Deleting the Workstation Cache

IMPORTANT: Before restoring the backup file, you must delete the cache file on the workstation. In directory environments, you must also delete the user object data in the directory.

1. Right-click the Windows *Start* button, then click *Explore*.

   Ensure that you have selected `Show hidden files and folders` in the Windows Folder Options dialog box.
2. Depending on the type of installation, browse to `C:\Program Files\SecureLogin\Cache`

   or

   `%APPDATA%\SecureLogin\Cache`

   On Microsoft Windows Vista, browse to `C:\Users\<Username>\Appdata\Roaming\SecureLogin\Cache`
3. Delete the cache directory.
4. Close Windows Explorer.

16.4 Restoring the Local Cache Backup File

1. In the notification area (system tray), right-click the Novell SecureLogin icon, then select *Advanced* > *Restore User Information*. The Load Settings dialog box is displayed.
2. Select the backup file.
3. Click *Open*. The Password dialog box is displayed.
4. In the *Password* field, specify the password.

   If the specified password is correct, Novell SecureLogin processes the file to restore the user's data. If one or more application are already defined, a series of messages asking the user whether to overwrite the existing workstation file, appears.
5. Select *Yes* to overwrite the file and continue restoring the local cache backup file.
6. After the completion of the restoration process, a confirmation message appears confirming that the cache is successfully loaded to the local workstation cache.

NOTE: If password policies already exist, ignore the wrong error message `0 password policy` that is shown when restoring user data.

17 Auditing

This section contains the following information:

17.1 About Auditing Tools

SecureLogin provides monitoring functionality with Simple Network Management Protocol (SNMP) trapping and Windows event logging. SecureLogin's support for both of these auditing tools allows you to choose a preferred auditing application and to integrate event monitoring into your current SNMP functionality. Event alerts are activated through SecureLogin application definitions. An understanding of application definition is useful to enable event monitoring.

17.2 Sending SNMP Alerts

You can send SNMP alerts from a client workstation to a specified console. This requires an SNMP console application on the receiving console, and the following SecureLogin files:

- `slsnmp.exe`
- `libsnmp.dll`
- `SecureLogin.mib`

The `slsnmp.exe` and `libsnmp.dll` files are provided in the `Tools` folder of the SecureLogin installer package. Copy the files to the following location on the client workstation:

```
<local drive>\Program Files\novell\SecureLogin\
```

The `SecureLogin.mib` file is imported to the SNMP trap console to decode the SNMP traps sent by SecureLogin.

Alerts are enabled in the SecureLogin application definition for the application. Through the SecureLogin application definition `Run` command, the alert is sent to the specified workstation IP address as well as the SNMP application active on this computer.

17.3 Scripting for SNMP Auditing

The following examples use the Windows Notepad application. Although Notepad does not require you to log in, you can create an application definition to respond to the execution of almost any application and to elicit additional information, such as the machine name, as a SNMP alert.

17.3.1 Prerequisites

- Identify the IP address of the receiving computer.
- Ensure that the SNMP console is active.

1. Close the Novell SecureLogin Client Utility if it is open.
2. Start Notepad.
3. In the notification area (system tray), right-click the Novell SecureLogin icon, then click *Add Application*. The Add Application Wizard is displayed.
4. Follow the prompts to enable the application.
5. In the notification area (system tray), double-click the Novell SecureLogin icon to open the Novell SecureLogin Client Utility.
6. Click *Applications*.
7. Double-click the application description. In this example, it is Untitled - Notepad.The Application pane is displayed.
8. Click the *Definition* tab. The application definition tab will have has definition in the form of the edit Wizard definition.

   Click *Convert to definition* to view the application definition.

   The following example command sends an SNMP alert to the computer running the SNMP console application, advising that Notepad has been activated.

   You can set alerts for any event that SecureLogin responds to, including Change Password dialog boxes and error messages.
9. After the EndDialog command, type the following:

   ```
   Run "C:\Program Files\novell\SecureLogin\slsnmp.exe" public <IP address>
   "Notepad has started"
   ```
10. Click *OK* to save the command and to close the Novell SecureLogin Client Utility.
11. Start Notepad. The alert is sent to the SNMP console.

17.4 About Windows Event Log Alerts

Windows event log alerts are activated by following the same procedure as SNMP alerts. The `Logevent.exe` application is activated through the `Run` command in an application definition.

Windows event logging from SecureLogin requires that the Windows Event Log system is active on the computer receiving the alerts, along with the executable `Logevent.exe` on each audited client workstation, to generate the alerts.

NOTE: `Logevent.exe` is included in the Windows 2000 Resource Kit. Microsoft licensing regulations apply.

For details, visit the Microsoft Support Web site. (http://support.microsoft.com)

17.5 Creating a Windows Event Log Alert

The following procedure uses the Windows Notepad application as an example.

1 In the notification area (system tray), double-click ✋ to open the Novell SecureLogin Client Utility.

2 Click *Applications*.

3 In the right pane, double-click the application description (in this example, Untitled-Notepad). The Application Pane is displayed.

4 Click the *Definition* tab. The application definition editor is displayed.

5 The command syntax to execute `LogEvent.exe` is:

```
logevent -m \\computername-s severity-c categorynumber-r source-e eventID-
timeout"event text"
```

Definitions of the command parameters and event IDs are also available on the Microsoft Web site.

6 After `EndDialog`, specify the `LogEvent` command for the required alert.

For example:

```
Run "C:\Program Files\Resource Kit\LogEvent.exe -m SecureLogin -s -e 99"Notepad
has started"
```

This command requests an alert to be sent to the console with a security level of W – warning and event ID number 99.

7 Click *OK*.

8 Start Notepad. The alert is sent to the Windows Event Log system.

18 Audit Configuration for Sentinel

This release of Novell® SecureLogin integrates with Novell Sentinel™ for auditing. The events are logged to Windows Event Log from which the auting server such as Novell Sentinel can fetch the event logs. In the previous releases the connection to the auditing server was outbound. That is, the Platform Agents sent the event logs to the Novell Audit.

In SecureLogin 7.0, the connection to the auditing server is inbound. The events are logged to Windows Events Log from where the auditing server fetches the event logs. In the following sections, we describe the configuration to enable auditing through Sentinel.

This section consists of:

- Section 18.1, "Windows Event Log: An Overview," on page 165
- Section 18.2, "WMS Connector," on page 165
- Section 18.3, "Configuring Auditing," on page 166
- Section 18.4, "Logging Events from LDAP and Secure Workstation," on page 168
- Section 18.5, "Using the Novell SecureLogin Event Service," on page 169

18.1 Windows Event Log: An Overview

Windows event logging is a system service used by the Windows operating system to record the occurrence of system events. Events range from resource tracking of failing device drivers to security-related actions such as attempts to access files, directories, printers, or other system objects that are under audit control. The Windows security event log monitors events generated by system security and auditing processes.

By default, *Windows Security Event Auditing* is turned off.

The Windows Event Viewer is the primary tool for viewing the event logs found on Windows systems.

18.2 WMS Connector

The Windows Monitoring Service (WMS) connector facilitates integration between Sentinel Collectors with Microsoft Windows event sources. For Novell SecureLogin, we use the SecureLogin Collector. The collector is available at Sentinel Connector and Collector Web site. (http://support.novell.com/products/sentinel/sentinel61.html)

For detailed description on connectors, refer Understanding Event Source Management (http://www.novell.com/documentation/sentinel61/s61_user/?page=/documentation/sentinel61/s61_user/data/) in Sentinel User Guide. (http://www.novell.com/documentation/sentinel61/s61_user/?page=/documentation/sentinel61/s61_user/data/)

18.3 Configuring Auditing

Configuring for auditing with Novell SecureLogin Collector differs for workstations in Active Directory environment and non-Active Directory environment. The configuration involves enable auditing for the target system and configuration appropriate accounts to be able to read Windows Event Logs remotely by Sentinel. Following are the high level configuration procedures for both the scenarios:

- Section 18.3.1, "Monitoring a System in a Domain Environment," on page 166
- Section 18.3.2, "Monitoring a System in a Non-Domain Environment," on page 168

For detailed information, see the WMS Connector document at the Sentinel Connector and Collector Web site. (http://support.novell.com/products/sentinel/sentinel61.html)

18.3.1 Monitoring a System in a Domain Environment

In a domain environment, a domain account must be created that has the policy right to access the Windows Security Event logs on the remote Event Sources. This domain account user must be recognized by the Event Sources either as a user within the domain, or a user within one of the groups referenced on the server.

- "Configuring Events Logged by Windows Event Log" on page 166
- "Configuring Users to Collect Windows Event Log Remotely" on page 166
- "Setting up the Windows Management Instrumentation Service" on page 167
- "Configuring Domain Account User COM/DCOM" on page 167

Configuring Events Logged by Windows Event Log

Use the following procedure to enable basic Windows event logging for use with Windows Collectors. To collect data from a different application that writes to the Windows Event Log, refer to the documentation for the associated Collector. For details, see the Sentinel Connector and Collector Web site. (http://support.novell.com/products/sentinel/sentinel61.html)

To configure the Sensor to report Events to Security Log:

1. Log on to Windows with an account that has Administrative rights.
2. Click *Start* > *Settings* > *Control Panel*.
3. In Control Panel window, double-click *Administrative Tools*.
4. Double-click *Local Security Policy*; expand *Local Policies*, then double-click *Audit Policy*. A list of policies displays.
5. Double-click a specific audit policy to edit the security settings.
6. In Local Security Setting window, select *Success/Failure* check boxes.
7. Click *OK*.

Configuring Users to Collect Windows Event Log Remotely

1. From the *Event Source*, click *Start* > *Settings* > *Control Panel*.
2. In the Control Panel window, select *Administrative Tools* > *Local Security Policy* > *Local Policies* > *User Rights Assignment* > *Manage auditing and security log*.
3. Click *Add*.

4. From the *Select Users/Groups* window, click the *Look in field*, then select the domain with the account to be used for collecting the security event log information.
5. Double-click the account to be used, then click *OK*.
6. In the Local Security Policy Settings window, click *OK*.

   The new policy setting takes effect after you restart the sysem.

   NOTE: If domain-level policy settings are defined, they override local policy settings.

Setting up the Windows Management Instrumentation Service

1. Log on to the remote computer; from the Task bar, click *Start* > *Settings* > *Control Panel*.
2. In the Control Panel window, double-click *Administrative Tools* > *Computer Management*.
3. In the Computer Management window, on the *Tree* tab expand *Services and Applications*; right-click *WMI Control*, then select *Properties*.
4. In WMI Control Properties window, select the *Security* tab.
5. Select the *Root* folder, then click *Security* to open the Security for Root dialog.

   If the User or Group that needs the remote WMI access does not appear in the list, click *Add*.
6. From the Select Users, Computers, or Groups window, select the user or group that needs remote WMI access, then click *Add*.
7. After you finish selecting users or groups, click *OK*.
8. Select the newly added user or group and ensure that they have at least the following permissions depending on what type of Event log you want to access:
   - Execute Methods
   - Provider Write
   - Enable Account
   - Remote Enable
9. With the user or group still highlighted, click *Advanced* to open the Access Control Settings for Root window.
10. Select the group, then click *View/Edit*, to open the Permission Entry for Root dialog.
11. From the *Apply onto* list, select *This namespace and sub namespaces*.
12. Click *OK* on each dialog until you return to the Computer Management window.
13. Restart the WMI service.

Configuring Domain Account User COM/DCOM

The procedure to configure domain account user COM/DCOM differs from based on the platform on the SecureLogin workstation. Refer the WMS Connector document at the Sentinel Connector and Collector Web site. (http://support.novell.com/products/sentinel/sentinel61.html) for detailed configuration information.

18.3.2 Monitoring a System in a Non-Domain Environment

In a non-domain environment, local accounts must be created on both the Collector Manager system and on the Event Source. These accounts must have same username and password.

- "Configuring Events Logged by Windows Event Log" on page 168
- "Configuring Users to Collect Windows Event Log Remotely" on page 168
- "Setting up the Windows Management Instrumentation Service" on page 168
- "Configuring Domain Account User COM/DCOM" on page 168

Configuring Events Logged by Windows Event Log

Refer "Configuring Events Logged by Windows Event Log" on page 166 in Section 18.3.1, "Monitoring a System in a Domain Environment," on page 166.

Configuring Users to Collect Windows Event Log Remotely

In a non-Active Directory environment you must create user account on each event source, that is, each workstation running Novell SecureLogin and Collector Manager machine that has the same username and passowrd.

On Collector Manager machine this user must be part of Administrator group.

Refer "Configuring Users to Collect Windows Event Log Remotely" on page 166 in Section 18.3.1, "Monitoring a System in a Domain Environment," on page 166.

Setting up the Windows Management Instrumentation Service

Refer "Setting up the Windows Management Instrumentation Service" on page 167 in Section 18.3.1, "Monitoring a System in a Domain Environment," on page 166.

Configuring Domain Account User COM/DCOM

Refer "Configuring Domain Account User COM/DCOM" on page 167 in Section 18.3.1, "Monitoring a System in a Domain Environment," on page 166.

18.4 Logging Events from LDAP and Secure Workstation

You must configuring the registry to enable logging from LDAP and secure workstation.

To log events from SecureLogin LDAP authentication module:

1. Create a registry value at `HKEY_LOCAL_MACHINE\Software\Novell\Login\Ldap`

   The following events are logged:

   ```
   Event ID 1 Informational: NSL user login

   Event ID 2 Informational: LDAP user password change

   Event ID 3 Warning: Workstation unlocked by different User
   ```

2. Open the nslevtsvc.ini file in a text editor, and add the following section about the new information source:

```
[wmi]

event_source=LDAPAuth
```

The following events are logged:

```
Event ID 1 Informational: NSL user login

Event ID 2 Informational: LDAP user password change

Event ID 3 Warning: Workstation unlocked by different User
```

To log events from Secure Workstation:

1. Create a registry of DWORD value called `SWAudit` at `HKEY_LOCAL_MACHINE\Software\Novell\NMAS\MethodData\Secure Workstation`.
2. Set the DWORD value to `1`.
3. Open the nslevtsvc.ini file in a text editor, and add the following section about the new information source:

   ```
   [wmi]

   event_source=SecureWorkstation
   ```

   Following events are logged:

   ```
   Event ID 4 Informational: Inactivity Timeout

   Event ID 5 Informational: Device Removal

   Event ID 6 Informational: Manual Lock event
   ```

18.5 Using the Novell SecureLogin Event Service

The Novell SecureLogin Event Service is a client based tool that can periodically poll the Windows Event Log, retrieve the SecureLogin events, and send them to the Audit server. In Sentinel Log Manager you can view all or specific SecureLogin event logs that are sent from every system that runs this tool.

Using this tool avoids configuring Sentinel Connector for all the Windows systems in a large deployment via the WMS connector; and also prevents the workload of Sentinel Collector Manager from making multiple connections to each machines to pull logs. In addition, as this service can be run or stopped as required, it allows efficient functioning of other processes as well. The tool runs independently without any supporting applications and additional configurations.

NOTE: Apart from Sentinel Log Manager, other syslog servers also can use this tool.

The event service tool uses the connection settings specified in the `nslevtsvc.ini` file. On a Windows XP machine, the default location of the file is, `C:\Documents and Settings\All Users\Application Data\Novell\SecureLogin Event Service\`. On a Windows Vista or a Windows 7 machine, the default location of the file is, `C:\ProgramData\Novell\SecureLogin Event Service\`.

When restarted, this tool starts retrieving the events from the position at which the tool stopped retrieving events, and pushes the received events to the Audit server.

You can configure the tool to send the events via a TCP or SSL connection to the Audit server. The tool sends the events in the JSON format, which allows sending the event data with advanced data structures.

As part of the SecureLogin installation, the Event Service tool also gets installed.

NOTE: To install Novell SecureLogin without SecureLogin Event Service, use the command `msiexec /i "Novell SecureLogin.msi" X_NSLEVTSVC="No"`.

18.5.1 Configuring the Connection Settings

You can choose to configure the connection settings either by using the MSI command line switch, or by changing the INI file.

Using the MSI Package

You can change the connection settings for the SecureLogin Event Service by using the `msi` package via command line.

1. Open the the command prompt and go to the location where `Novell SecureLogin.msi` is available.
2. To specify values for the server, port, and connection method, run the following command:

```
msiexec /i "Novell SecureLogin.msi" NSLEVTSVCSRV=ip-address

NSLEVTSVCPORT=port NSLEVTSVCSSL=true or false
```

In this command, replace ip-address with the IP address of the server, port with the port to which events will be pushed, *true* to enable the secure connection or *false* to use the TCP connection.

Using the INI File

After installing, you can configure the connection settings by changing connection details.

1. Go to the location where the `nslevtsvc.ini` file is available .
2. Open the `nslevtsvc.ini` file in a text editor.
3. Specify the values for the `server`, `port` and `use_ssl` properties.
4. To activate the SecureLogin Event Service, restart the service or the system.

19 Configuring Secure Workstation Events

This section contains the following information:

19.1 Introduction

Secure Workstation is a post-login method that provides a mechanism to lock a workstation in events such as when an authentication device is removed or after a user inactivity timeout. You can configure secure workstation to lock the workstation, log out a user from Windows, log out a user from the network, or close a set of administrator-specified programs.

Secure workstation functions around the three factors:

Triggers

- Inactivity Timeout
- Network log in and log out
- Device Removal
- Manual Lock

Actions

- Locking a workstation
- Logging out from a workstation
- Logging out from a network
- Executing post-policy commands
- Issuing warnings
- Closing programs

Policy Editors

Secure workstation uses two policies:

- **Local Policy:** Local policy is used for workstations where the policy is stored in the registry.

- **Network Policy:** Network policy is used for workstations where the policy is stored in the server.
- **Effective Policy:** The effective policy is a combination of the local policy and the network policy.

The secure workstation policy editor is a GUI feature, which you can use to edit the local policy and view the effective policy.

Secure workstation is integrated with Novell SecureLogin. It registers itself with LDAPAuth for various events. When an event occurs, the SWEvent handles the event and passes it on to the service.

NOTE: On Windows machines, the *exe* files that are set to run automatically cannot have administrator privileges. So, the secure workstation policy editor session that requires administrator privileges does not run automatically. To run the session as a standard user on Windows 7, find the secure workstation session management process file (`wsaccsmp.exe`) and manually start this service. On Windows Vista, select to run the session from the notification message, which informs that the session is blocked.

19.2 Understanding Secure Workstation Policies

Secure workstation has three policies:

- Section 19.2.1, "Local Policy," on page 172
- Section 19.2.2, "Network Policy," on page 172
- Section 19.2.3, "Effective Policy," on page 173

IMPORTANT: When upgrading or uninstalling Novell SecureLogin, ensure that the Secure Workstation policies are configured in such a manner that they do not terminate the Novell SecureLogin installation.

19.2.1 Local Policy

The Local policy is stored under an ACL-protected registry key on the workstation. Secure Workstation reads the Local policy each time a user logs in to Windows. As long as the Novell Secure Workstation Service is running, the Local policy will be in effect during each user's Windows session.

If a user logs in to Windows but does not use the post-login method, the service creates the Effective policy by making a copy of the Local policy.

19.2.2 Network Policy

The Network policy is stored in eDirectory and delivered to the workstation using the NMAS Post-Login Method. When a user logs in to the network using the Secure Workstation Post-Login Method for NMAS, the post-login method sends the Network policy to the Novell Secure Workstation Service

19.2.3 Effective Policy

The Effective policy is created by combining the Local policy with the Network policy. Secure Workstation always enforces the Effective policy. The service reads the Local policy and combines it with the Network policy to create the Effective policy. The Effective policy consists of the most secure settings from the Local policy and the Network policy.

To see details about the policy that Secure Workstation is currently enforcing, click *View Effective Policy*, in the Secure Workstation's main dialog box. If you have already started the Novell Secure Workstation service, it might not have an effective policy yet. If so, you get an error message when you click *View Effective Policy*. The service creates an Effective policy only when the you log in to Windows, or when you log in by using the Post-Login Method for NMAS.

The priority between the Local Policy and Network Policy depends on the action executed in the policy. For example, if the Local Policy is set to Close All Programs and the Network Policy is set to Log Out of the Network, the Effective Policy considers both these events and enforces the most secure settings of the Local and Network policy.

If a user logs in to Windows but does not use the post-login method, the service creates the Effective policy by making a copy of the Local policy.

19.3 Configuring the Local Policy

You can configure and edit the local policy by using the Local Policy Editor. It provides an easy way to edit the local policy. To access the Local Policy Editor, click *Start* > *Programs* > *Novell SecureWorkstation*.

The Local policy is inactive in offline mode even if you select *Activate Local Workstation Policy*.

In online mode, after you have selected *Activate Local Workstation Policy*, the Events list is active. The events are:

- Inactivity Timeout
- Device Removal
- Network Logout
- Manual Lock

NOTE: Secure Workstation ignores the event unless the *Active* check box is selected.

By configuring these events, you can specify events that secure workstation must watch for and execute an action when an event occurs.

You can edit settings for a specific event by selecting the event in the list box and clicking *Edit Event*. A dialog box is displayed with settings for the event you select.

NOTE: If you are running the Local Policy Editor on a Terminal Server, the policy editor shows the Effective policy for the session that it is running in.

Through the local policy editor, you can configure the following events:

- Section 19.3.1, "Configuring an Inactivity Timeout Event," on page 174
- Section 19.3.2, "Configuring a Device Removal Event," on page 174
- Section 19.3.3, "Configuring a Network Logout Event," on page 175

- Section 19.3.4, "Configuring the Manual Lock Event," on page 176
- Section 19.3.5, "Using the Advanced Option," on page 176

19.3.1 Configuring an Inactivity Timeout Event

You can use the inactivity timeout event to specify the inactivity timeout and configure a warning that is displayed just before the inactivity timeout is reached.

You can configure a `.wav` file to be played when the warning is shown. You can also specify a `.avi` file to be played for the warning. To configure these features:

1. Click *Start* > *Programs* > *Novell SecureLogin* > *Novell SecureWorkstation*. The local policy editor opens.
2. Select *Activate Local Policy*.
3. Under the *Events* list, select *Inactivity Timeout*.
4. Click *Edit Event*. By default, *Activate Inactivity Timeout* is selected.
5. Select *Warn User Before Inactivity Timeout* > *Customize*.
6. Select an option.
7. Browse to select a `.avi` or `.wav` file.

   This action plays the file that you have selected as a warning before the inactivity timeout. The warning dialog box is displayed for the last few seconds of the inactivity timeout. You can specify the number of seconds that the warning dialog box is displayed. For example, if you set an inactivity timeout of thirty seconds and configure the warning dialog box to display for ten seconds, Secure Workstation displays the warning dialog box after twenty seconds of inactivity.
8. Click *OK*. The changes are saved.

19.3.2 Configuring a Device Removal Event

You can use the device removal event to enables specify the devices to be included in the policy. If a device is included in the policy, it must be present during the user's session. If a device in the list is not present, Secure Workstation executes the lock action.

1. Click *Start* > *Programs* > *Novell SecureLogin* > *Novell SecureWorkstation*. The local policy editor opens.
2. Select *Activate Local Policy*.
3. Under the *Events* list, select *Device Removal*.
4. Click *Edit Event*. By default, *Activate Device Removal* is selected.
5. Select *Activate Device Removal*.
6. Select the lock actions.
7. Select the devices to be monitor:
   - Select *All Registered Devices* if you want to monitor all the devices that are registered.
   - Select *Selected Devices in Device List* if you want to monitor specific devices, then select the devices you want to monitor.

     The Devices to Monitor for Removal section contains a list of devices that are registered with the Secure Workstation.

For Novell SecureLogin, pcProx method for NMAS can report device removal events to Secure Workstation

Other NMAS partners have also implemented devices that can report device removal events to Secure Workstation. If you want to use a device that does not show up in the list, make sure that you have installed the NMAS Login Client Method for the device. If the device still does not show up, check with the vendor of the device to ensure that it will work with Secure Workstation

8 Click *OK*.

19.3.3 Configuring a Network Logout Event

A Network Logout event is triggered when a user logs out of the network. This event could be triggered by either Client32 or the LDAP Authentication Client, depending on which client is present.

One of the intended uses of the Network Logout event is to close programs that the user might have used for single sign-on through Novell SecureLogin. This event might also be used to display a login dialog box or run a script when the user logs out.

1 Click *Start* > *Programs* > *Novell SecureLogin* > *Novell SecureWorkstation*. The local policy editor opens.

2 Select *Activate Local Workstation Policy*.

3 Under the *Events* list, select *Network Logout*.

4 Click *Edit Event*. By default, *Activate Network Logout* is selected.

This event has a different set of lock actions than the other events. The Default Action list contains the following actions:

- *Log Out of the Workstation*
- *Close All programs*
- *Only Execute the Post-Policy Command*

The Action for Terminal Services Clients list contains the following actions:

- *Log Out of the Workstation*
- *Close All Programs*
- *Disconnect the Session*
- *Only Execute the Post-Policy Command*

The Default Action list does not include the following actions:

- ***Lock the Workstation*:** This action has been omitted because of the behavior of the GINA. If a network connection is not present when the workstation is locked, the Client32 GINA won’t allow the workstation to be unlocked with an eDirectory authentication.
- ***Log Out of the Network*:** This action has been omitted because it does not make sense to log out of the network in response to a network logout event.

The *Network Logout* event is the only event that includes the *Only Execute the Post-Policy Command* action. This action is actually a substitute for the *Log Out of the Network* action available with other events. If you want to execute a Post-Policy command on network logout, but not do anything else, use this action.

You can use the Post-Policy command to display a login dialog box or run a script.

5 Click *OK*.

Changes In Network Logout Action

Previous Behavior: In Novell SecureLogin, if a network logout policy action was triggered Secure Workstation disconnected Novell Client network connection and Novell SecureLogin went to offline mode, seamlessly. It was then available to the same eDirectory users and could enable applications for single sign-on.

Current Behavior: In the same scenario, although Novell SecureLogin goes to a seamless mode, the single sign-on functionality is not available. Novell SecureLogin is available only when the eDirectory user logs in through Novell Client.

19.3.4 Configuring the Manual Lock Event

Use the *Manual Lock* event option to manually trigger Secure Workstation. You can manually trigger Secure Workstation either by clicking the *Logoff* button on the Quick Logon/Logoff Interface or by executing `SWLock.exe` in the `System32` directory.

To configure manual lock:

1. Click *Start* > *Programs* > *Novell SecureLogin* > *Novell SecureWorkstation*. The local policy editor opens.
2. Select *Activate Local Policy*.
3. Under the *Events* list, select *Manual Lock*.
4. Click *Edit Event*. By default, *Activate Manual Lock* is selected.
5. Select the lock actions.
6. Click *OK*.

19.3.5 Using the Advanced Option

You can use the *Advanced* option to terminate applications and execute the post-policy command.

To use the *Advanced* option:

1. Click *Start* > *Programs* > *Novell SecureLogin* > *Novell SecureWorkstation*. The local policy editor opens.
2. Select *Activate Local Policy*.
3. Click *Advanced*. The Secure Workstation Advanced Settings dialog box appears. Here you have two options:
   - *Force Termination of Non-Responding Applications When Logging Out of Windows*: Selecting this option affects the way programs are shut down when Secure Workstation logs a user out of Windows. If this option is selected, Windows terminates programs that do not respond to a Close message in a timely manner. This setting logs the user out of Windows more quickly, but some programs might not get an opportunity to save their data before being terminated.
   - *Wait Before Starting to Terminate Applications When Closing All Programs*: Selecting this option controls the behavior of the *Close All Programs* action. When Secure Workstation closes programs, it always sends a Close message to each program to tell it to shut down. If the Wait Before Starting to Terminate Applications When Closing All Programs check box is not selected, Secure Workstation does nothing else to close the programs. The result is that some programs might not shut down.

For example, if Microsoft Word has an unsaved document, Secure Workstation might display a *Save As* dialog box.

On the other hand, if the *Wait Before Starting to Terminate Applications When Closing All Programs* is selected, Secure Workstation checks to see if the programs are still running after the specified timeout. Any programs that are still running at this point are terminated and might not have a chance to save their data.

4 Click *Program List* to specify which programs should be closed when Secure Workstation executes a *Close All Programs* action.

If you select *Close Only the Programs Specified in the Program List*, Secure Workstation closes only the programs listed.

If you select *Close All Programs Except Those Specified in the Program List*, Secure Workstation closes all programs except those specifically listed.

NOTE: If you select *Close All Programs Except Those Specified in the Program List*, SecureLogin closes every program in the user's sessions except those listed. This closing includes `explorer.exe`, the process associated with the user's desktop.

Secure Workstation closes only the programs that the currently logged in Windows user has sufficient rights to close on his or her own. Programs that the user does not have rights to (such as a service running as the LocalSystem account) are not closed.

When Secure Workstation is running on a Terminal Server, only the programs in the current user's session are closed. Programs running in other users' sessions are not affected.

4a To add new programs to the list, click *Add*.

You do not need to specify the full path and name of each program in the program list. For example, instead of adding `c:\winnt\system32\notepad.exe` to the list, you could just add `Notepad.exe`.

However, if you do not specify the full path, the entry affects to all programs with that name, regardless of the path. For instance, listing `Notepad.exe` in the list without the path would match both `c:\winnt\system32\notepad.exe`, and `c:\documents and settings\user\notepad.exe`.

You can also use environment variables in the program list. For example, you could specify `%systemroot%\System32\notepad.exe` instead of `c:\winnt\system32\notepad.exe`.

4b If you want to delete a program from the list, select the program and click *Delete*.

5 The Post-Policy command is a command that is executed after Secure Workstation executes the lock action. This feature was designed to display a login dialog box after a *Close All Programs* or *Log Out of the Network* action has been executed. However, you can use this feature to run any program or script. You must provide the full path and name of the program to run.

To display the login dialog box, use *loginw32*.exe for Client32. Use *nldaplgn.exe* for the LDAP Authentication Client. One of the programs is located in the system32 directory, depending on the mode of installation.

If you have configured the Network Logout event, Secure Workstation restarts the program specified in the Post-Policy command if it terminates before a user is logged in. This allows the login dialog box to be displayed again if a user clicks Cancel. For more information on configuring events for Secure Workstation, Novell Technical Information Document 3407572 (http://www.novell.com/support/search.do?cmd=displayKC&docType=kc&externalId=3407572&sliceId=SAL_Public&dialogID=8134523&stateId=0%200%208138534)

19.4 Configuring the Network Policy

To configure a network policy:

1 Log in to iManager.

2 Select *NMAS* > *NMAS Login Sequences*. The NMAS Login Sequences page is displayed.

3 Click *New* and create a new login sequence.

  3a Specify a name for the login sequence.

  3b Select the sequence type from the *Sequence Type* drop-down list.

  3c Specify the login methods.

  The post-login method is Secure Workstation.

  3d Click *Finish*.

  The login sequence is created successfully.

4 Select *Novell Secure Workstation* > *Select Sequence*. The Select Login Sequence page is displayed.

5 Select the login sequence you created.

6 Select *Activate Secure Workstation*.

7 Click *Configure*. The Secure Workstation page with the network policy configuring options is displayed.

8 Proceed to configure your network policy.

  The procedures to configure the *InActivity Timeout*, *Device Removal*, *Network Logout*, *Manual Lock*, *Application Termination*, and *Post-Policy Command* are the same as explained in the following sections, earlier in this document.

  Refer the following sections:

  - Section 19.3.1, "Configuring an Inactivity Timeout Event," on page 174
  - Section 19.3.2, "Configuring a Device Removal Event," on page 174
  - Section 19.3.3, "Configuring a Network Logout Event," on page 175
  - Section 19.3.4, "Configuring the Manual Lock Event," on page 176
  - Section 19.3.5, "Using the Advanced Option," on page 176

19.5 The Quick Login and Logout Interface

When Secure Workstation is upgraded from Novell SecureLogin 3.51 or 6.0 to Novell SecureLogin 6.1 or 7.0, the Quick Login and Logout interface is installed even if this component was not installed with Novell SecureLogin 3.51 or 6.0. This is because Novell SecureLogin versions 6.1 and 7.0 use a `.msi` based installer, and prior versions use a `.exe` based installer. A `.msi` installer cannot detect sub-components laid down by a `.exe` installer.

If you do not require the Quick Login and Logout interface, you can remove it from the *Startup* programs menu. To do this, delete the NSWQLL entry from the registry at `HLKM\Software\Microsoft\Windows\Current Version\Run`.

NOTE: Removing this entry does not impact the functioning of Novell SecureLogin or Secure Workstation.

20 Administering Desktop Automation Services

The ARS.exe is the center of Desktop Automation Services. You can configure this object with an independent set of instructions by using an XML document that is obtained through an entry in the Windows registry. The XML document can be obtained either locally on the workstation or through the directory services. The XML document is called the action file and the file is named actions.xml.

See an example file in Section 20.3, "Example of an Action File," on page 210

Each action is a set of configurable user-level operations such as mapping a drive, testing for establishing an authenticated connection to a directory, and running or shutting down an application. The flexibility of the code to test for conditions or have the action triggers such as hot keys provides tremendous flexibility to change the behavior of the workstation to fit your needs.

After the first action is invoked, the ARSControl.exe service starts and runs as a Windows service. The ARSControl.exe then parses the actions.xml file and stores the configuration in memory. All actions performed by ARS.exe and ARSControl.exe are recorded in a DASlog.txt log file at different configurable levels of details.

After you have configured the ARS.exe object, its actions are available individually or in combination from any scripting interface that is available on Windows, for example, VBScript, JavaScript, login scripts, and batch files.

- Section 20.1, "Actions and Descriptions," on page 179
- Section 20.2, "Using the Wizards to Configure Actions," on page 206
- Section 20.3, "Example of an Action File," on page 210

20.1 Actions and Descriptions

Each instance of Desktop Automation Services is driven by an XML document that describes the available actions.

The following table describes the elements that might be used to compose a Desktop Automation Services XML input document.

Unless otherwise specified, all XML attributes listed for a given element are required for that element.

__Table 20-1__ Desktop Automation Services XML Description

XML Tags	Description

`application-runner-script`	This is the parent element for an Desktop Automation Services input document.
	`application-runner-script` has no attributes.
	`application-runner-script` can contain any number of action elements.
	Example:
	`<?xml version="1.0"?>`
	`<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">`
	`<application-runner-script>`
	`     <action name="sample-action">`
	`          <run-application application= "notepad.exe" interval="500" serial="true" parameters="" />`
	`     </action>`
	`<action-triggers>`
	`<on-inactivity-timer interval1="100" messagebox="Your " interval2="8" action-name="sample-action"/>`
	`</action-triggers>`
	`</application-runner-script>`

XML Tags	Description

action-triggers	This element is a parent (container) for action-trigger elements such as on-nds-login, or on-hot-key.
	action-triggers enables Desktop Automation Services executables to respond to workstation events by triggering specified actions as defined in the input document.
	action-triggers has no attributes.
	action-triggers can contain any of the following child elements:
	- on-pcprox-removal
	- on-inactivity-timer
	- on-nds-login
	- on-ldap-login
	- on-hot-key
	- on-screen-saver
	- on-cardmon
	- on-ad-login
	- test-ad-logged-in
	- ad-logout
	Example:
	`<action-triggers>`
	`<on-nds-login action-name="LoginInAction" tree="NCCD_TREE_1"/>`
	`</action-triggers>`

XML Tags	Description

`on-pcprox-removal`	This element provides information to Desktop Automation Services on the action to be performed when the monitor-type is set to `Tap` or `Removal`.
	◆ If the pcProx card removal trigger is configured with the monitor-type set to `Removal`, the pcProx card always stays on the card reader. The `HandleDeviceRemoval` action as shown in the example is invoked when the card is removed from the reader.
	Example: `<action-triggers>`
	`<on-pcprox-removal monitor-type="Removal" action-name="HandleDeviceRemoval"/>`
	`</action-triggers>`
	◆ If the pcProx card removal trigger is configured with the monitor-type set to `Tap`, pcProx card is tapped on and taken out from the reader.The `HandleDeviceTap` action as shown in the example is invoked when the card is tapped on to the reader.
	Example: `<action-triggers>`
	`<on-pcprox-removal monitor-type="Tap" action-name="HandleDeviceTap"/>`
	`</action-triggers>`
	◆ If monitor-type is not present in the pcProx card removal trigger, the pcProx card removal trigger is configured to monitor for removal of the pcProx card.
	Example: `<action-triggers>`
	`<on-pcprox-removal action-name="HandleDeviceRemoval"/>`
	`</action-triggers>`

XML Tags	Description

`on-inactivity-timer`	This command element provides information to Desktop Automation Services on the action to be performed if the workstation is inactive for more than the specified period of time.
	At the end of the countdown period, a specified action such as `Close all programs` or `Lock the Workstation` is invoked. If a mouse or keyboard action is detected, the countdown timer stops and resets until the next inactivity is detected.
	NOTE: The `on-inactivity-timer` functions only if the network login is present.
	Example:
	`<?xml version="1.0"?>`
	`<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">`
	`<application-runner-script>`
	`<action name="sample-action">`
	`<run-application application="notepad.exe" interval="500" serial="true" parameters="" />`
	`</action>`
	`<action-triggers>`
	`<on-inactivity-timer interval1="100" message box="Your" interval2="8" action-name="sample-action"/>`
	`</action-triggers>`
	`</application-runner-script>`
	◆ interval1 is the time of executing an action.
	◆ interval2 is the time after which warning dialog will be displayed.
	◆ messagebox contains the message to be displayed in the warning.
	◆ action-name is the name of the action to be executed.
	NOTE: You must specify only numbers for interval values in the syntax. If you use special characters in the `action.xml` file, it does not behave as expected.
	The `on-inactivity-timer` is implemented to work with positive numbers, within a range. If negative or special characters are specified, it behaves erroneously.
	Specify the inactivity timer in seconds. For example, 10 seconds.

XML Tags	Description

`on-nds-login`	This element defines an action trigger to poll for a workstation user logging in to the eDirectory™ instance identified by the tree attribute. The authentication is through the Novell® Client32™ GINA. If a user logs in to the tree, an action trigger invokes Desktop Automation Services. It tests the primary connection to see if the current tree matches the configuration. If it matches, Desktop Automation Services executes the configured action identified by the action name attribute value.
	`on-nds-login` element must be contained by an `action-triggers` the parent element.
	`on-nds-login` has two attributes:
	- **action-name:** The name of an action defined in the input document that is executed when a user logs in to the tree named by the tree attribute. The action-name must be contained in double quotes.
	- **tree:** Connections are tested periodically to see if they are linked to the tree named by this network name. The tree name must be contained in double quotes.
	Example:
	`<action-triggers>`
	`<on-nds-login action-name="LoginInAction" tree="NCCD_TREE_1"/>`
	`</action-triggers>`

`on-ldap-login`	This element defines an action trigger to poll for a workstation user logging in to the directory through the Novell SecureLogin identified by the server attribute.
	Desktop Automation Services tests the primary connection to check whether the current server matches the server attribute specified in the configuration. If the current server matches the configuration, Desktop Automation Services executes the configured action identified by the action-name attribute value.
	`on-ldap-login` must be contained by an `action-trigger` parent element.
	`on-ldap-login` has two attributes:
	- **server:** The connections are tested periodically to check if they are linked to the tree named by this name.
	- **action-name:** The name of an action defined in the input document that is executed when a user logs in to the tree named by the tree attribute.
	Example:
	`<action-triggers>`
	`<on-ldap-login action-name="LoginInAction" server="192.168.1.255"/>`
	`</action-triggers>`

XML Tags	Description

`on-hot-key`	This element installs an action trigger. The action trigger responds to the user typing the specified hot key sequence (see the example below) by invoking Desktop Automation Services to execute the input document action that has the same name as the action-name attribute value. `on-hot-key` elements must be contained by an `action-triggers` parent element.
	`on-hot-key` has three attributes:
	◆ **virtual-key:** The hex value of the key based on the virtual key map. This element specifies that it is the second component of the hot key sequence.
	◆ **modifiers:** The modifiers indicate the keys that are pressed in together with the virtual key to cause the hot-key event. The hex value might be a combination of one or more of the following, separated by a plus sign (+):
	◆ alt indicates the Alt key
	◆ ctrl indicates the Ctrl key
	◆ shift indicates the Shift key
	◆ win indicates the Windows key
	This element specifies that it is the first component of the hot key sequence.
	◆ **action-name:** The name of an action defined in the input document that is executed when the hot-key sequence is detected.
	Example:
	`<action-triggers>`
	`<on-hot-key virtual-key="h" modifiers="ctrl+shift" action-name="HKeyAction"/>`
	`</action-triggers>`
	A virtual-key value of `‘h’` and a modifiers value of ‘`ctrl+shift`’ produces a `Control-Shift-H` HotKey sequence.

XML Tags	Description

`on-screen-saver`	This element causes an action to be called when the workstation enters the screensaver mode. `on-screen-saver` elements must be contained by an `action-trigger` parent element.
	`on-screen-saver` has the following attributes:
	◆ **action-name:** The name of the action defined in the input document that is executed when the workstation has entered the screensaver mode and the specified interval has elapsed.
	◆ **interval:** The amount of time in milliseconds that the ARSControl waits before running the specified action after a screensaver event is triggered.
	NOTE: To activate this trigger, you must have a Windows system screen saver selected. Set the screen saver wait time to the desired time interval before the workstation activates the screen saver. If you are using DAS to activate the screen saver through the `on-inactivity-timer` action trigger, set the wait time to a longer timer interval than what you set for the `on-inactivity-timer` action trigger. For example, you can set the `on-inactivity-timer` interval to 60 minutes. The screen saver is triggered from DAS on the shared workstation.
	Example:
	`<action-triggers>`
	`<on-screen-saver action-name="logoff" interval="60000"/>`
	`</action-triggers>`
	This results in the logoff action being executed 60 seconds after the Windows screen saver is activated.

`on-cardmon`	The `on-cardmon` element specifies the action to be performed when a smart card is inserted or removed and when the SecureLogin is succesfully launched. If a user is logged in through a smart card and logs out because of a security reason, a specific action like a system lock must be performed to ensure that the workstation security is not at risk.
	The `on-cardmon` element must be contained by an `action-trigger` parent element.
	`on-cardmon` has the following attribute:
	◆ **action-name:** The name of the action defined in the input document that is executed when the card is removed from the reader.
	◆ **card-insert:** The name of the action defined in the input document that is executed when the card is inserted to the reader.
	◆ **LoginAction:** The name of the action defined in the input document that is executed when the user succesfully log in to Active Directory.
	If the login action fails card-insert action is repeated again.
	Example:
	`<action-triggers>`
	`<on-cardmon action-name="Removal" card-insert="Insertion" LoginAction = "unHideMe"/>`
	`</action-triggers>`

XML Tags	Description

`on-ad-login`	This element defines an action trigger to poll for a user logging in to a workstation,in the Active Directory domain.
	This support is for SecureLogin installed in the Active Directory mode. If a user logs in to Active Directory, an action trigger invokes Desktop Automation Services which in turn executes the configured action identified by the `action-name`. `on-ad-login` element must be contained within the parent element, action-triggers.
	Example:
	`<action-triggers>`
	`  <on-ad-Login action-name="LogInAction"/>`
	`   </action-triggers>`

`test-ad-logged-in`	The `test-ad-logged-in` command element provides information that enables Desktop Automation Services to test whether a user logged into SecureLogin in the Active Directory mode.
	`test-ad-logged-in` contains no attributes. It contains either one or both of the following child elements:
	◆ **if-true:** This element contains the command operations to perform if the test returns a true value.
	◆ **if-false:** This element contains the command operations to perform if the test returns a false value
	Example:
	`<action name="test">`
	`<test-AD-logged-in>`
	`<if-true>`
	`<message-box caption="User are logged in"  />`
	`</if-true>`
	`<if-false>`
	`<message-box caption="User are not logged in"  />`
	`</if-false>`
	`</test-AD-logged-in>`
	`</action>`

`ad-logout`	This test command element provides information that enables Desktop Automation Services to log out of the SecureLogin in the Active Directory mode.
	`ad-logout` does not have any attributes or child attributes.
	Example:
	`<application-runner-script>`
	`<action name="sample-action">`
	`<AD-logout/>`
	`</action>`
	`</application-runner-script>`

XML Tags	Description

`action`	This is the parent element for all the commands that constitute an action.
	`action` has two attributes:
	name: The name can be any arbitrary string value. The character case in the name used by a caller to invoke an action must match the case used where the action is defined. The action-name must be contained in double quotes.
	multi-delay: This command element specifies the interval in executing the same action, twice.
	Example
	`<?xml version="1.0"?>`
	`<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">`
	`<application-runner-script>`
	`    <action name="sample-action">`
	`        <action name="ctrl+l" multi-delay="4000">`
	`    </action>`
	`</application-runner-script>`
	`action` can contain any number of the following child elements:
	◆ Hide-Desktop and Unhide Desktop
	◆ `run-application`
	◆ `test-app-running`
	◆ `kill-app`
	◆ `kill-all-apps`
	◆ `map-drive`
	◆ `map-home-drive`
	◆ `map-location-drive`
	◆ `test-logged-in`
	◆ `test-ldap-logged-in`
	◆ `nds-logout`
	◆ `ldap-logout`
	◆ `screen-saver-on`
	Example:
	`<?xml version="1.0"?>`
	`<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">`
	`<application-runner-script>`
	`    <action name="sample-action">`
	`        <map-drive drive-letter="o:" remote-`
	`name="\\192.168.1.255\sys"/>`
	`    </action>`
	`</application-runner-script>`

XML Tags	Description
`Hide-Desktop` and `Unhide Desktop`	The `Hide-Desktop` and `Unhide-Desktop` actions hide and show the desktop icons and other programs before a user logs in. After the user has logged in, the <on-login> condition is met and the `show-desktop` action is invoked to display the hidden icons and programs. **NOTE:** These actions are primarily for a kiosk approach without role-based access or for workstation policies managed through ZENworks® syntax. If you specify special characters in the `action.xml` file, it does not behave as expected.

`run-application`	This command element provides information that enables Desktop Automation Services to run an application and respond when the application is closed.
	◆ **application:** The name of the application to launch,such as `notepad.exe`. For unregistered programs, the complete application path and extension must be provided. This launches the application correctly.
	◆ **parameters:** Lists the strings to pass to the application.
	◆ **serial:** If an application is launched using this command with the serial set to true (in synchronous mode), then the execution of the parent action does not continue until the application is closed or the interval timeout has expired.
	◆ **interval:** The timeout interval is used only when the serial is true. If the application has not returned by timeout, Desktop Automation Services stops waiting for a return and executes the action.
	`run-application` has one optional attribute:
	◆ **on-exit-action:** When the application started by this element is closed, the specified action is called.
	`run-application` cannot have any child elements.
	Example:
	`<?xml version="1.0"?>`
	`<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">`
	`<application-runner-script>`
	`   <action name="sample-action">`
	`      <run-application application="C:\Program Files\Mozilla`
	`Firefox\firefox.exe" parameters="" on-exit-action=”launchSomethingElseAction”`
	`serial="true" interval="500"/>`
	`   </action>`
	`</application-runner-script>`

<table>
<tr><th>XML Tags</th><th>Description</th></tr>
<tr><td>test-app-running</td><td>

The `test-app-running` command element provides information that enables Desktop Automation Services to test whether an application is running or not.

`test-app-running` can have only one attribute:

- **application:** The name of the application as it is found in the process list.

Because `test-app-running` is a test command, it can contain either one or both of the following child elements:

- **if-true:** An element containing the command operations to perform if the test returns a true value.
- **if-false:** An element containing the command operations to perform if the test returns a false value.

Example:

```
<?xml version="1.0"?>

<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">

<application-runner-script>

     <action name="sample-action">

      <test-app-running application="notepad.exe">

         <if-true>

            <kill-app application="xmlspy.exe"/>

            <kill-all-apps exclude-apps="notepad.exe:xmlspy.exe"/>

            <map-drive drive-letter="F:" remote-name="\\172.16.5.250\sys"/>

         </if-true>

         <if-false>

            <map-drive drive-letter="G:" remote-name="\\192.168.1.255\sys"/>

         </if-false>

      </test-app-running>

     </action>

</application-runner-script>
```

</td></tr>
</table>

XML Tags	Description

`kill-app`	The `kill-app` command element provides information that enables Desktop Automation Services to close an application.
	`kill-app` has one essential attribute:
	◆ **application:** The name of the application to close, as found in the process list.
	`kill-app` has one optional attribute:
	◆ **interval:** The amount of time in milliseconds that Desktop Automation Services waits after sending a close command to the application before killing the process. The default interval value is 1000.
	`kill-app` cannot contain any child element.
	Example:
	`<?xml version="1.0"?>`
	`<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">`
	`<application-runner-script>`
	`     <action name="sample-action">`
	`          <kill-app application="xmlspy.exe"/>`
	`     </action>`
	`</application-runner-script>`

XML Tags	Description

`kill-all-apps`	This command element provides information that enables Desktop Automation Services to kill all the running applications except those specified in exclude-apps.
	`kill-all-apps` has one essential attribute:
	◆ **exclude-apps:** The names of the applications that must not be killed. The application names are separated by a colon (:) character. The name of an application listed in this attribute must match the name of the application listed in the *Processes* tab of the Task Manager.
	`kill-all-apps` has one optional attribute:
	◆ **interval:** The amount of time in milliseconds that Desktop Automation Services waits after sending a close command to an application before killing the process. Because each process is closed in a sequential order, a large interval significantly increases the amount of time the command takes to execute. The default value is 0.
	`kill-all-apps` cannot have any child elements.
	Example:
	`<?xml version="1.0"?>`
	`<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">`
	`<application-runner-script>`
	`     <action name="sample-action">`
	`          <kill-all-apps exclude-apps="notepad.exe:xmlspy.exe"/>`
	`     </action>`
	`</application-runner-script>`

`map-drive`	This command element provides information that enables Desktop Automation Services to do a normal drive mapping.
	`map-drive` has two essential attributes:
	◆ **drive-letter:** Specifies the drive letter to assign to the new mapped drive.
	◆ **remote-name:** Specifies the UNC file specification for a remote volume to be mapped.
	`map-drive` cannot not contain child elements.
	Example:
	`<?xml version="1.0"?>`
	`<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">`
	`<application-runner-script>`
	`     <action name="sample-action">`
	`          <map-drive drive-letter="G:" remote-`
	`name="\\192.168.1.255\sys"/>`
	`     </action>`
	`</application-runner-script>`

XML Tags	Description

`map-home-drive`	This command element provides information that enables Desktop Automation Services to map a drive to a home directory as defined by the homedrive attribute in the user’s eDirectory object.
	`map-home-drive` has two essential attributes:
	◆ **drive-letter:** Specifies the drive letter to assign to the new mapped drive.
	◆ **tree:** Specifies the tree containing the object with the home directory information.
	`map-home-drive` cannot contain any child elements.
	Example:
	`<?xml version="1.0"?>`
	`<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">`
	`<application-runner-script>`
	`     <action name="sample-action">`
	`          <map-home-drive drive-letter="I:" tree="TestTree"/>`
	`     </action>`
	`</application-runner-script>`

XML Tags	Description

`map-location-drive`	This command element provides information that enables Desktop Automation Services to map a drive based on a properties file.
	`map-location-drive` has four attributes:
	◆ **drive-letter:** Specifies the drive letter to assign to the new mapped volume.
	◆ **tree:** Specifies the tree containing the object with the location information.
	◆ **attribute:** Specifies the key to be used to obtain a value from the properties file.
	◆ **file-name:** Specifies the file system path to a properties file containing information for the `map-location-drive` operation. This file contains property information in the form of key or value pairs. The property key is located on the left of the equals symbol (=) in a property item and the value is on the right side. For example:
	here=\\137.65.60.39\Share2
	there=\\137.65.60.39\Share3
	`map-location-drive` cannot contain any child elements.
	Example:
	`<?xml version="1.0"?>`
	`<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">`
	`<application-runner-script>`
	`     <action name="sample-action">`
	`         <map-location-drive drive-letter="T:" tree="TestTree2" file-name="c:\yourFile.c" attribute="yourAttribute"/>`
	`     </action>`
	`</application-runner-script>`

XML Tags	Description
test-logged-in	This command element provides information that enables Desktop Automation Services to test whether the user is logged in to a particular eDirectory server or not. test-logged-in can have only one attribute: ◆ **tree:** The name of the tree for which the logged in state has to be tested. Because the test-logged-in is a test command, it can contain either one or both of the following child elements: ◆ **if-true:** An element containing the command operations to perform if the test returns a true value. ◆ **if-false:** An element containing the command operations to perform if the test returns a false value. **Example:** <?xml version="1.0"?> <!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd"> <application-runner-script> <action name="sample-action"> <test-logged-in tree="TestTree"> <if-true> <run-application application="explorer.exe" parameters="" serial="false" interval="1000"/> <map-home-drive drive-letter="I:" tree="TestTree"/> </if-true> <if-false> <map-location-drive drive-letter="J:" tree="TestTree" file-name="c:\myFile.c" attribute="myAttribute"/> </if-false> </test-logged-in> </action> </application-runner-script>

<table>
<tr><th>XML Tags</th><th>Description</th></tr>
<tr><td><code>test-ldap-logged-in</code></td><td>
<p>This command element provides information that enables Desktop Automation Services to test whether the user is logged in to a particular LDAP server or not. This command must only be used when using the LDAP GINA and Novell Client32 is not used for authentication.</p>
<p><code>test-ldap-logged-in</code> can have only one attribute:</p>
<ul>
<li><b>server:</b> The name of the server for which the logged-in state must be tested.</li>
</ul>
<p>Because <code>test-ldap-logged-in</code> is a test command, it can contain either or both of the following child elements:</p>
<ul>
<li><b>if-true:</b> An element containing the command operations to perform if the test returns a true value.</li>
<li><b>if-false:</b> An element containing the command operations to perform if the test returns a false value.</li>
</ul>
<p><b>Example:</b></p>
<pre>
<?xml version="1.0"?>

<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">

<application-runner-script>

     <action name="sample-action">

      <test-ldap-logged-in server="192.168.1.255">

         <if-true>

            <run-application application="explorer.exe"
parameters="" serial="false" interval="1000"/>

        </if-true>

         <if-false>

            <run-application application="iexplore.exe"
parameters="" serial="false" interval="1000"/>

         </if-false>

      </test-logged-in>

</action>

</application-runner-script>
</pre>
</td></tr>
</table>

XML Tags	Description

`nds-logout`	This test command element provides information that enables Desktop Automation Services to log out of the primary NDS® connection.
	`nds-logout` cannot not have any attributes.
	`nds-logout` cannot have any child attributes.
	Example:
	`<?xml version="1.0"?>`
	`<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">`
	`<application-runner-script>`
	`     <action name="sample-action">`
	`          <nds-logout/>`
	`     </action>`
	`</application-runner-script>`

`ldap-logout`	This test command element provides information that enables Desktop Automation Services to log out of Novell SecureLogin.
	`ldap-logout` can have one optional attribute:
	◆ **gina:** Can have either true or false values. If the value is true, the login dialog box for Novell SecureLogin is displayed after logging out of Novell SecureLogin. If the value is false, no action is taken.
	The default value is true.
	`ldap-logout` cannot have any child elements.
	Example:
	`<action name="logoff">`
	`        <pause interval="100"/>`
	`<kill-all-apps exclude-apps="slbroker.exe:slwinsso.exe:slproto.exe:explorer.exe:"/>`
	`<ldap-logout gina="true"/>`
	`</action>`

XML Tags | **Description**

`screen-saver-on`

This action tag invokes the Windows screen saver, which triggers the `on-screen-saver` action. When this action is triggered, the Windows screen saver is started and the DAS `on-screen-saver` is invoked with timer.

This action locks the workstation and triggers the screen saver, which covers up any icons and browsers. `screen-saver-on` elements must be contained by an `action-triggers` parent element.

Use Case: A user is away from the workstation. A pcProx sonar device triggers an event to start the Windows screen saver program. After the defined time interval of inactivity, the user is logged out. If an activity occurs, the screen saver closes; the user is not logged out. The user returns to the workstation, which is in an undisturbed state. The screen-saver-on action ensures that the icons and browsers are covered.

`screen-saver-on` has one following attribute:

- **lock:** If lock is set to true, the workstation is locked after the screen saver is activated. The user must enter the password to unlock the workstation and the screen saver.

  If lock is set to false, the workstation lock is not activated. Any mouse movement or keystore deactivates the screen saver.

Example:

```
 <action-triggers>

      <application-runner-script>

<action name="Act1">

    <screen-saver-on/>

</action>

<action name="Act2">

    <screen-saver-on lock="true"/>

</action>

<action name="Act3">

    <screen-saver-on lock="false"/>

</action>

<action-triggers>

<on-hot-key virtual-key="l" modifiers="ctrl" action-
name="Act1"/>

<on-hot-key virtual-key="m" modifiers="ctrl" action-
name="Act2"/>

<on-hot-key virtual-key="n" modifiers="ctrl" action-
name="Act3"/>

</action-triggers>

</application-runner-script>
```

XML Tags	Description
`test-nds-attr-val`	This test command element provides information that enables Desktop Automation Services to test whether or not an NDS account contains a particular directory attribute with a particular value.

`test-nds-attr-val` has four attributes:

- **tree:** The name or IP address of the tree containing the account to be searched for the attribute value.
- **attr-name:** The name of the attribute to be tested in the NDS account.
- **attr-syntax:** The syntax of the attribute to be tested in the NDS account.

  The acceptable `attr-syntaxes` are:

  - string
  - integer
  - boolean
- **attr-val:** The value to be searched in the target attribute in the NDS account. The values for the Boolean syntax attribute must be either true or false.

NOTE: If the attribute syntax is string, then the comparison between the value retrieved from the eDirectory and the value of the attr-val is case sensitive.

Because the `test-nds-attr-val` is a test command, it can contain either or both of the following child elements:

- **if-true:** An element containing the command operations to perform if the test returns a true value.
- **if-false:** An element containing the command operations to perform if the test returns a false value.

Example:

```
<?xml version="1.0"?>

<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">

<application-runner-script>

     <action name="sample-action1">

      <test-nds-attr-val tree="TestTree" attr-name="cn" attr-
syntax="string" attr-val="larry">

         <if-true>

            <kill-app application="george.exe"/>

            <run-application application="fred.exe"
parameters="" serial="true" interval="250"/>

         </if-true>

         <if-false>

            <map-drive drive-letter="S:" remote-
name="\\172.16.5.253\sys"/>

         </if-false>

      </test-nds-attr-val

 </action>

         <action name="sample-action2">     <test-nds-attr-val
tree="TestTree" attr-name="cn" attr-syntax="integer" attr-val="123">

    <if-true>
```

XML Tags **Description**

test-ip-subnet

This test command is useful for enabling an action to determine if the workstation resides on a particular network or not. This can be critical if the action is deciding whether to launch a particular application that is available or effective in a given network.

When invoked, the `test-ip-subnet` command executes the child commands if the current subnet of the workstation and the command's `addr` attribute value are the same.

`test-ip-subnet` has two attributes:

- **addr:** An IP subnet to compare with the local IP addresses of the machine.
- **subnet:** The subnet mask (in the form of 255.255.255.0) is applied to the addr attribute and the local IP addresses, which are then compared. If the network portion matches, the test returns a true value.

Because the `test-ip-subnet` is a test command, it can contain either one or both of the following child elements:

- **if-true:** An element containing the command operations to perform if the test returns a true value.
- **if-false:** An element containing the command operations to perform if the test returns a false value.

Example:

```
<?xml version="1.0"?>

<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">

<application-runner-script>

     <action name="sample-action">

      <test-ip-subnet addr="192.168.1.0" subnet="255.255.255.0">

         <if-true>

            <run-application application="write" parameters=""
serial="true" interval="500"/>

         </if-true>

         <if-false>

           <run-application application="notepad" parameters=""
serial="true" interval="500"/>

         </if-false>

      </test-ip-subnet>

     </action>

</application-runner-script>
```

XML Tags	Description

`test-env-variable`	This test command element enables Desktop Automation Services to test whether an environment variable matches a specific value or not.
	`test-env-variable` has two attributes:
	◆ **var-name:** The case-sensitive environment variable name. If the variable does not exist, the test returns a false value.
	◆ **var-value:** The value used for case-insensitive comparison with the actual variable value.
	Because `test-env-variable` is a test command, it can contain either one or both of the following child elements:
	◆ **if-true:** An element containing the command operations to perform if the test returns a true value.
	◆ **if-false:** An element containing the command operations to perform if the test returns a false value.
	Example:
	`<?xml version="1.0"?>`
	`<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">`
	`<application-runner-script>`
	`     <action name="sample-action">`
	`      <test-env-variable var-name="Testvar" var-value="testvalue">`
	`         <if-true>`
	`            <run-application application="write" parameters="" serial="true" interval="500"/>`
	`         </if-true>`
	`         <if-false>`
	`           <run-application application="notepad" parameters="" serial="true" interval="500"/>`
	`         </if-false>`
	`      </test-env-variable>`
	`     </action>`
	`</application-runner-script>`

XML Tags	Description

`message-box`	This command element provides information that enables Desktop Automation Services to display a message box containing the text from the element’s caption attribute.
	`message-box` has two attributes:
	◆ **caption:** The text to be displayed in the dialog box.
	◆ **window-name:** The title for the dialog box window.
	`message-box` cannot have any child elements.
	Example:
	`<?xml version="1.0"?>`
	`<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">`
	`<application-runner-script>`
	`     <action name="sample-action">`
	`          <message-box caption="HotKey Control+H was pressed." window-name="HotKey Event"/>`
	`     </action>`
	`</application-runner-script>`

XML Tags	Description

`execute-user-action`	This command directs Desktop Automation Services to access the currently logged-in user and read a custom attribute (`ARSUserConfiguration`) on that user. The value of this attribute must have the same layout as the standard XML used to configure Desktop Automation Services.
	NOTE: The XML stored in the user object can contain actions. Triggers are not supported.
	`execute-user-action` has one attribute:
	◆ **action-name:** The name of the configured action read from the user object.
	Example value for the `ARSUserConfiguration` attribute:
	`<?xml version="1.0"?>`
	`<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">`
	`<application-runner-script>`
	`     <action name="userAction">`
	`       <!--.`
	`          .  Any actions may be inserted here.`
	`          . -->`
	`     </action>`
	`</application-runner-script>`
	`execute-user-action` Example:
	`<?xml version="1.0"?>`
	`<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">`
	`<application-runner-script>`
	`     <action name="sample-action">`
	`          <execute-user-action action-name="userAction"/>`
	`     </action>`
	`</application-runner-script>`

XML Tags	Description

`if-true`	This is one of the two allowed types of child elements for a test type of command. The other element is “if-false” on page 205.
	`if-true` contains all the commands that must be performed if the test returns a true value. So `if-true` can also be a parent element for all the commands that constitute an action.
	`if-true` does not have any attribute values.
	`if-true` can contain any number of the following child elements:
	◆ `run-application`
	◆ `test-app-running`
	◆ `kill-app`
	◆ `kill-all-apps`
	◆ `map-drive`
	◆ `map-home-drive`
	◆ `map-location-drive`
	◆ `test-logged-in`
	◆ `test-ldap-logged-in`
	◆ `test-nds-attr-val`
	◆ `test-ip-subnet`
	◆ `test-env-variable`
	◆ `message-box`
	◆ `nds-logout`
	◆ `ldap-logout`
	◆ `execute-user-action`
	Example:
	`<?xml version="1.0"?>`
	`<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">`
	`<application-runner-script>`
	`     <action name="sample-action">`
	`      <test-env-variable var-name="Testvar" var-value="testvalue">`
	`         <if-true>`
	`            <run-application application="write" parameters="" serial="true" interval="500"/>`
	`         </if-true>`
	`         <if-false>`
	`           <run-application application="notepad" parameters="" serial="true" interval="500"/>`
	`         </if-false>`
	`      </test-env-variable>`
	`     </action>`
	`</application-runner-script>`

XML Tags	Description

`if-false`	This is one of the two allowed types of child elements for a test type of command. The other element is "if-true" on page 204.
	`if-false` contains all the commands that must be performed if the test resolves to false. `if-false` can also be a parent element for all the commands that constitute an action.
	`if-value` does not have attribute value.
	`if-value` can contain any number of the following child elements:
	◆ `run-application`
	◆ `test-app-running`
	◆ `kill-app`
	◆ `kill-all-apps`
	◆ `map-drive`
	◆ `map-home-drive`
	◆ `map-location-drive`
	◆ `test-logged-in`
	◆ `test-ldap-logged-in`
	◆ `test-nds-attr-val`
	◆ `test-ip-subnet`
	◆ `test-env-variable`
	◆ `message-box`
	◆ `nds-logout`
	◆ `ldap-logout`
	◆ `execute-user-action`
	Example:
	`<?xml version="1.0"?>`
	`<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">`
	`<application-runner-script>`
	`     <action name="sample-action">`
	`      <test-env-variable var-name="Testvar" var-`
	`value="testvalue">`
	`         <if-true>`
	`            <run-application application="write" parameters=""`
	`serial="true" interval="500"/>`
	`         </if-true>`
	`         <if-false>`
	`           <run-application application="notepad" parameters=""`
	`serial="true" interval="500"/>`
	`         </if-false>`
	`      </test-env-variable>`
	`     </action>`
	`</application-runner-script>`

20.2 Using the Wizards to Configure Actions

Each instance of DAS is driven by an XML document describing the actions that are available.

This release of SecureLogin introduces a wizard that helps you in composing an action. The wizard tool is available in the `Tools` folder of the Windows Installer Package.

The first version of the DAS Wizard has a provision for creating and modifying a configuration file. The wizard helps you create the configuration in an XML format.

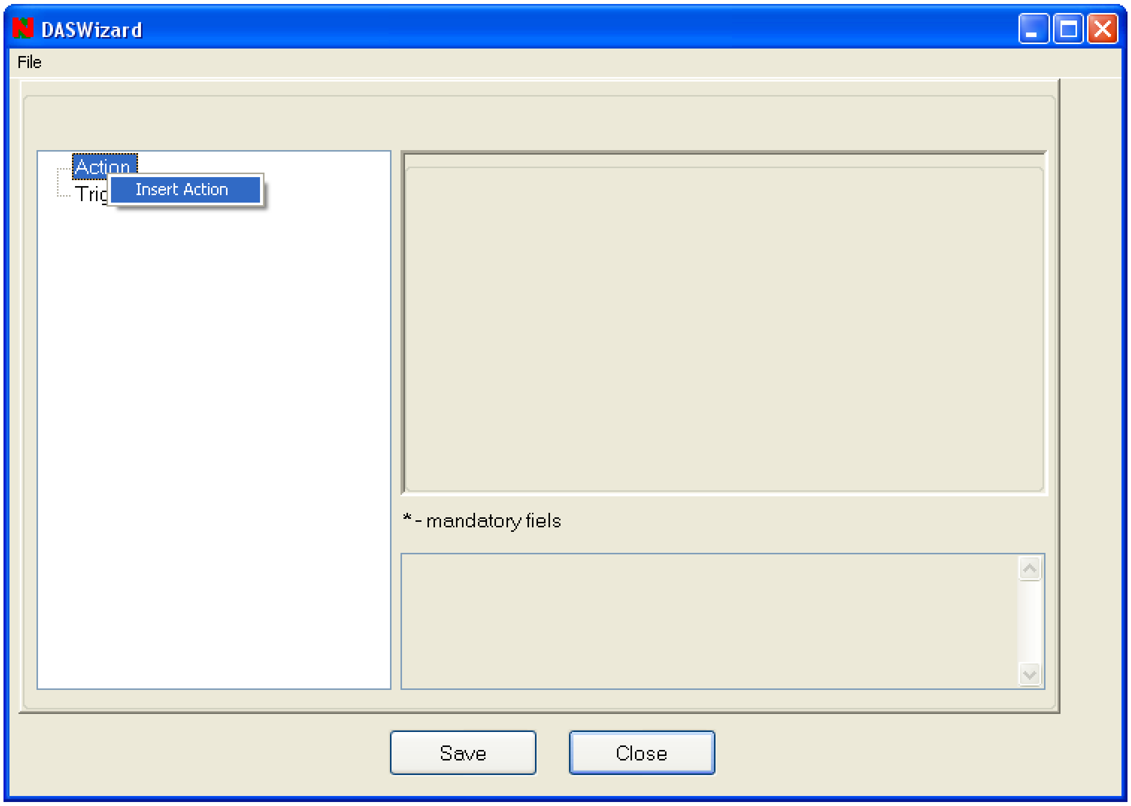
The wizardsupports actions and triggers created in DAS version 2.0.

- If you are using the DAS Wizard to create configuration file for DAS 2.0, select the actions and triggers applicable for DAS 2.0.
- The tool does not differenciate between DAS 2.0 or DAS integrated with this version of Novell SecureLogin.
- The DTD file must be stored in the same location as the XML file. The DTD file validates the XML file.

- Section 20.2.1, “Creating a New Configuration File,” on page 206
- Section 20.2.2, “Deleting a Configuration,” on page 209
- Section 20.2.3, “Modifying an Existing Configuration File,” on page 209

20.2.1 Creating a New Configuration File

1. Run the `DASWizard.exe` available in the `Tools` folder of the Windows Installer Package. The wizard is launched.
2. Select *Action* > *Insert Action*.

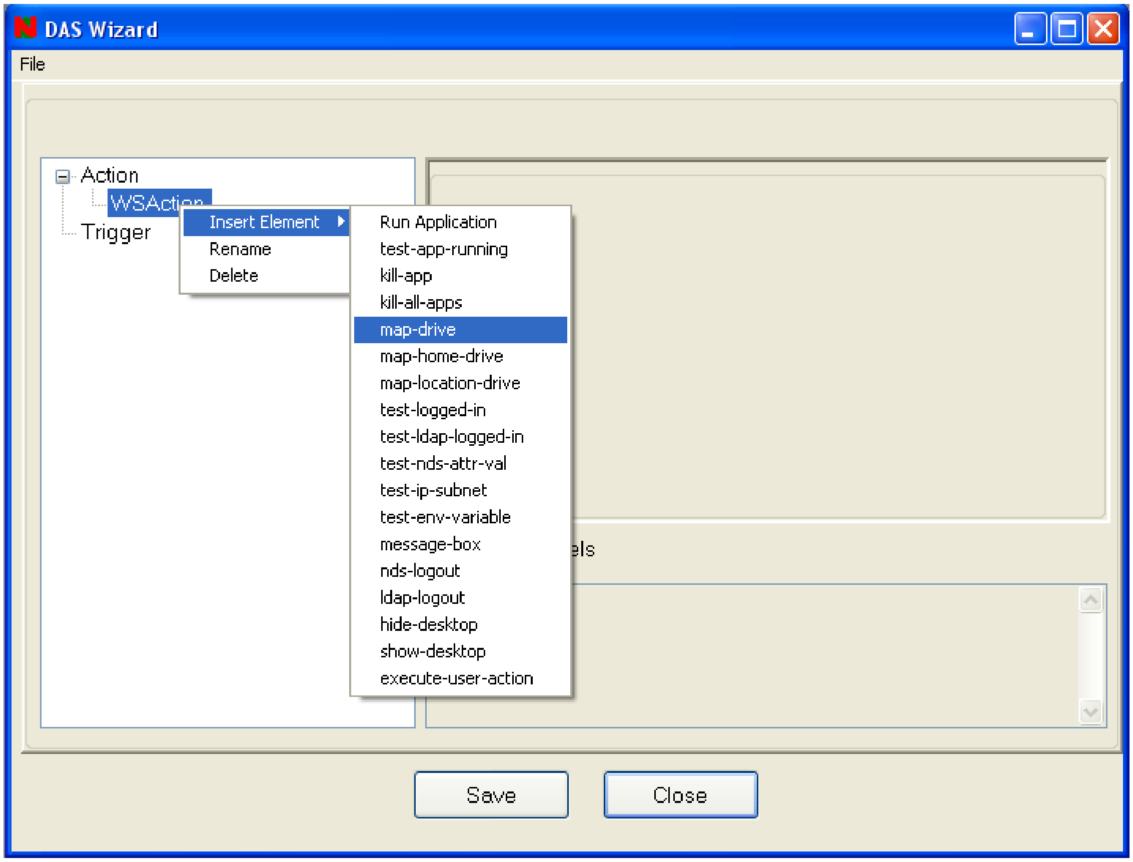


3 Specify a name for the action. For example, WSAction.

4 Insert a child element for the action you have created.

You can select from a set of predefined actions.

Right-click the action you added, click *Insert Element*, and select the child element. For example, map-drive.

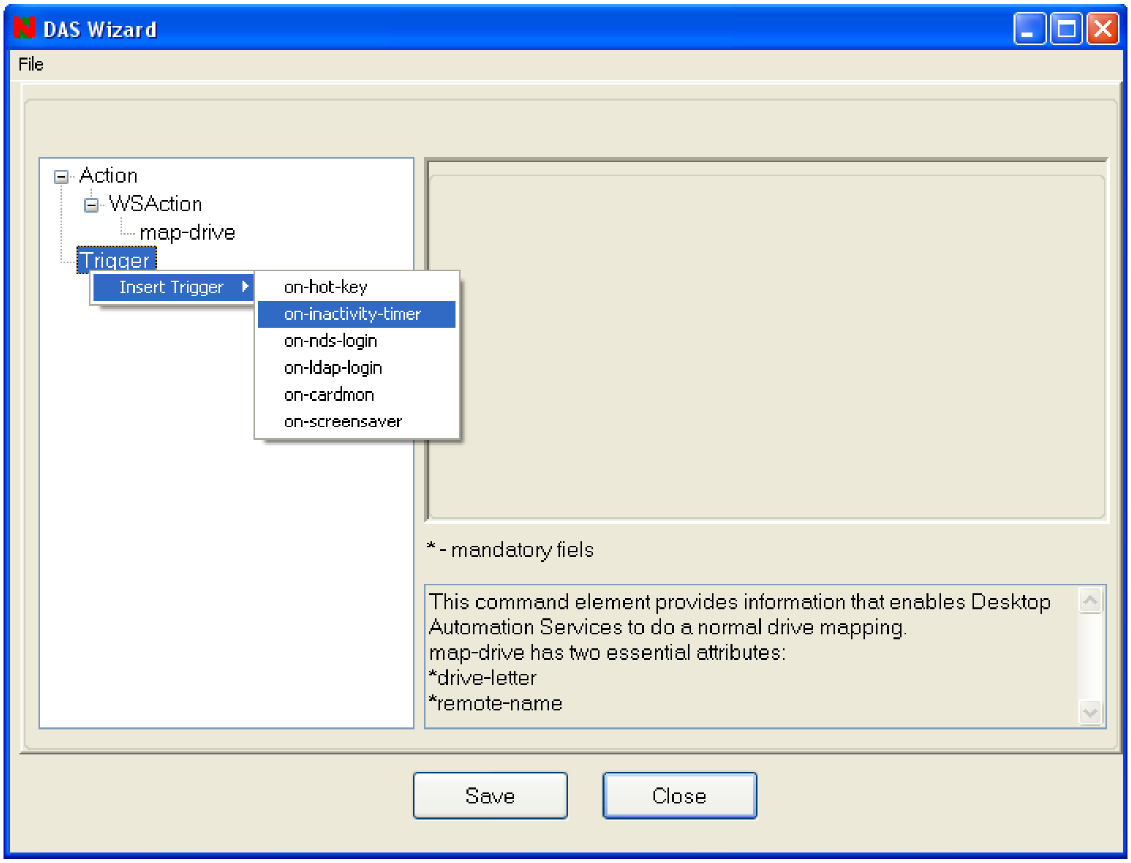


5 Specify the parameters for the child you have applied.

Not all the child elements have associated parameters. For example, nds-logout or show-desktop do not have any parameters.

For example, if you selected map-drive in Step 4, specify the drive to be mapped and the remote.

6 To add triggers to the action you have created. Right-click on *Triggers*, click > *Insert Triggers*, and select a trigger from the list of predefined triggers.



This command element provides information that enables Desktop Automation Services to do a normal drive mapping.
map-drive has two essential attributes:
*drive-letter
*remote-name

7 Specify the parameters for the trigger you have selected.

8 Click *Save* to save the configuration.

The configuration is saved in an XML format.

Store the DTD file in the same location as the `actions.xml` file. When loading the `actions.xml` file, DASWizard validates through the DTD only if it is present in the same location as the `actions.xml` file. If stored in a different location, it throws an error and fails to open the `actions.xml` file.

20.2.2 Deleting a Configuration

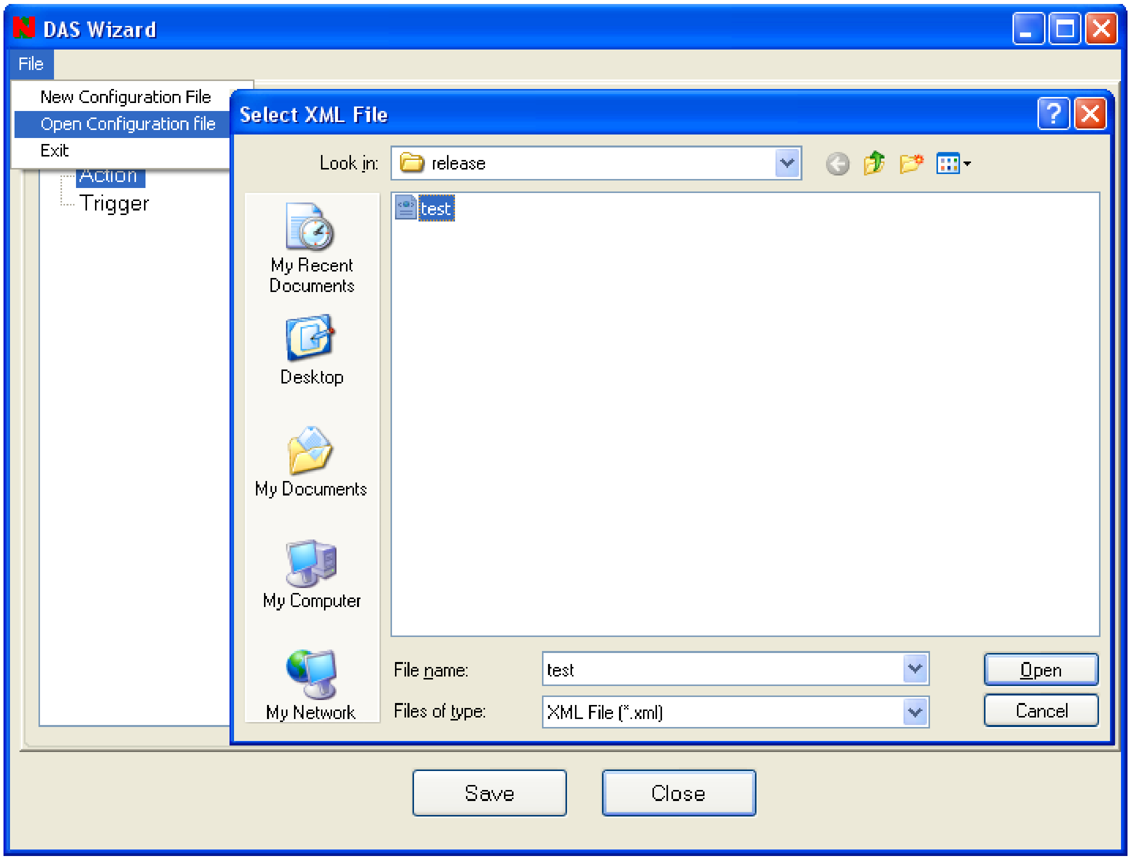
1 Right-click the action you want to delete.

2 Select *Delete*.

20.2.3 Modifying an Existing Configuration File

1 Select *File > Open Configuration file*.

2 Select the XML file you want to load.



3 Make changes to the selected action and save.

You can also modify an XML file that is not created using the wizard.

20.3 Example of an Action File

This example XML file contains examples of most of the XML elements that can be used to compose action sequences in Desktop Automation Services.

```
<?xml version="1.0"?>
<!DOCTYPE application-runner-script SYSTEM "ARS_1.0.dtd">
<application-runner-script>
  <action name="worksuite">

    <!-- KILL THE GAMES -->
    <kill-app application="freecell.exe"/>
    <kill-app application="winmine.exe"/>
    <kill-app application="sol.exe"/>

    <!-- LOAD THE WORK APPS -->
    <test-app-running application="notepad.exe">
      <if-true>
      </if-true>
      <if-false>
        <run-application application="notepad.exe" on-exit-action="gamesuite"
parameters="" serial="true" interval="500"/>
      </if-false>
    </test-app-running>
    <test-app-running application="calc.exe">
      <if-true>
      </if-true>
      <if-false>
        <run-application application="calc.exe" on-exit-action="gamesuite"
parameters="" serial="true" interval="500"/>
      </if-false>
    </test-app-running>
    <test-app-running application="mspaint.exe">
      <if-true>
      </if-true>
      <if-false>
        <run-application application="mspaint.exe" on-exit-action="gamesuite"
parameters="" serial="true" interval="500"/>
      </if-false>
    </test-app-running>
  </action>
  <action name="gamesuite">

    <!-- KILL THE WORK APPS -->
    <kill-app application="notepad.exe"/>
    <kill-app application="calc.exe"/>
    <kill-app application="mspaint.exe"/>

    <!-- LOAD THE GAMES -->
    <test-app-running application="freecell.exe">
      <if-true>
      </if-true>
      <if-false>
        <run-application application="freecell.exe" on-exit-action="worksuite"
parameters="" serial="true" interval="500"/>
      </if-false>
    </test-app-running>
    <test-app-running application="winmine.exe">
      <if-true>
      </if-true>
      <if-false>
        <run-application application="winmine.exe" on-exit-action="worksuite"
parameters="" serial="true" interval="500"/>
      </if-false>
    </test-app-running>
    <test-app-running application="sol.exe">
      <if-true>
      </if-true>
      <if-false>
        <run-application application="sol.exe" on-exit-action="worksuite"
parameters="" serial="true" interval="500"/>
      </if-false>
    </test-app-running>
  </action>
</application-runner-script>
```

21 LDAP SSL Server Certificate Verification

This section contains the following information:

- Section 21.1, "About LDAP SSL Server Certificate Verification," on page 213
- Section 21.2, "Validating an LDAP SSL Server Certificate," on page 213
- Section 21.3, "Enabling LDAP SSL Certificate Verification," on page 215

21.1 About LDAP SSL Server Certificate Verification

The LDAP SSL server certificate verification is a security feature that was introduced in the Novell® SecureLogin 6.0 SP1 release. This feature allows the client to verify the trustworthiness of the server, using a process similar to the certificate verification process carried out by browsers like Microsoft Internet Explorer and Mozilla Firefox. This certificate verification is similar to the certificate verification process carried out by browsers like Microsoft Internet Explorer and Mozilla Firefox.

Certificate verification of the server is important to prevent security hazards. It is essential that the client verify the server certificate during the LDAP SSL connection to the server. If the client cannot verify the server certificate, it is possible that an intruder on the same subnet can decrypt the communication between the client and access user credentials.

By default, eDirectory™ is configured with self-signed certificate. Although it works, it does not pass all the validation checks carried out during the verification process, so users are prompted whether to validate the certificate the first time they attempt to access the server. To prevent this, you can obtain a signed certificate from a known certificate authority such as VeriSign and replace the existing certificate.

21.2 Validating an LDAP SSL Server Certificate

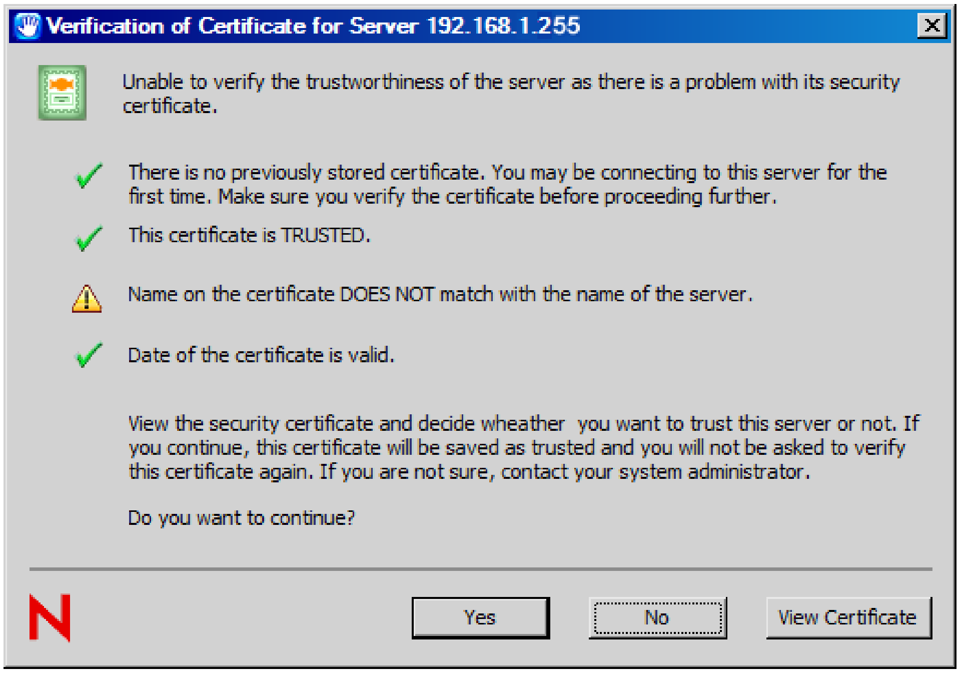
During LDAP connection, client receives the root certificate from the server so that client can verify the trustworthiness of the server. The client uses the following process to validate the certificate:

- It compares the current certificate with previously stored certificate, if any. If both certificates match, the client does not perform further checks, and adds the certificate to the local store. If the certificates do not match, the client continues the validation process.
- It checks whether the certificate is trusted. This ensures that a known authority is issuing the certificate.
- It checks whether the date on the certificate is valid with reference to the current date.
- It checks whether the host name on the certificate matches the date on the server.

If the certificate passes these preceding tests, the client adds the certificate to local store so it can be used for future verification.

If the certificate does not pass the verification process, the application prompts you to either continue the connection or terminate the connection.

Figure 21-1 Certificate Verification



Verification of Certificate for Server 192.168.1.255

Unable to verify the trustworthiness of the server as there is a problem with its security certificate.

✓ There is no previously stored certificate. You may be connecting to this server for the first time. Make sure you verify the certificate before proceeding further.

✓ This certificate is TRUSTED.

⚠ Name on the certificate DOES NOT match with the name of the server.

✓ Date of the certificate is valid.

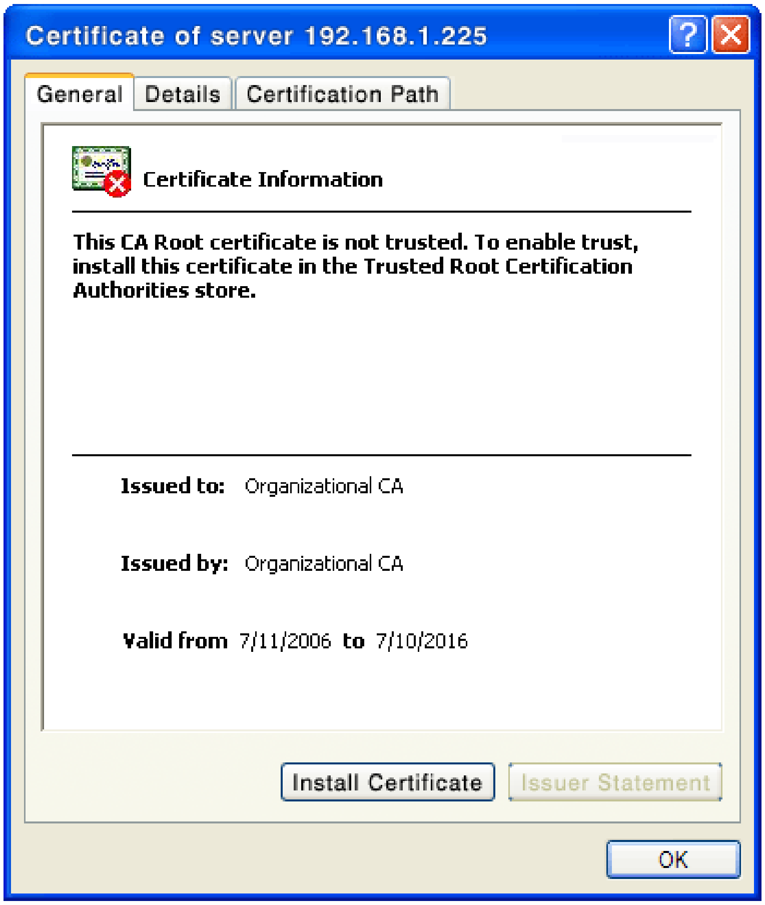
View the security certificate and decide wheather you want to trust this server or not. If you continue, this certificate will be saved as trusted and you will not be asked to verify this certificate again. If you are not sure, contact your system administrator.

Do you want to continue?

- To continue the connection, click *Yes*. The certificate is added to the local store so it can be used for future verification, and the authentication process continues.
- To terminate the connection, click *No*.
- To get details about the certificate, click *View Certificate* to display the Certificate Information dialog box shown in the above figure. If you decide that the certificate is valid, you can click *Install Certificate* to permanently install the certificate.

NOTE: This store is different from the local store used by LDAP client to store trusted root certificates.

Figure 21-2 Certificate Information



Certificate Information

This CA Root certificate is not trusted. To enable trust, install this certificate in the Trusted Root Certification Authorities store.

Issued to: Organizational CA

Issued by: Organizational CA

Valid from 7/11/2006 to 7/10/2016

21.3 Enabling LDAP SSL Certificate Verification

By default, the certificate verification feature is disabled. You can enable this feature by adding the following registry value:

1 On the Windows *Start* menu, click *Start* > *Run* to display the Run dialog box.

2 Type `regedit` then click *OK* to open the Registry Editor.

3 Browse to the `HKEY_LOCAL_MACHINE\SOFTWARE\Novell\Login\LDAP` directory.

4 Create a DWORD Value file with the value 1. Name this file `VerifySSLCert`.

5 Exit the Registry Editor.

22 Security Considerations

Consider the following to help ensure security for Novell SecureLogin:

- It is not recommended to use pcProx alone for authentication. Use pcProx in conjunction with other NMAS authentication methods for more security.
- Use the AES encryption standard for the encryption of SecureLogin data.
- Back up SecureLogin data and directory data by using encryption and password protection.
- Use `AAVerify` to provide additional advanced authentication to single sign-on applications with NMAS methods.
- Provide information to users about using a smart card, including details about how to store application credentials on the card, and how to encrypt the directory data store by using PKI-based credentials.
- Protect the SecureLogin desktop shortcut with a password so that others cannot view SecureLogin data.
- Prevent certain SecureLogin settings and options from being visible or modifiable by others.
- Use a universal password for increased security by providing additional layers of policies.
- Require SecureLDAP when using LDAP to authenticate to SecureLogin.
- Use Novell SecretStore to provide additional security to SecureLogin data stored on eDirectory.
- Use NMAS to provide advanced authentication, such as pcProx, fingerprint, and token-based authentication.
- Store SecureLogin credentials in a PIN-protected smart card, which provides a secure, portable, and efficient single sign-on solution.
- Keep the local cache files in a user profile directory so that only the corresponding Windows user can access them.
- Enable a passphrase to provide additional security to SecureLogin user data.
- Ensure strict password policies for SecureLogin users and for all single sign-on logins. Randomization of passwords and hiding them from end users is also essential.
- Use auditing features like SNMP alerts and Windows event logs to capture SecureLogin activity wherever applicable.
- When you are using LDAP with NMAS, the Novell SecureLogin universal password must be enabled.

23 Novell SecureLogin Security Role Configuration for Active Directory

For a user to administer Novell SecureLogin in an Active Directory environment, a user must have both sufficient permissions to the Protocom attributes in the Directory that Novell SecureLogin utilizes for its credential store, as well as the correct Novell SecureLogin settings to allow the user access to specific Novell SecureLogin functionality.

The topics explained in this section are:

23.1 Directory Attributes

The protocom attributes hold user or container data that is used by Novell SecureLogin to provide Single Sign-On functionality. These attributes are named as follows:

protocom-SSO-Auth-Data
protocom-SSO-Entries
protocom-SSO-Entries-Checksum
protocom-SSO-Profile
protocom-SSO-Security-Prefs
protocom-SSO-Security-Prefs-Checksum

The function for each of these attributes is as follows:

protocom-SSO-Auth-Data:

- This attribute is only for a User object. It is an octet-string type.
- It contains all user-specific authentication data, such as the passphrase.

protocom-SSO-Entries:

- This attribute is for User, Container, and Organizational Unit objects. It is an octet-string type. This attribute contains the following:
- All the user's login user IDs and passwords
- Specific preferences and application definitions at the User object
- Corporate application definitions and preferences at the Container and Organizational Unit objects

protocom-SSO-Entries-Checksum:

- This attribute optimizes the loading of data from the Directory. Whenever data changes in the protocom-SSO-Entries attributes, the Checksum attribute is updated. When SecureLogin loads, it reads the checksum and compares it to the checksum in memory. If the checksums are different, SecureLogin reloads the Entries attribute from the directory.

protocom-SSO-Profile:

- This attribute is used to instruct SecureLogin to read the settings and preferences from another container.

protocom-SSO-Security-Prefs:

- This attribute stores data required for SecureLogin to operate before loading the users datastore. This data can include Administrator-set Passphrase questions, Passphrase help information, settings, and similar things.

protocom-SSO-Security-Prefs-Checksum:

- This attribute functions with the protocom-SSO-Security-Prefs attribute much like the protocom-SSO-Entries-Checksum functions with the protocom-SSO-Entries attribute.

23.2 Directory Permissions Assignment

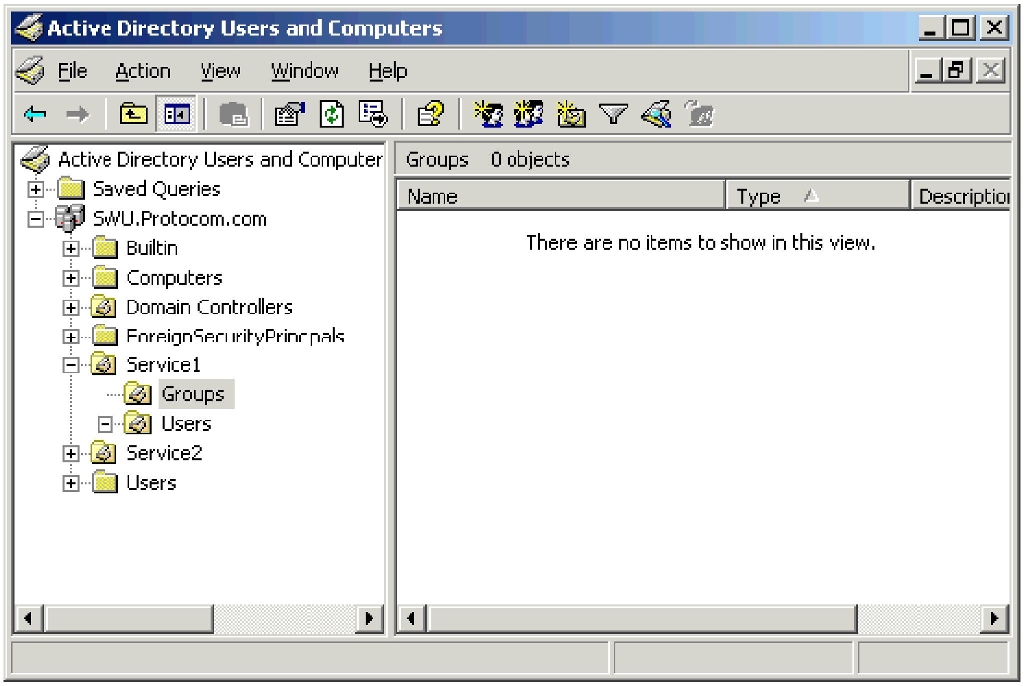
Based upon the above attribute descriptions and functions, specific roles might be granted the following permissions:

- Complete Novell SecureLogin Management:
  - protocom-SSO-Auth-Data = Read and Write
  - protocom-SSO-Entries = Read and Write
  - protocom-SSO-Entries-Checksum = Read and Write
  - protocom-SSO-Security-Prefs = Read and Write
  - protocom-SSO-Security-Prefs-Checksum = Read and Write
- Script, Credentials, and Clear Object Data administration:
  - protocom-SSO-Auth-Data = Read and Write
  - protocom-SSO-Entries = Read and Write
  - protocom-SSO-Entries-Checksum = Read and Write

Depending on the needs of your organization, these permissions can be assigned to specific users or groups at an organizational unit level. The following discussion demonstrates the creation of a SecureLogin Administration group and the delegation of permissions to an organizational unit that is one level below the top level organizational units in the Directory hierarchy.

23.3 Assigning Permissions for SecureLogin Administrators

1. Login to the Active Directory domain as an administrative level user.

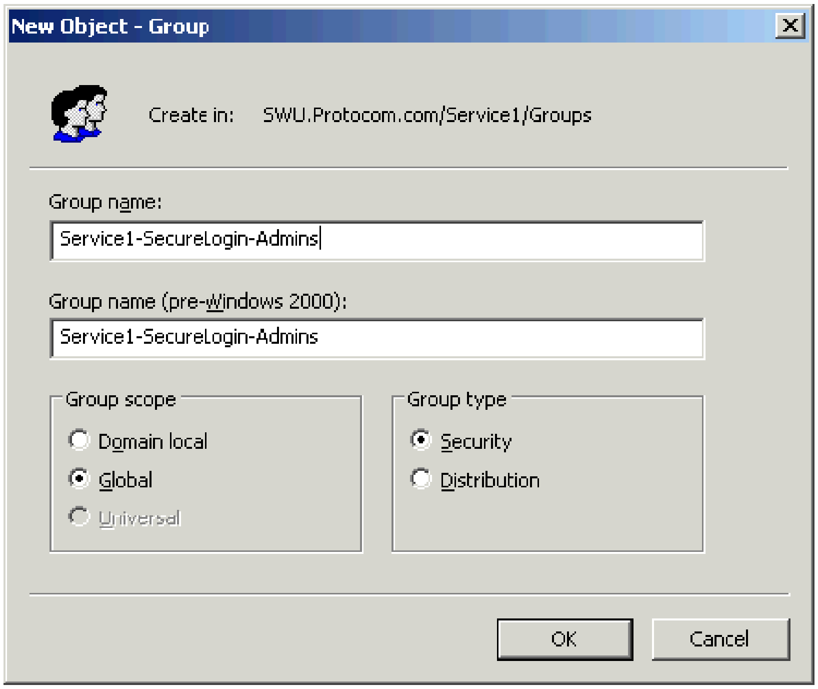


There are no items to show in this view.

2 On a workstation or server, open *Active Directory User and Computers* (dsa.msc), and browse to the OU where you would like to create the group that will manage SecureLogin for the selected container and its children.

3 Click the create group button

4 Give the group a descriptive name, such as Service1-SecureLogin-Admins.



Create in: SWU.Protocom.com/Service1/Groups

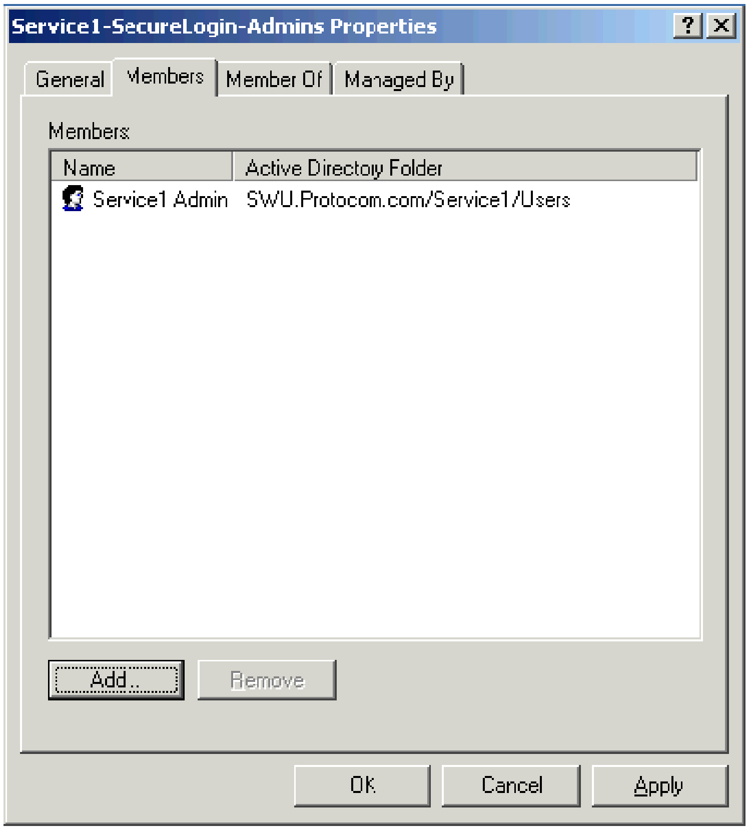
Group name: Service1-SecureLogin-Admins

Group name (pre-Windows 2000): Service1-SecureLogin-Admins

Group scope
○ Domain local
● Global
○ Universal

Group type
● Security
○ Distribution

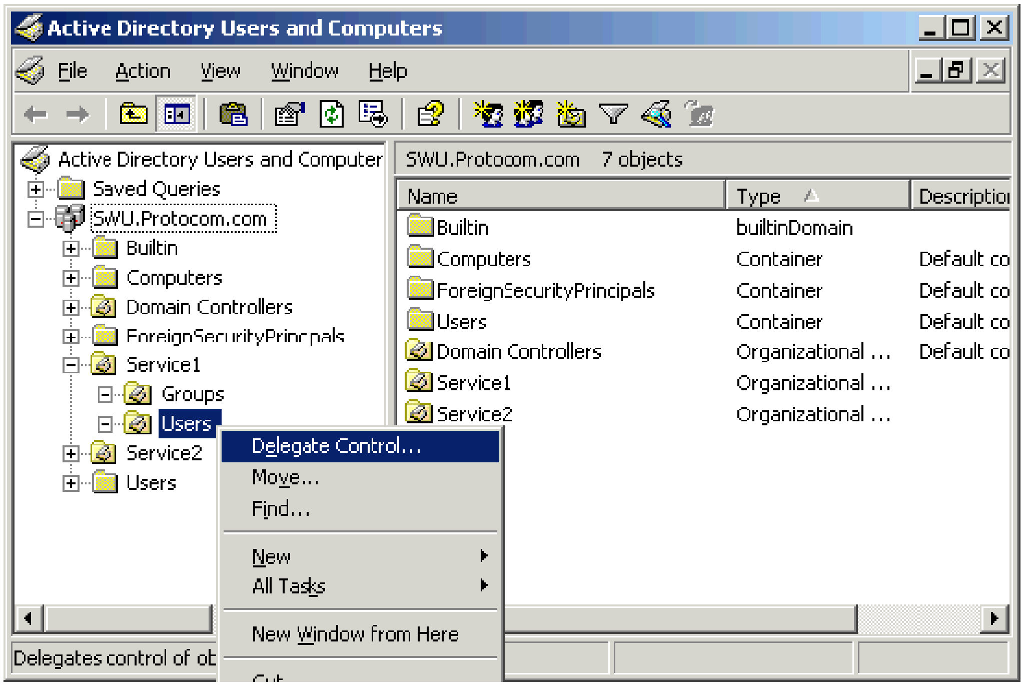
5 Add the appropriate users to the group.



Members

Name	Active Directory Folder
Service1 Admin	SWU.Protocom.com/Service1/Users

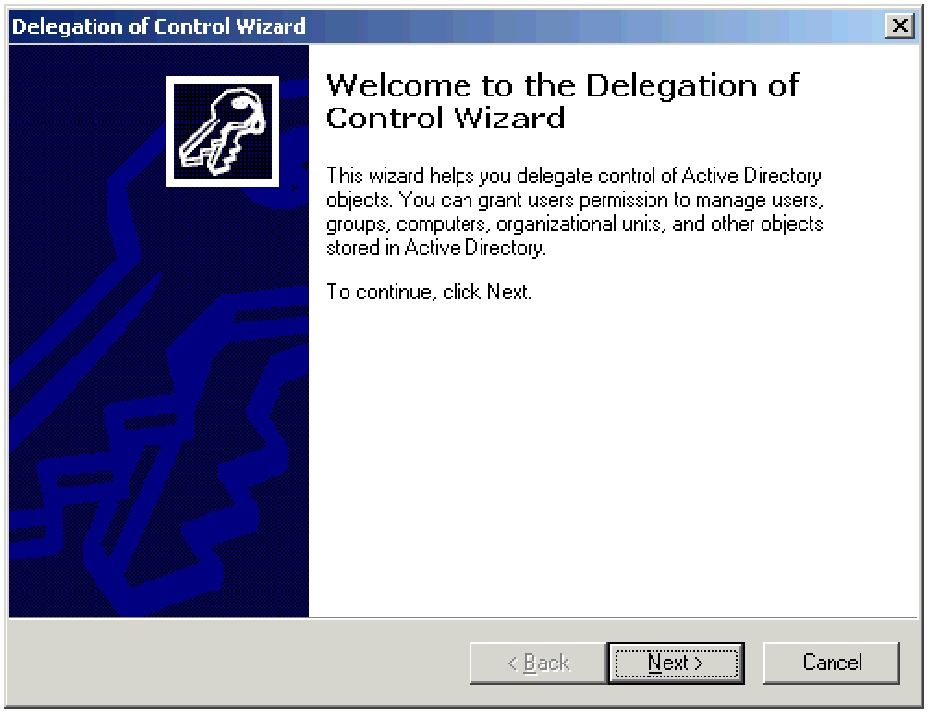
6 Delegate the permissions to the SecureLogin attributes at the container where the users are.



SWU.Protocom.com 7 objects

Name	Type	Descriptio
Builtin	builtinDomain	
Computers	Container	Default co
ForeignSecurityPrincipals	Container	Default co
Users	Container	Default co
Domain Controllers	Organizational ...	Default co
Service1	Organizational ...	
Service2	Organizational ...	

7 The Delegate Control wizard opens.

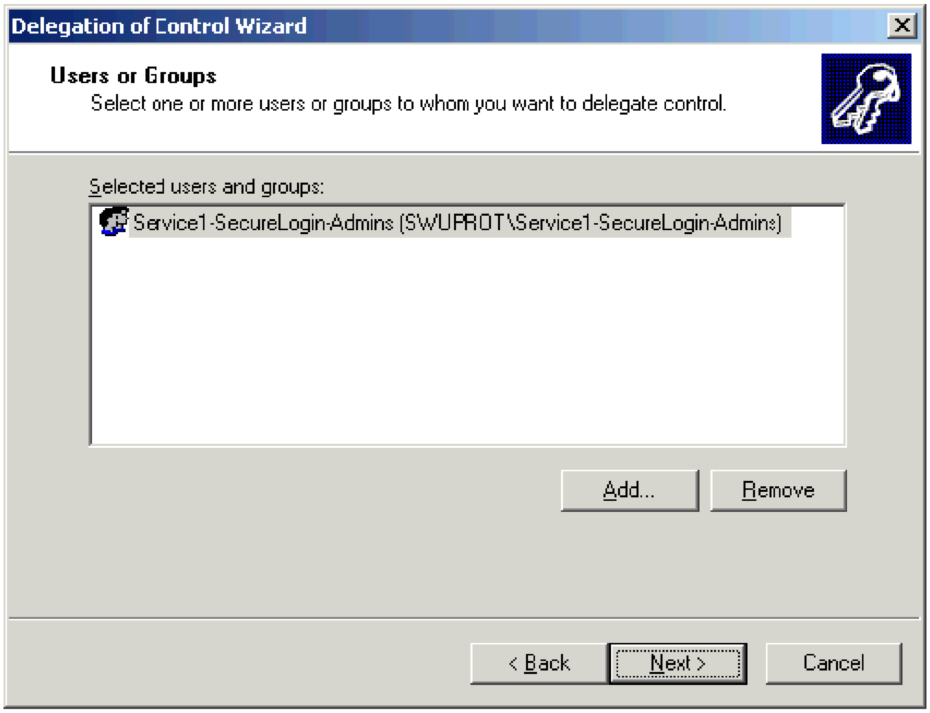


Welcome to the Delegation of Control Wizard

This wizard helps you delegate control of Active Directory objects. You can grant users permission to manage users, groups, computers, organizational units, and other objects stored in Active Directory.

To continue, click Next.

8 Add the group you want to delegate control, then click *Next*.



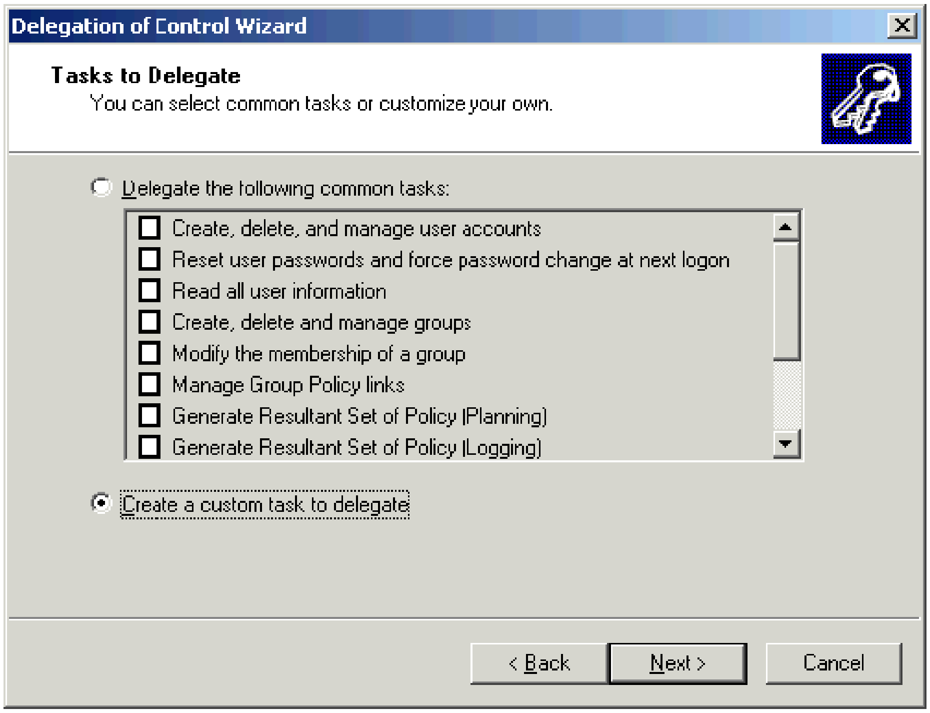
Users or Groups

Select one or more users or groups to whom you want to delegate control.

Selected users and groups:

Service1-SecureLogin-Admins (SWUPROT\Service1-SecureLogin-Admins)

9 Select create a custom task to delegate, then click *Next*.


Delegation of Control Wizard

Tasks to Delegate

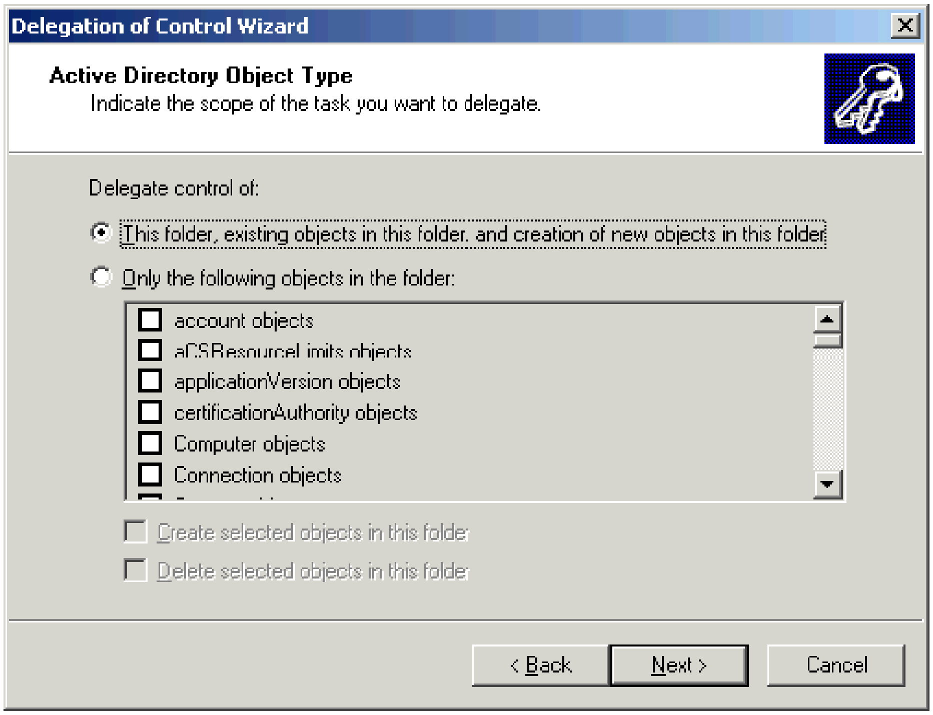
You can select common tasks or customize your own.

○ Delegate the following common tasks:

- □ Create, delete, and manage user accounts
- □ Reset user passwords and force password change at next logon
- □ Read all user information
- □ Create, delete and manage groups
- □ Modify the membership of a group
- □ Manage Group Policy links
- □ Generate Resultant Set of Policy (Planning)
- □ Generate Resultant Set of Policy (Logging)

● Create a custom task to delegate

10 Select *This folder, existing objects in this folder, and creation of new objects in this folder,* then click *Next*.


Delegation of Control Wizard

Active Directory Object Type

Indicate the scope of the task you want to delegate.

Delegate control of:

● This folder, existing objects in this folder, and creation of new objects in this folder

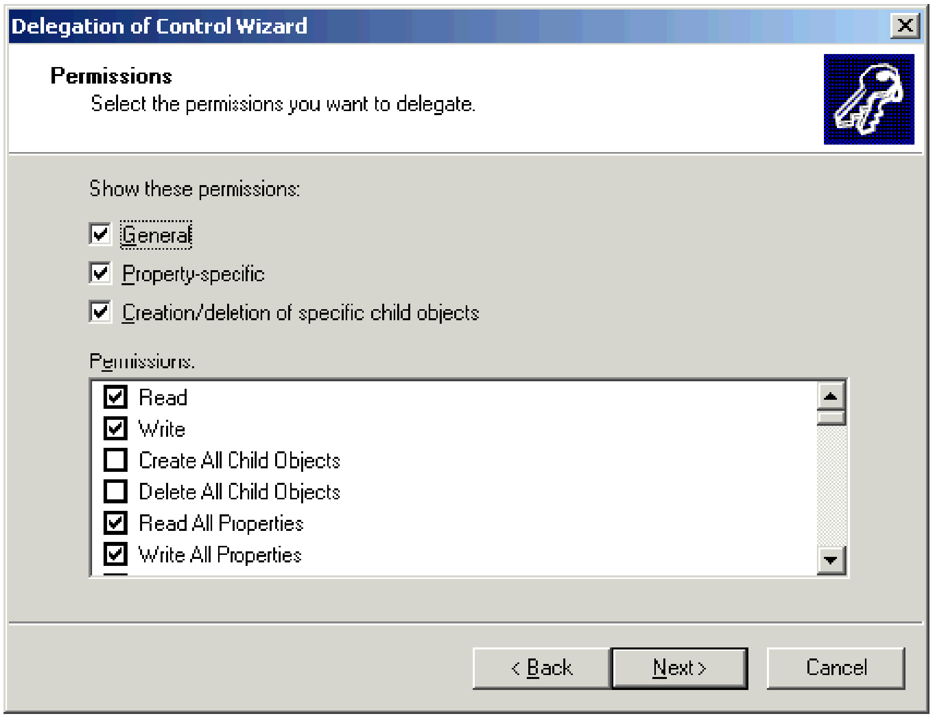
○ Only the following objects in the folder:

- □ account objects
- □ aCSResourceLimits objects
- □ applicationVersion objects
- □ certificationAuthority objects
- □ Computer objects
- □ Connection objects

□ Create selected objects in this folder

□ Delete selected objects in this folder

11 Since these are administrator level users they will be granted permissions to manage all aspects of the container and its subordinate objects. Select the *General*, *Property-specific* check boxes. Select the *Read*, *Write*, *Read All Properties*, and *Write All Properties* permissions.



Delegation of Control Wizard

Permissions

Select the permissions you want to delegate.

Show these permissions:

☑ General

☑ Property-specific

☑ Creation/deletion of specific child objects

Permissions:

☑ Read

☑ Write

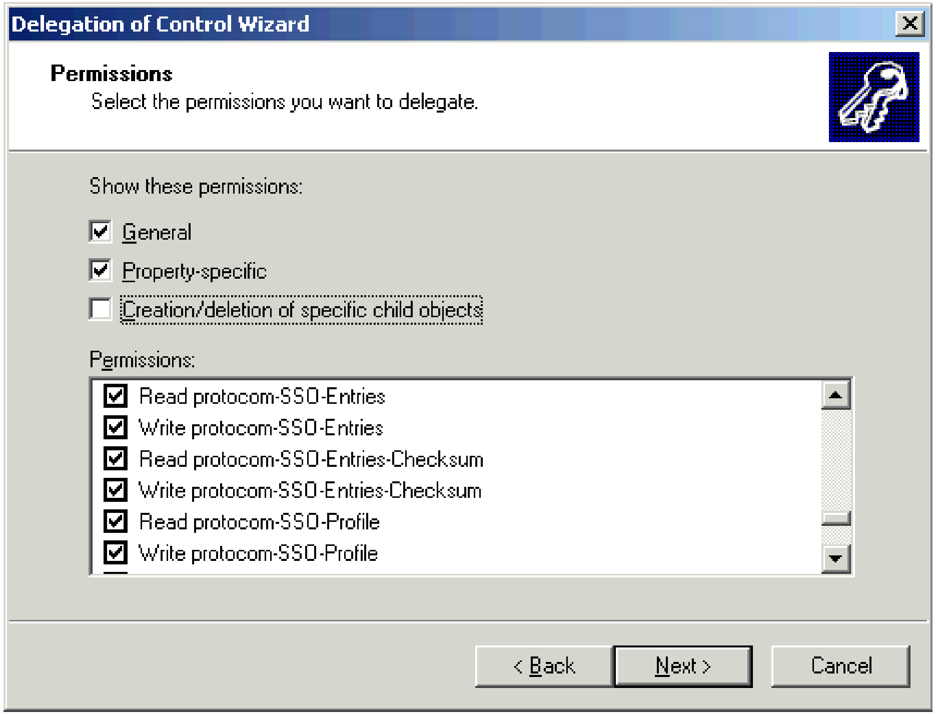
□ Create All Child Objects

□ Delete All Child Objects

☑ Read All Properties

☑ Write All Properties

Verify that you have all Protocom permissions with *Read* and *Write*. Click *Next* to continue.



Delegation of Control Wizard

Permissions

Select the permissions you want to delegate.

Show these permissions:

☑ General

☑ Property-specific

□ Creation/deletion of specific child objects

Permissions:

☑ Read protocom-SSO-Entries

☑ Write protocom-SSO-Entries

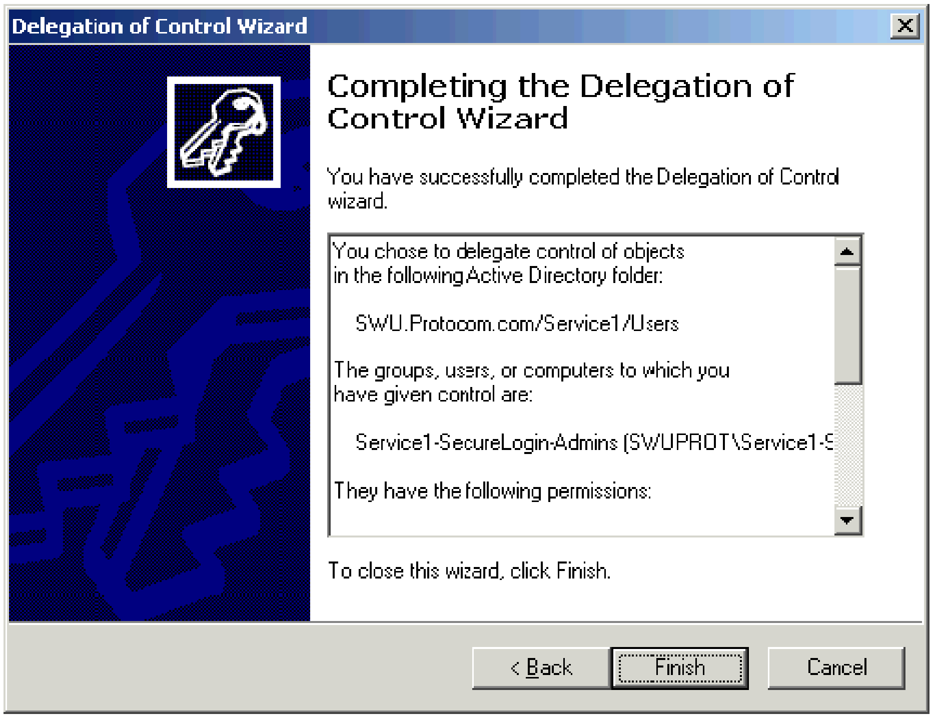
☑ Read protocom-SSO-Entries-Checksum

☑ Write protocom-SSO-Entries-Checksum

☑ Read protocom-SSO-Profile

☑ Write protocom-SSO-Profile

12 You are now finished with the delegate control wizard for the Service1-SecureLogin-Admins group. Click *Finish*.



Completing the Delegation of Control Wizard

You have successfully completed the Delegation of Control wizard.

You chose to delegate control of objects in the following Active Directory folder:

SWU.Protocom.com/Service1/Users

The groups, users, or computers to which you have given control are:

Service1-SecureLogin-Admins (SWUPROT\Service1-S

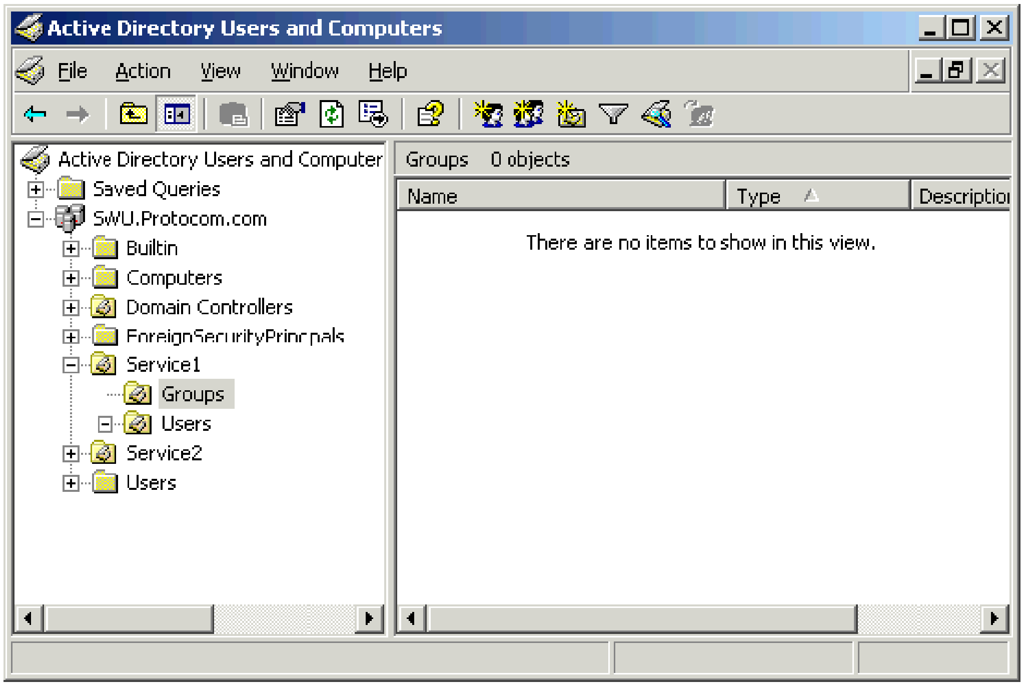
They have the following permissions:

To close this wizard, click Finish.

23.4 Assigning Permissions for SecureLogin Help Desk

1 Login to the Active Directory domain as a administrative level user.

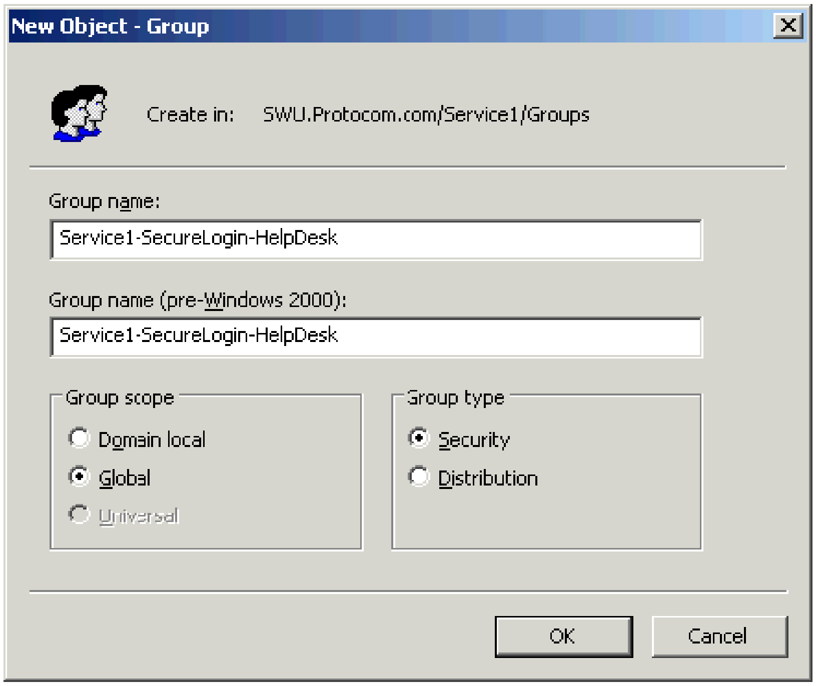
2 On a workstation or server open Active Directory User and Computers, and browse to the OU where you would like to create the group that will hold the Help Desk users who will work with SecureLogin for the selected container and its children.



There are no items to show in this view.

3 Click the create group button

4 Give the group a descriptive name, such as Service1-SecureLogin-Help Desk.



Create in: SWU.Protocom.com/Service1/Groups

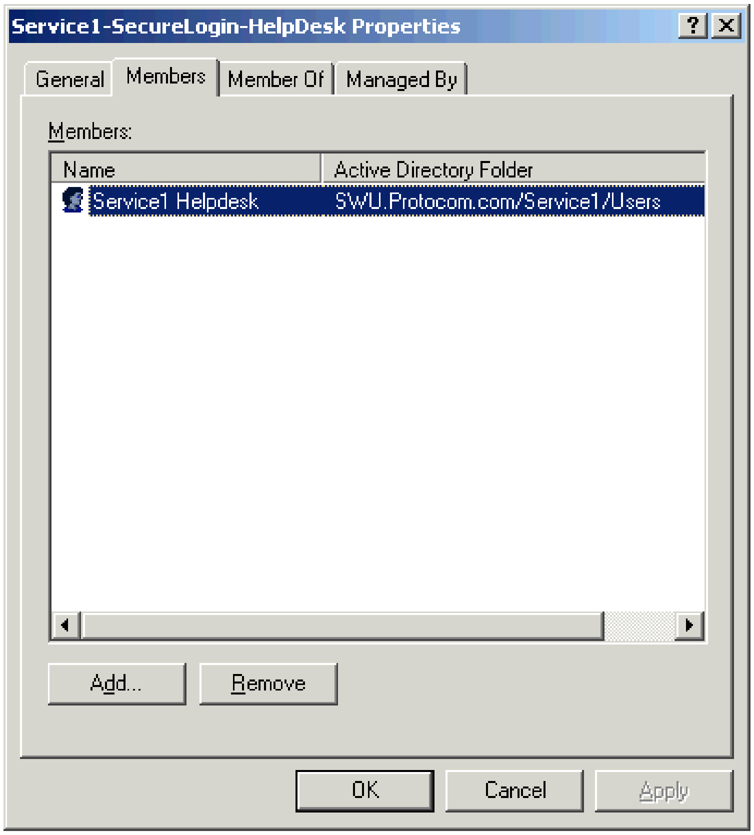
Group name: Service1-SecureLogin-HelpDesk

Group name (pre-Windows 2000): Service1-SecureLogin-HelpDesk

Group scope
○ Domain local
● Global
○ Universal

Group type
● Security
○ Distribution

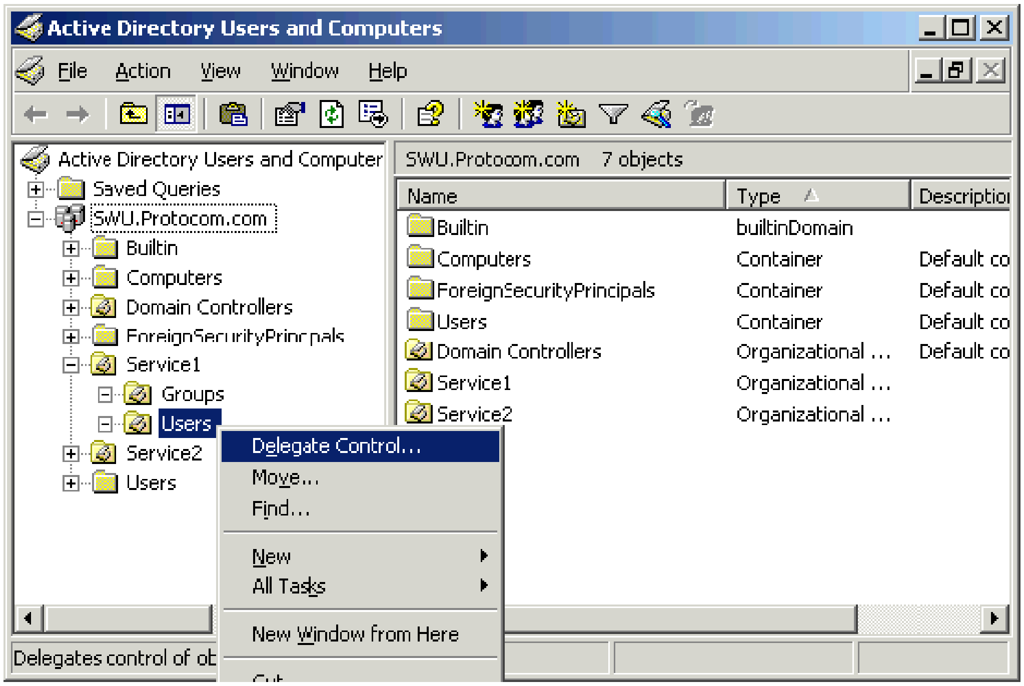
5 Add the appropriate users to the group.



Members:

Name	Active Directory Folder
Service1 Helpdesk	SWU.Protocom.com/Service1/Users

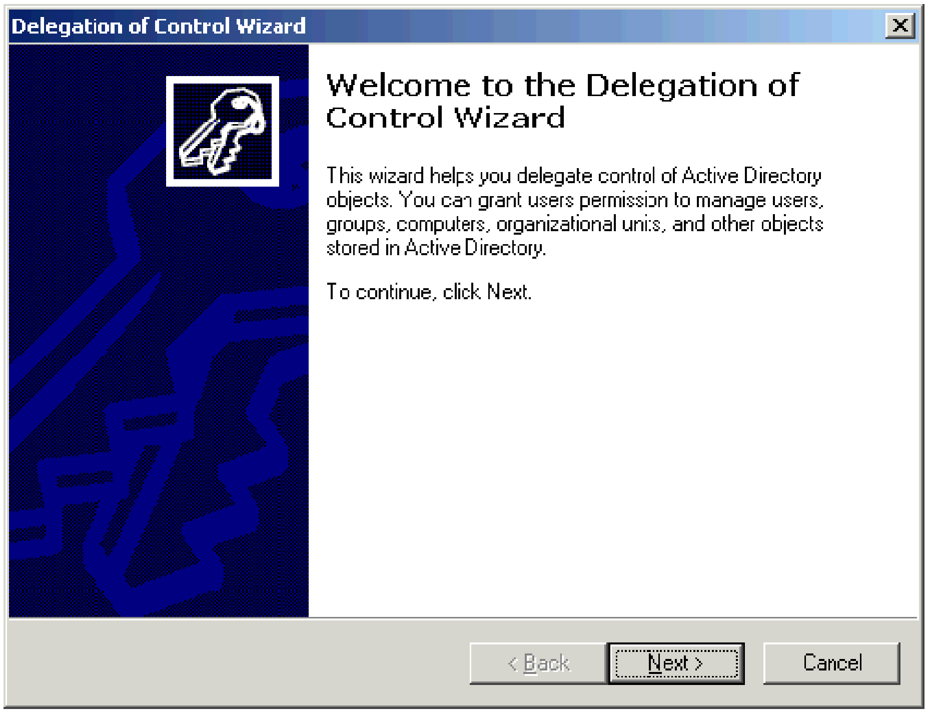
6 Delegate the permissions to the SecureLogin attributes at the container where the users are.



SWU.Protocom.com 7 objects

Name	Type	Descriptio
Builtin	builtinDomain	
Computers	Container	Default co
ForeignSecurityPrincipals	Container	Default co
Users	Container	Default co
Domain Controllers	Organizational ...	Default co
Service1	Organizational ...	
Service2	Organizational ...	

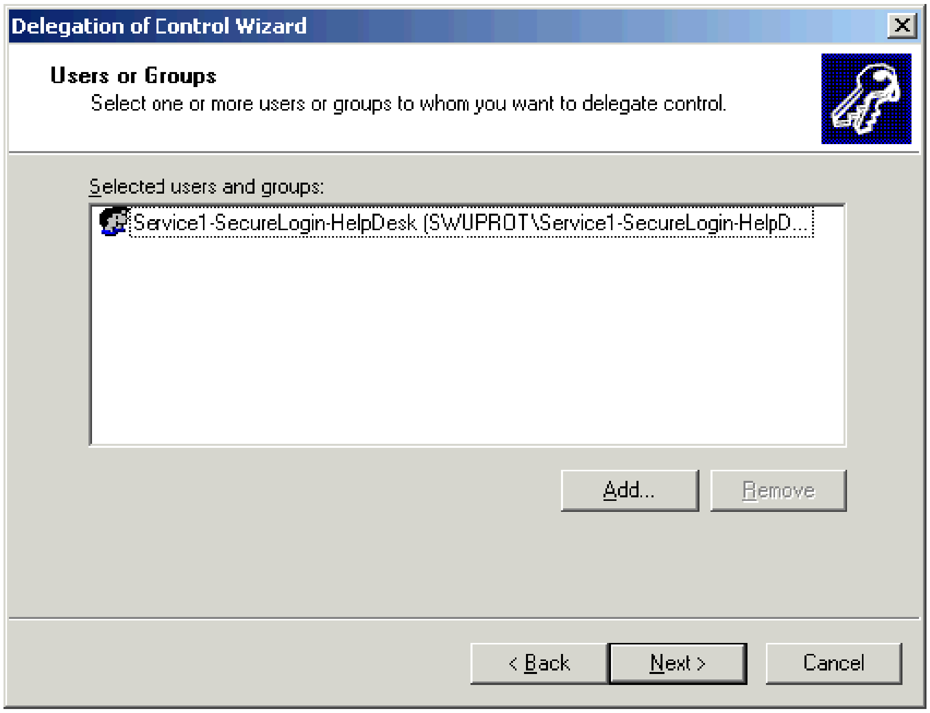
7 The Delegate Control wizard opens.


Welcome to the Delegation of Control Wizard

This wizard helps you delegate control of Active Directory objects. You can grant users permission to manage users, groups, computers, organizational units, and other objects stored in Active Directory.

To continue, click Next.

8 Add the group you want to delegate control to, then click *Next*.

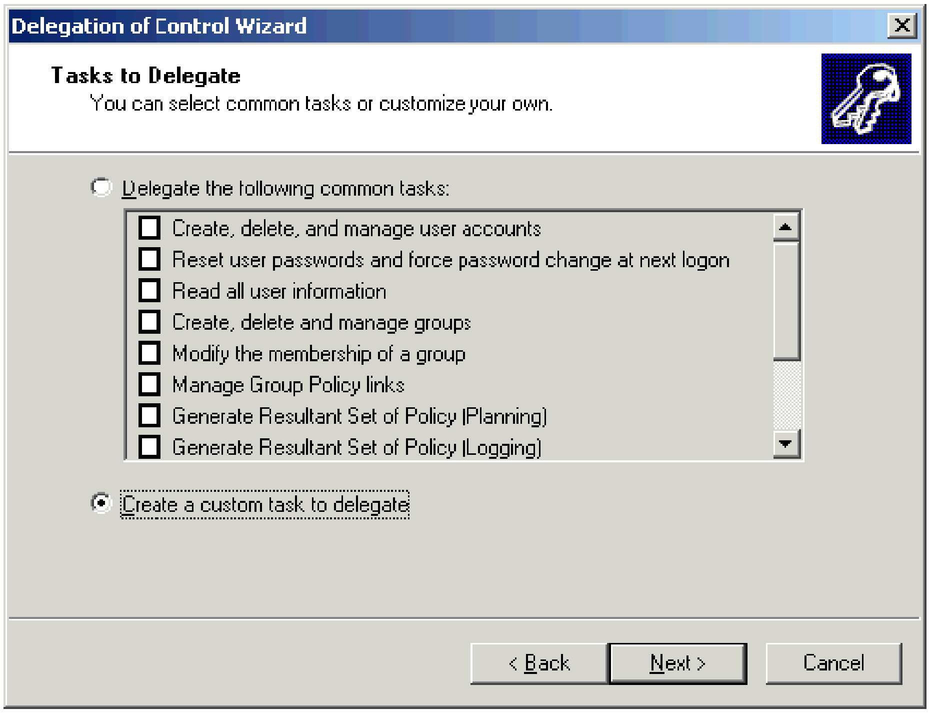

Users or Groups

Select one or more users or groups to whom you want to delegate control.

Selected users and groups:

Service1-SecureLogin-HelpDesk (SWUPROT\Service1-SecureLogin-HelpD...

9 Select create a custom task to delegate, then click *Next*.



Delegation of Control Wizard

Tasks to Delegate

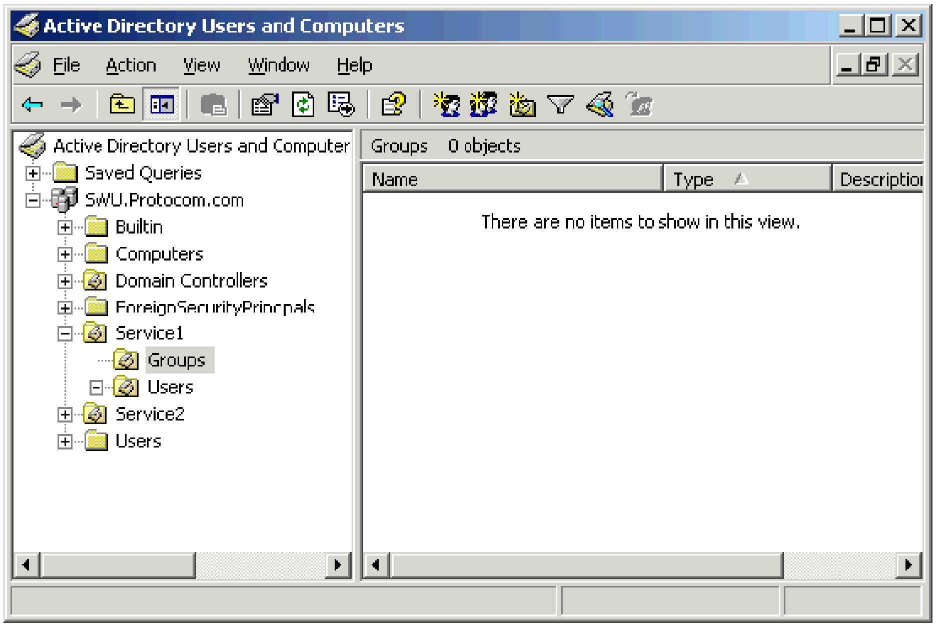
You can select common tasks or customize your own.

○ Delegate the following common tasks:

- □ Create, delete, and manage user accounts
- □ Reset user passwords and force password change at next logon
- □ Read all user information
- □ Create, delete and manage groups
- □ Modify the membership of a group
- □ Manage Group Policy links
- □ Generate Resultant Set of Policy (Planning)
- □ Generate Resultant Set of Policy (Logging)

● Create a custom task to delegate

10 Select the *Only the following objects in the folder*, then scroll down to user objects and select it. Click *Next*.



Active Directory Users and Computers

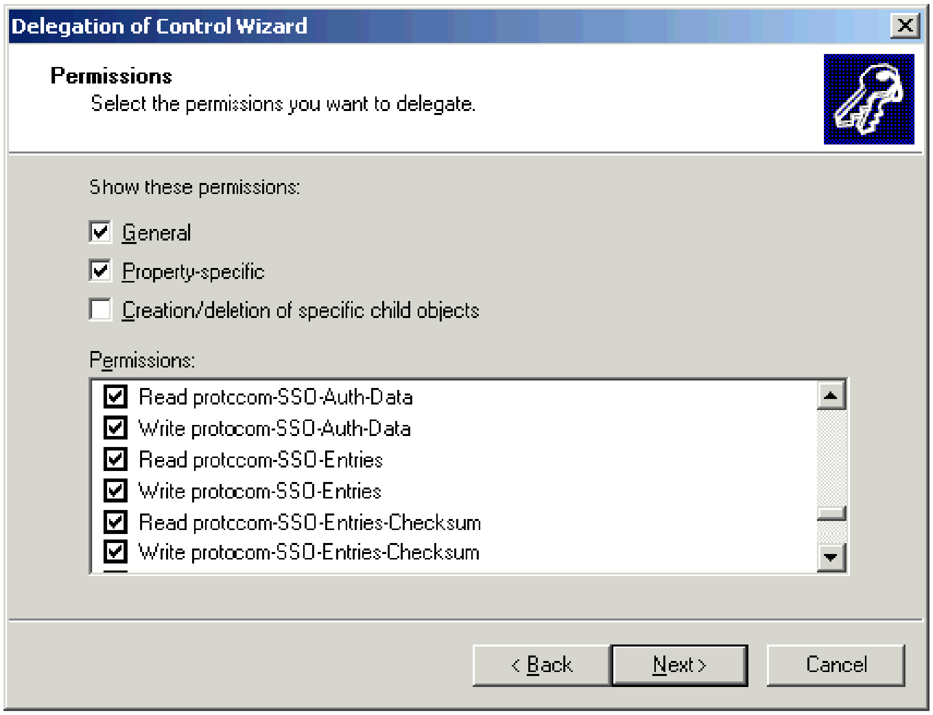
- Active Directory Users and Computer
  - Saved Queries
  - SWU.Protocom.com
    - Builtin
    - Computers
    - Domain Controllers
    - ForeignSecurityPrincipals
    - Service1
      - Groups
      - Users
    - Service2
    - Users

Groups 0 objects

Name	Type	Descriptio

There are no items to show in this view.

11 Since these are SecureLogin Help desk level users they will only be granted permissions to manage the SecureLogin attributes. Select the General and Property-Specific checkboxes. Then scroll down and select both the read and write permissions for all protocom- attributes.



Delegation of Control Wizard

Permissions

Select the permissions you want to delegate.

Show these permissions:

☑ General

☑ Property-specific

☐ Creation/deletion of specific child objects

Permissions:

☑ Read protocom-SSO-Auth-Data

☑ Write protocom-SSO-Auth-Data

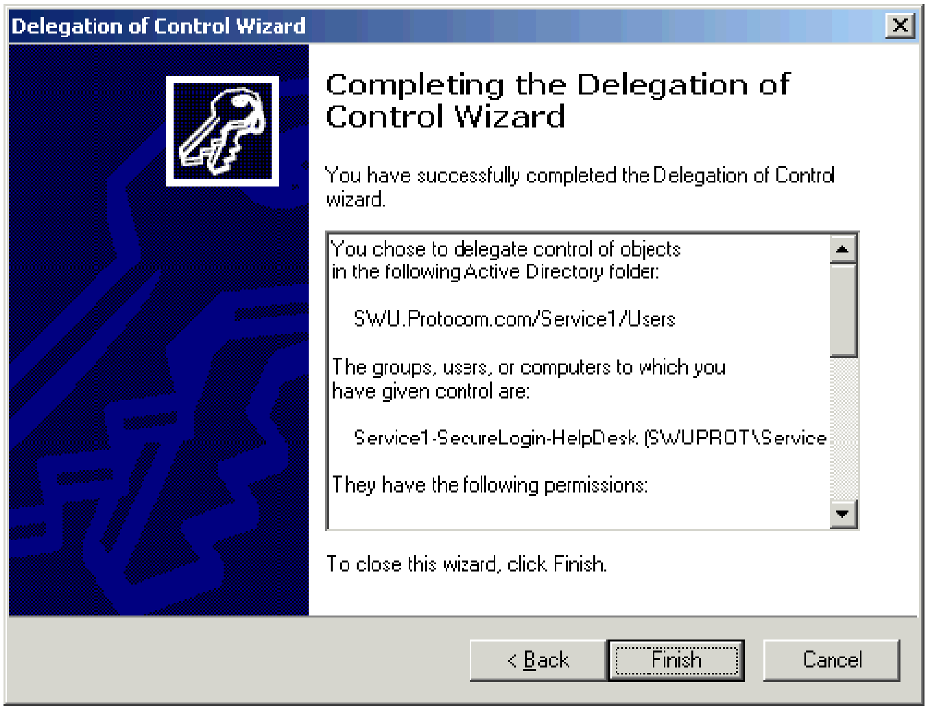
☑ Read protocom-SSO-Entries

☑ Write protocom-SSO-Entries

☑ Read protocom-SSO-Entries-Checksum

☑ Write protocom-SSO-Entries-Checksum

12 You are now finished with the delegate control wizard for the Service1-SecureLogin-Admins group. Click *Finish*.



Delegation of Control Wizard

Completing the Delegation of Control Wizard

You have successfully completed the Delegation of Control wizard.

You chose to delegate control of objects in the following Active Directory folder:

SWU.Protocom.com/Service1/Users

The groups, users, or computers to which you have given control are:

Service1-SecureLogin-HelpDesk (SWUPROT\Service

They have the following permissions:

To close this wizard, click Finish.

23.5 Assigning SecureLogin Client Settings for Administrators and Help Desk Groups

Now that you have assigned the correct Directory permissions to allow members of the administrators and help desk groups to read and write the protocom attributes, you need to assign the SecureLogin client settings (SecureLogin preferences) to allow them to see what they have permissions to access. This is required to override the more restrictive settings the user will inherit from their parent container.

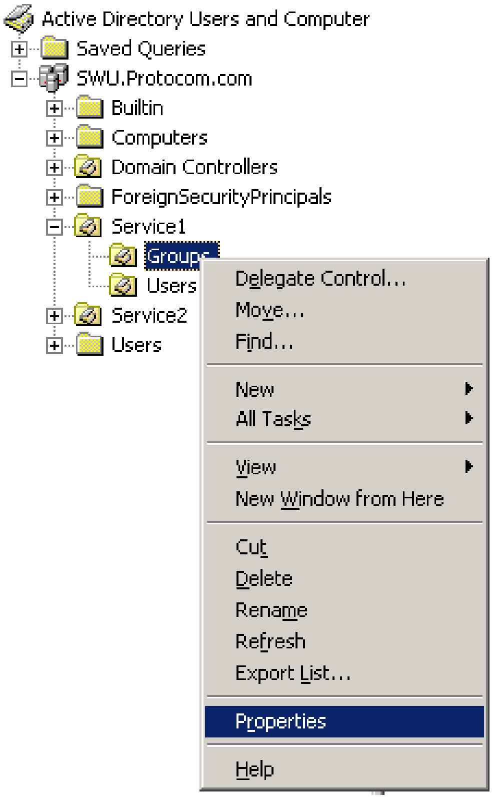
To accomplish this, you can either directly modify the users individual settings. A viable approach if you have a few users who will be granted the elevated permissions. This said, many customers still choose the direct assignment approach, as it can reduce the steps when troubleshooting where someone is getting a specific client setting from. Alternatively, you might utilize SecureLogin's support for group policies. In either case, please see step 8 in this section of the document for the recommended settings.

For the sake of this document, it will be assumed you know how to assign individual user's settings, and thus this document will focus on the use of group policies (assuming the feature was enabled during the product installation). As stated previously, both methods have their merits and should be evaluated before deciding on an approach.

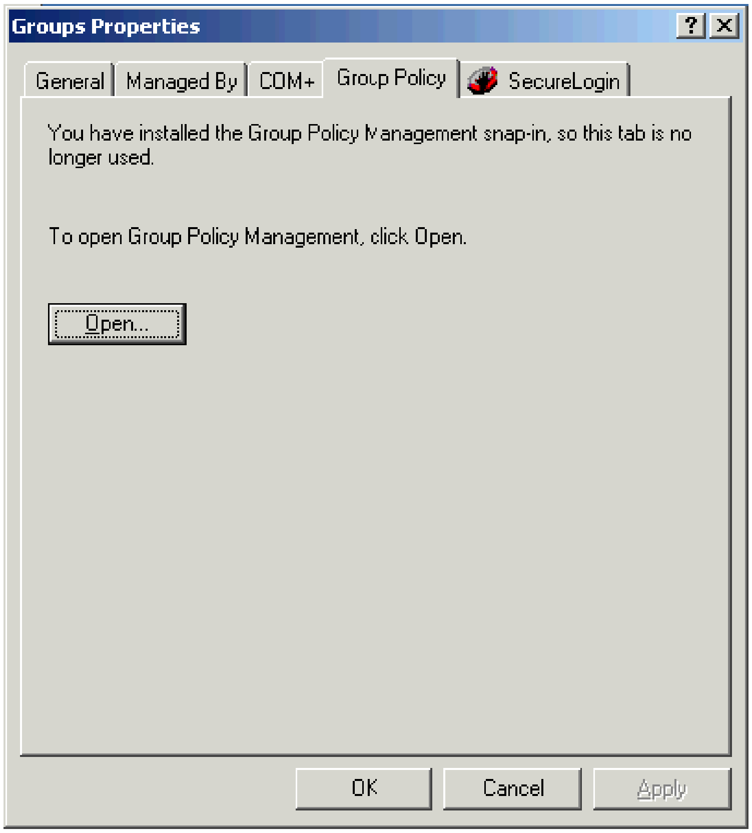
23.5.1 Creating the Group Policy

1 Login to the Active Directory domain as a administrative level user.

2 On a workstation or server open Active Directory User and Computers, and browse to the OU that contains the groups that you created earlier. Right click it, select *Properties*.



3 In the properties dialog that opens up, select the *Group Policy Tab*.

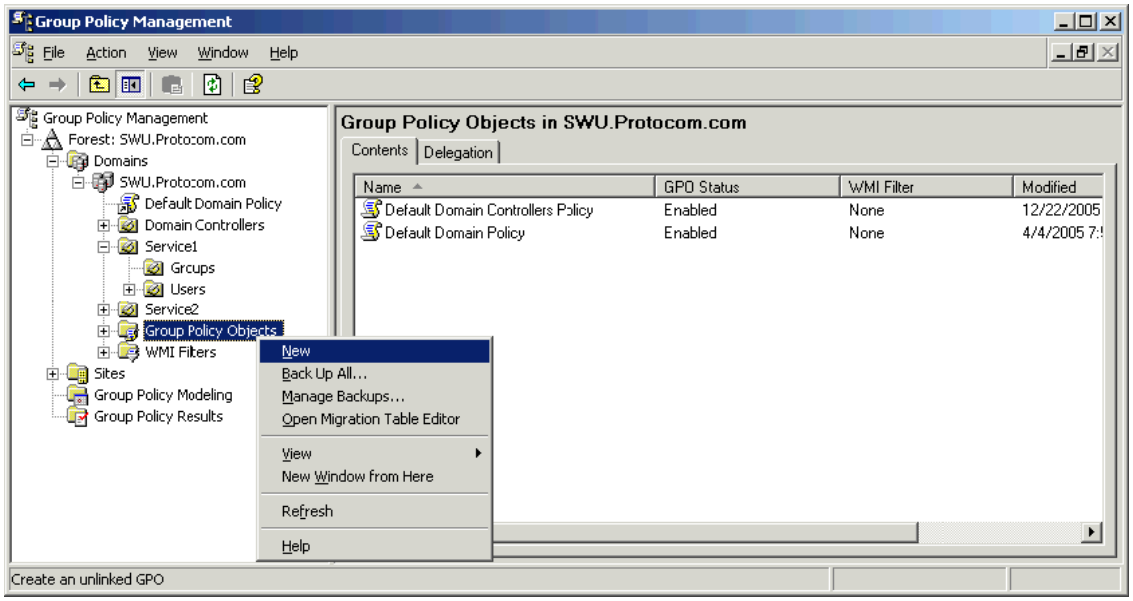


You have installed the Group Policy Management snap-in, so this tab is no longer used.

To open Group Policy Management, click Open.

NOTE: In this example the Group Policy Management snap-in has been installed. It can be downloaded from Microsoft (http://www.microsoft.com/downloads/details.aspx?FamilyID=0a6d4c24-8cbd-4b35-9272-dd3cbfc81887&displaylang=en)

4 Click the *Open* button, the Group Policy Management (GPM) interface will open. Select the *Group Policy Objects* container and right click it. Select *New*.

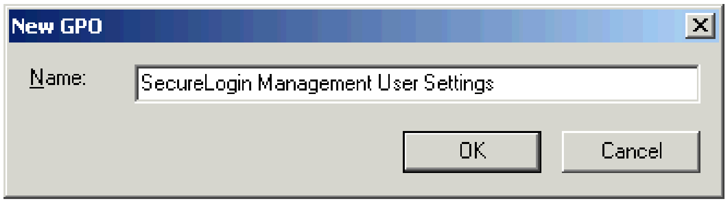


Group Policy Objects in SWU.Protocom.com

Name	GPO Status	WMI Filter	Modified
Default Domain Controllers Policy	Enabled	None	12/22/2005
Default Domain Policy	Enabled	None	4/4/2005 7:!

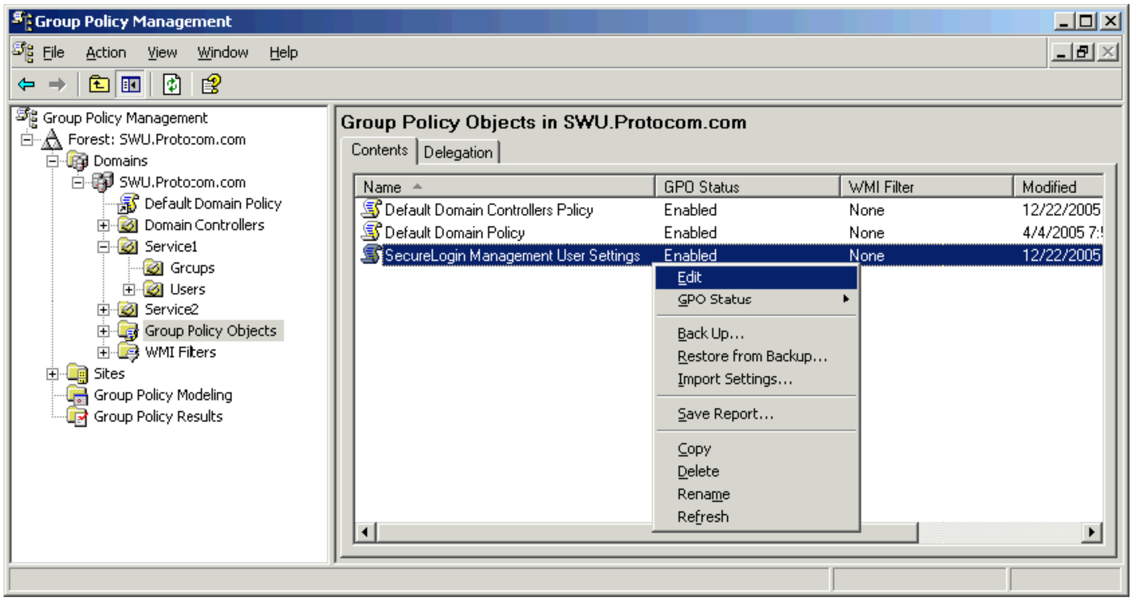
Create an unlinked GPO

5 Enter a name for the GPO.



Name: SecureLogin Management User Settings

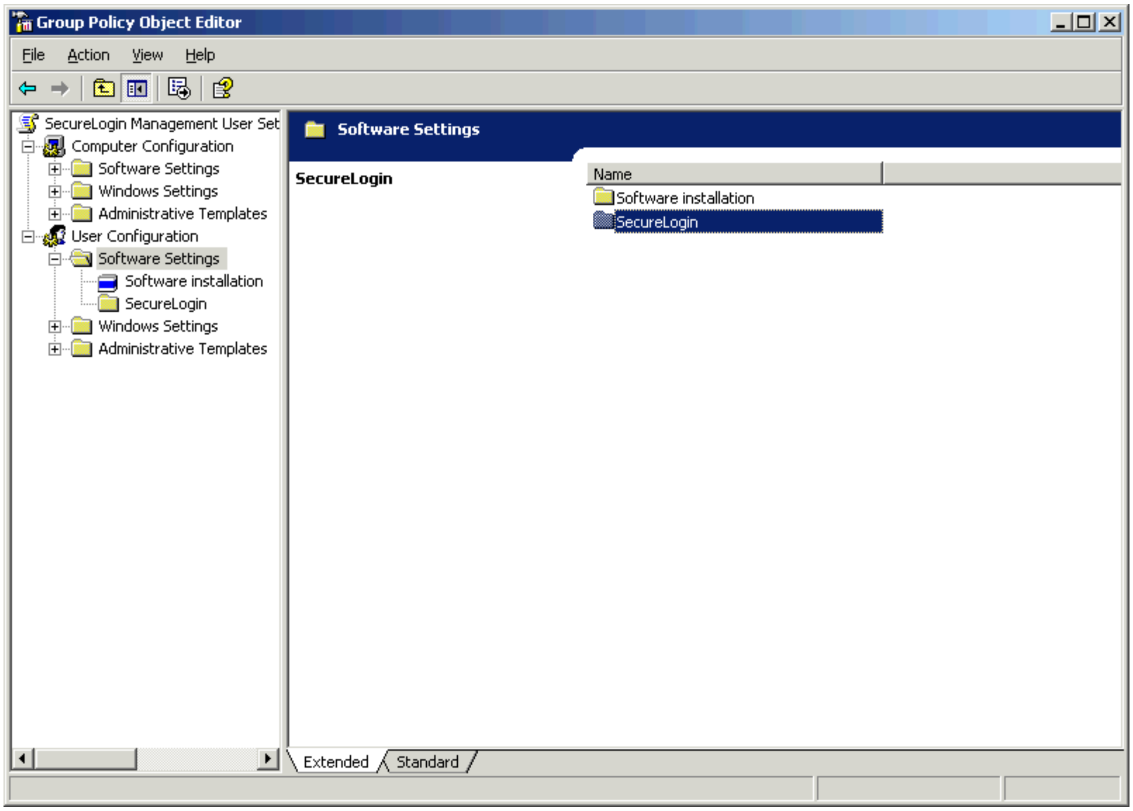
6 Right click the new GPO and select *Edit*.



Group Policy Objects in SWU.Protocom.com

Name	GPO Status	WMI Filter	Modified
Default Domain Controllers Policy	Enabled	None	12/22/2005
Default Domain Policy	Enabled	None	4/4/2005 7:!
SecureLogin Management User Settings	Enabled	None	12/22/2005

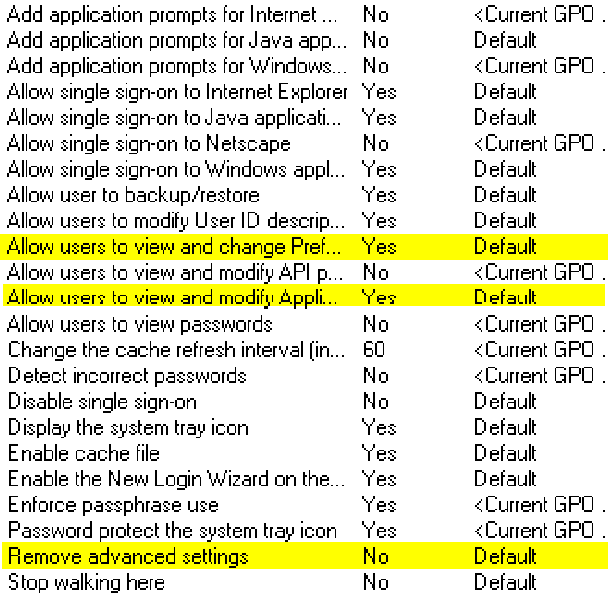
7 Browse to the *User Configuration* > *Software Settings*. In the right hand pane, double click SecureLogin. The SecureLogin management interface will open up.



8 In the SecureLogin management interface, select the *Preferences* tab. Set each setting in accordance with what you want the users to do.

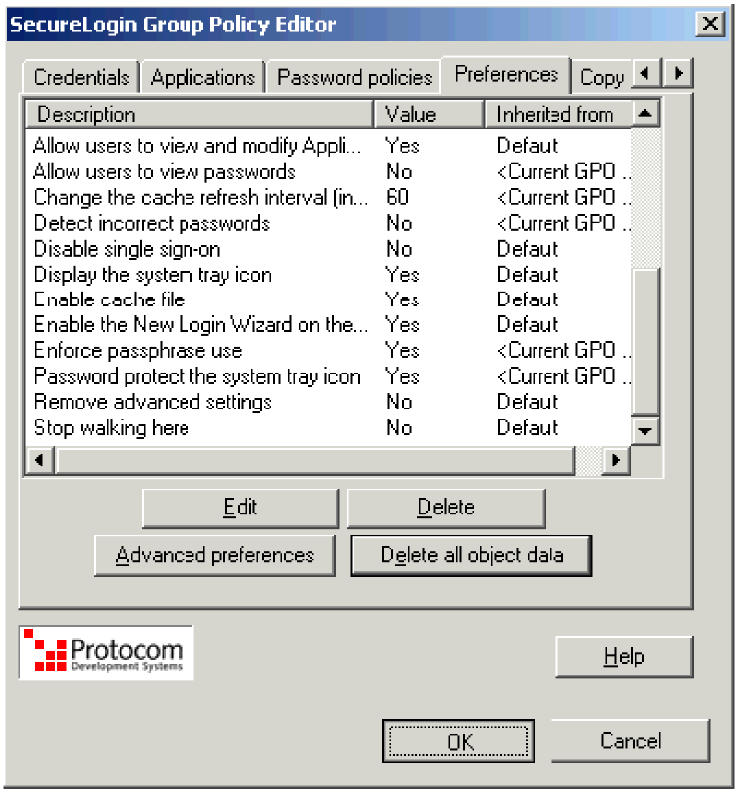
NOTE: The users referred in this document are administrators and help desk staff. They have full access to the SecureLogin client. Your configuration might differ slightly.

The preferences highlighted are the one that are critical to ensure users are able to mange SecureLogin. Ensure they are set as shown in the figure.



Add application prompts for Internet ...	No	<Current GPO .
Add application prompts for Java app...	No	Default
Add application prompts for Windows...	No	<Current GPO .
Allow single sign-on to Internet Explorer	Yes	Default
Allow single sign-on to Java applicati...	Yes	Default
Allow single sign-on to Netscape	No	<Current GPO .
Allow single sign-on to Windows appl...	Yes	Default
Allow user to backup/restore	Yes	Default
Allow users to modify User ID descrip...	Yes	Default
Allow users to view and change Pref...	Yes	Default
Allow users to view and modify API p...	No	<Current GPO .
Allow users to view and modify Appli...	Yes	Default
Allow users to view passwords	No	<Current GPO .
Change the cache refresh interval (in...	60	<Current GPO .
Detect incorrect passwords	No	<Current GPO .
Disable single sign-on	No	Default
Display the system tray icon	Yes	Default
Enable cache file	Yes	Default
Enable the New Login Wizard on the...	Yes	Default
Enforce passphrase use	Yes	<Current GPO .
Password protect the system tray icon	Yes	<Current GPO .
Remove advanced settings	No	Default
Stop walking here	No	Default

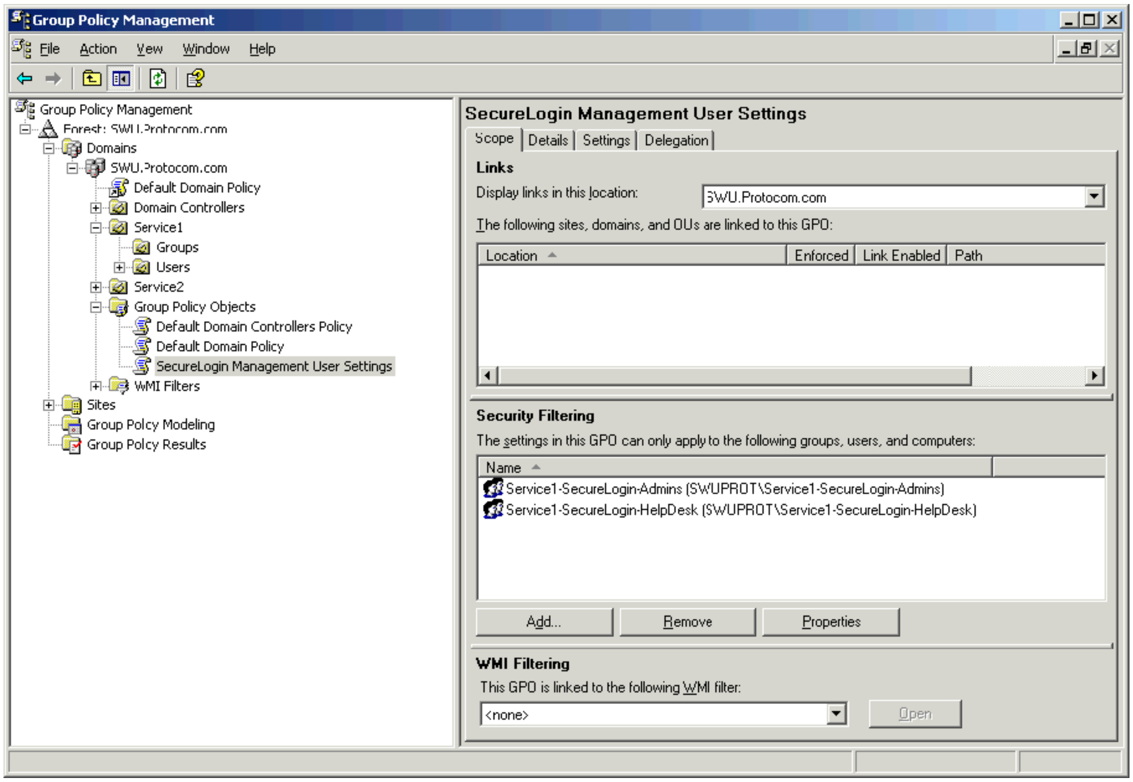
9 Click *Ok* on the SecureLogin management interface. This might take a minute to save.



Description	Value	Inherited from
Allow users to view and modify Appli...	Yes	Defaut
Allow users to view passwords	No	<Current GPO ..
Change the cache refresh interval (in...	60	<Current GPO ..
Detect incorrect passwords	No	<Current GPO ..
Disable single sign-on	No	Defaut
Display the system tray icon	Yes	Defaut
Enable cache file	Yes	Defaut
Enable the New Login Wizard on the...	Yes	Defaut
Enforce passphrase use	Yes	<Current GPO ..
Password protect the system tray icon	Yes	<Current GPO ..
Remove advanced settings	No	Defaut
Stop walking here	No	Defaut

10 Close the GPO editor.

11 In the GPM, select the new GPO you created, remove the Authenticated Users group, and add the admin and help desk groups you created in the previous two sections.



SecureLogin Management User Settings

Links

Display links in this location: SWU.Protocom.com

The following sites, domains, and OUs are linked to this GPO:

Location	Enforced	Link Enabled	Path

Security Filtering

The settings in this GPO can only apply to the following groups, users, and computers:

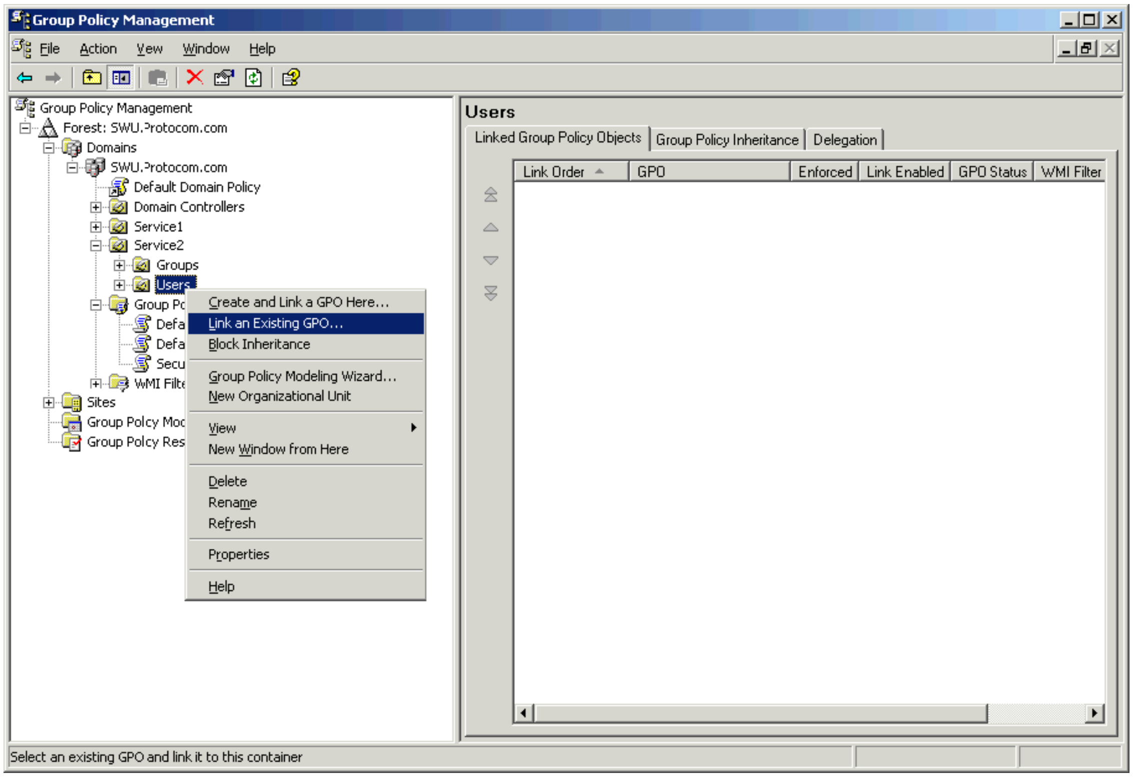
Name
Service1-SecureLogin-Admins (SWUPROT\Service1-SecureLogin-Admins)
Service1-SecureLogin-HelpDesk (SWUPROT\Service1-SecureLogin-HelpDesk)

WMI Filtering

This GPO is linked to the following WMI filter:

<none>

12 Link this policy to the OU where the users are located. Right click and select *Link to an existing GPO*.

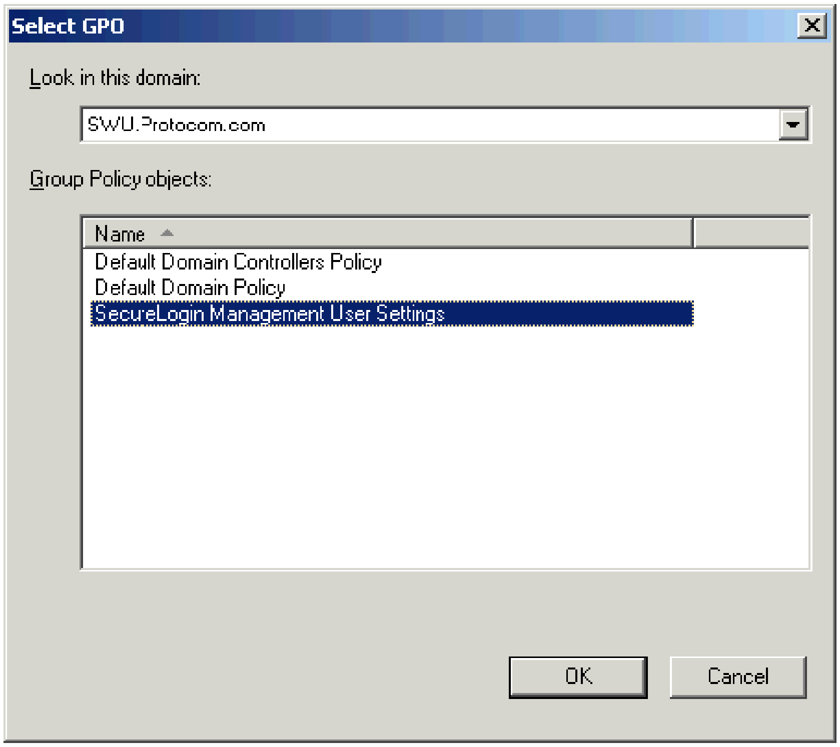


Users

Link Order	GPO	Enforced	Link Enabled	GPO Status	WMI Filter

Select an existing GPO and link it to this container

13 Select the GPO you created, click OK.



14 Close the GPM. Click *OK* on the group policy tab.

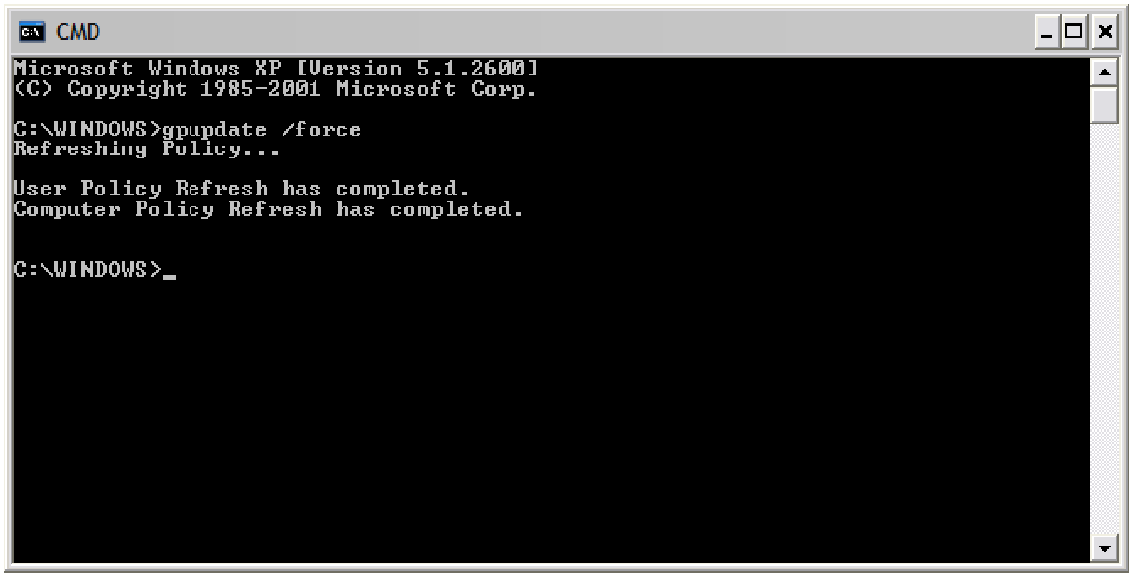
15 Close Active Directory Users and Computers.

23.5.2 Testing your configuration

If you chose to use individual assignment or GPO assignment, proceed with the following tests to confirm your updated configuration

1 On a workstation with SecureLogin and the Active Directory Admin Pak, login as a user who is a member of one of the groups you have configured as SecureLogin administrators or help desk.

2 If your GPO refresh has not occurred, you can manually force the update by going to a command line and issuing the gpupdate /force command (Windows XP). You should see results similar to the following:



```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\WINDOWS>gpupdate /force
Refreshing Policy...

User Policy Refresh has completed.
Computer Policy Refresh has completed.


C:\WINDOWS>_
```

3 Launch Active Directory Users and Computers. Navigate to the container where you delegated control. As a member of the Admins group you should be able to manage the OU's, and subordinate objects, applications and preferences.

As a member of the Help Desk group you should be able to only make changes to the users in the OU. It might appear that as a help desk user you can save changes to the OU, but that is not the case. And if you close the Single Sign-On properties and then open it back up, you will see the changes were not saved.

24 Limiting Concurrent Connections

Novell SecureLogin can restrict the number of concurrent connections of users in the LDAP mode with eDirectory. According to the limit set for a user at the directory level, Novell SecureLogin decides whether to allow user authentication or deny it. The connection log of all the user accounts is maintained and managed by Novell SecureLogin.The validity of any entry will be decided based on the timestamp and the pre-defined time to live parameter. The configuration can be set on a container or a user level. If there are no settings made on a user level, then the user will inherit the configurations from the parent containers.

24.1 Setting Up the Environment for Limiting Concurrent Connections

24.1.1 Registry Entry

Modify the `EnforceConcurrentConnections` variable in `HKLM\Software\Novell\Login\LDAP _ REG_DWORD - EnforceConcurrentConnections` by setting the value to 1 to enable the feature or to 0 to disable the feature.

24.1.2 Schema Extension

In order to facilitate the feature, the schema and the attribute rights have to be extended using the .sch and .ldif files, which are found in `SecureLogin\Tools\Schema\LDAP`.

The `Concurrent_schema_extn.sch` file is used to add the attributes to the schema, and the `concurrent-rights.ldif` file is used to extend the rights. These files can be extended as mentioned in the following options:

- The `Concurrent_schema_extn.sch` file can be extended by using either of the following options:
  - **ndssch (eDirectory schema extension utility):** Execute the following command in eDirectory:
    - `ndssch <AdminDN> Concurrent_schema_extn.sch`

- **ICE Tool (version 20503.02 or later):** Execute the following command in eDirectory:
  - `ice -S SCH -f Concurrent_schema_extn.sch -D LDAP -d <AdminDN> -w <password> -L <ServerCertificate>`

    For more information, see iManager ICE Plug-ins.
- The `concurrent-rights.ldif` file can be extended by using either of the following options:
  - **ICE Tool (version 20503.02 or later):** Execute the following command in eDirectory:
    - `ice -S LDIF -f concurrent-rights.ldif -D LDAP -d <AdminDN> -w <password> -L <ServerCertificate>`

      For more information, see iManager ICE Plug-ins.
  - **LDAP Modify tool:** Execute the following command in eDirectory:
    - `ldapmodify -x -h <host ip address> -p 389 -D cn=admin,o=context -w password -f concurrent-rights.ldif`

After the schema is extended, three new attributes are added to the list of attributes:

- **Protocom-SSO-Connections:** This attribute stores the connection information, that is the IP address along with the timestamp.
- **Protocom-SSO-ConnectionLimit:** This attribute stores the configuration parameter, indicating the number of concurrent connections that are allowed for the user.
- **Protocom-SSO-ConnectionTTL:** This attribute stores the configuration parameter that indicates how long the connection information will be stored.
- **Protocom-SSO-ConcurrentConfig:** This preference controls the inheritance of settings from higher level containers or organizational units.

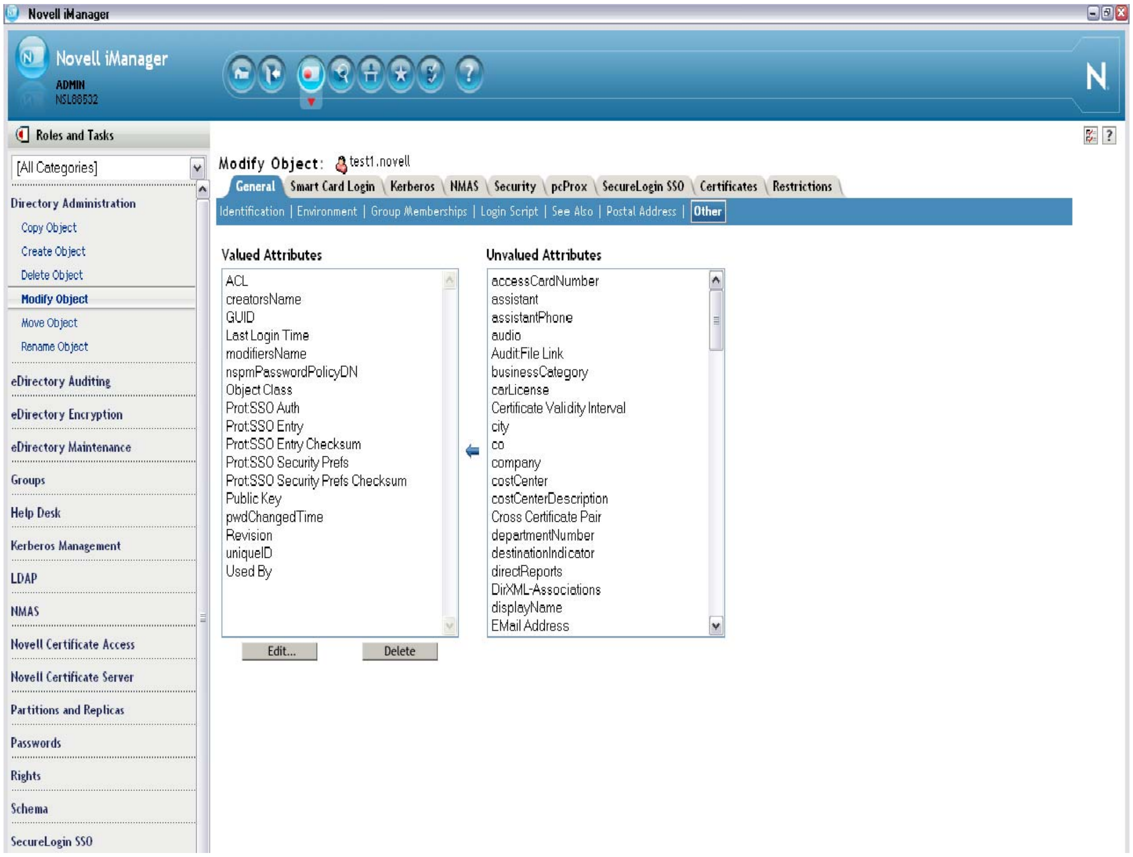
For more information on attributes, see Appendix B, "Schema Updates," on page 281.

NOTE: `LDIF` and `SCH` files are not integrated with the `ldapschema.exe` file, but are bundled as separate files in `SecureLogin\Tools\Schema\LDAP`.

24.1.3 Setting the Attribute Values

To set the attribute values by using iManager, you should assign the `Protocom-SSO-ConnectionLimit` attribute and the `Protocom-SSO-ConnectionTimeToLive` attribute to the user and then set the attribute values.

1. In the iManager console, click *Roles and Tasks* > *Directory Administration* > *Modify Objec*t.
2. Select the user, then click *OK*.
3. Click *General* > *Other*.



Valued Attributes

ACL
creatorsName
GUID
Last Login Time
modifiersName
nspmPasswordPolicyDN
Object Class
Prot:SSO Auth
Prot:SSO Entry
Prot:SSO Entry Checksum
Prot:SSO Security Prefs
Prot:SSO Security Prefs Checksum
Public Key
pwdChangedTime
Revision
uniqueID
Used By

Unvalued Attributes

accessCardNumber
assistant
assistantPhone
audio
Audit:File Link
businessCategory
carLicense
Certificate Validity Interval
city
co
company
costCenter
costCenterDescription
Cross Certificate Pair
departmentNumber
destinationIndicator
directReports
DirXML-Associations
displayName
EMail Address

4 Select the attribute from the list under *Unvalued Attributes*, then click ⇦ .

5 In the Add Attribute window, set the attribute value, then click *OK*.

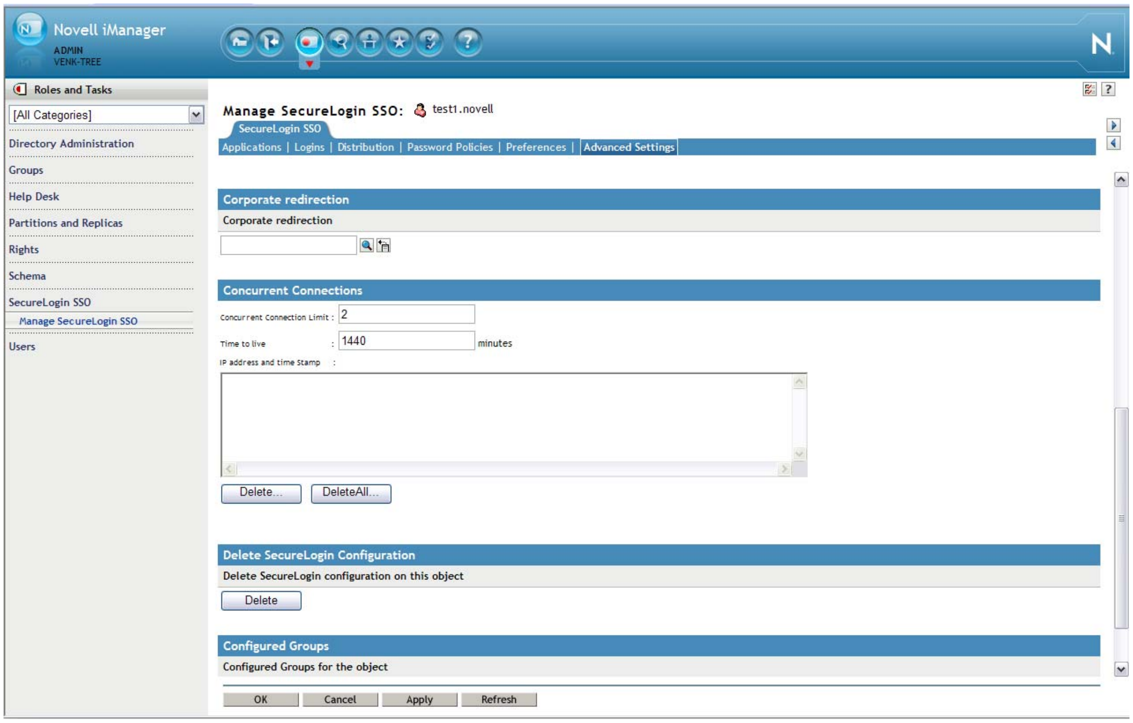
24.1.4 Editing the Attribute Values

To edit the attribute values in iManager:

1 In the iManager console, click *Roles and Tasks* > *SecureLogin SSO* > *Manage SecureLogin SSO*.

2 Select the user, then click *OK*.

3 In the Manage SecureLogin SSO window, click *Advanced Settings*.



Manage SecureLogin SSO: test1.novell

Corporate redirection

Corporate redirection

Concurrent Connections

Concurrent Connection Limit : 2

Time to live : 1440 minutes

IP address and time stamp :

Delete SecureLogin Configuration

Delete SecureLogin configuration on this object

Configured Groups

Configured Groups for the object

4 Edit the attribute values under *Concurrent Connection*s.

5 Click *Apply* to save the changes.

Example:

The attributes are set to the following values:

- Protocom-SSO-ConcurrentConnectionLimit: 2
- Protocom-SSO-ConcurrentConnectionTTL: 1440 (in minutes)

When UserA logs in from workstation 1 with IP 1.1.1.1, a new entry is added to the `Protocom-SSO-Connections` attribute in the IP@timestamp format, that is, 1.1.1.1@20110621000000 (2011 June 21 00 AM).

Similarly, when UserA logs in from workstation 2 with IP 2.2.2.2, another entry is added to the `Protocom-SSO-Connections` attribute in the IP@timestamp format, that is, 2.2.2.2@20110621040000 (2011 June 21 04 AM).

If UserA then tries to log in from workstation 3, Novell SecureLogin will deny the authentication because the connection limit is exceeded.

25 Authasas Support

SecureLogin uses the advanced authentication infrastructure provided by Authasas, for authentication in an Active Directory environment.

SecureLogin supports the following advanced authentication mechanism provided by Authasas:

- Biometric authentication using fingerprint
- Authentication using Smart Card

In a system with Authasas installed, SecureLogin supports the following features integrated with Authasas:

- **Authentication:** Authasas provides the GINA or Credential Provider in the system where it is installed. When the user logs in using this Authasas GINA or Credential Provider, SecureLogin will also launch seamlessly in the Active Directory environment.
- **Re-authentication:** SecureLogin leverages this functionality by making Authasas available during re-authentication. This module can be configured either from the wizard or script. An appropriate authenticator can be selected for re-authentication when configuring this module.
- **Kiosk Mode:** SecureLogin uses Authasas as an external authenticator in Active Directory deployment in kiosk mode.
- **DAS Support:** DAS on Active Directory supports the Authasas and SecureLogin integrated environment in kiosk mode. This feature can be effectively used for desktop sharing using DAS.

25.1 Integrating SecureLogin with Authasas

- Section 25.1.1, “Authasas Plugin,” on page 245
- Section 25.1.2, “Registry Settings,” on page 245

25.1.1 Authasas Plugin

Authasas provides a customized module (plugin) which is utilized by SecureLogin to deliver the functionality of authentication and re-authentication using Authasas. The plugin can be downloaded from, Authasas Download Site.

25.1.2 Registry Settings

- **To enable kiosk mode, create the following registry:**

Registry Path	Registry Type	Registry Name	Registry Value
`HKEY_LOCAL_MACHINE\SOFTWARE\Protocom\SecureLogin`	DWORD	`NSLADAUTH`	1

- **To integrate SecureLogin with Authasas, create the following registry:**

Registry Path	Registry Type	Registry Name	Registry Value
`HKEY_LOCAL_MACHINE\SOFTWARE\Protocom\SecureLogin`	STRING	`ExtAuthModule`	`<Absolute path>\ASASAuth.dll` where, `<Absolute path>` is the location where you have saved `ASASAuth.dll`.

26 Troubleshooting

26.1 Unable to See Password Using ?syspassword If the User is Authenticated Using Smart Card PIN

In iManager, execute one of the following steps:

Workaround 1: In **Universal Password > Configuration Options**, select **Allow admin to retrieve passwords**.

Workaround 2: In **Universal Password > Configuration Options**, select **Allow the following to retrieve passwords**. Specify the FDN of the user allowed to retrieve the password.

A Error Messages

SecureLogin error messages display a number code that generally includes a text description of the error. SecureLogin error numbers currently range between -101 and -914. Following is a list of these error message, their cause, and the appropriate action to take.

Some of the codes displayed in SecureLogin error messages are not native SecureLogin codes. Refer to the relevant application's Help for assistance with the following:

Novell eDirectory: Numbers between -1 and -813

Microsoft Active Directory; Error codes such as, 0x80070002

For more information about Active Directory error codes, go to the Microsoft Web site (http://msdn.microsoft.com)

The Secure Workstation post-login method failed, error: - 1449990268

Possible Cause: NMAS sequence with SecureWorkstation post-login method is created and not configured using iManager plugin for SecureWorkstation.

Action: Novell SecureLogin displays this error if any NMAS sequence with SecureWorkstation post-login method is used without activation.

Before using any sequence with SecureWorkstation post-login method, configure and activate the sequence using Secureworkstation iManager plugin.

-102: BROKER_NO_SUCH_ENTRY

Possible Cause: You tried to load an application definition or variable that does not exist.

For example, you set up Terminal Launcher to run from a shortcut or to run a particular application definition, but the application definition does not exist.

Action: Check that the name of the application definition is actually defined in SecureLogin. Verify that the name is the same as the name specified in the application definition.

-103: BROKER_INVALID_CLASS_CREATED

Possible Cause: Data has become corrupted, or you are running an earlier version.

SecureLogin is trying to create a new version of the application definition data format that was stored in ANDS.

Action: Upgrade the older SecureLogin client to the new client. Install the latest SecureLogin software.

-104: BROKER_CREATE_CLASS_FAILED

Possible Cause: The SecureLogin client has run out of memory.

Action: Free up some memory. Try again later.

-105: BROKER_REMOVE_ENTRY_FAILED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-106: BROKER_UPDATE_GET_ENTRY_FAILED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-107: BROKER_ENTRY_NOT_FOUND

Possible Cause: An attempt to load an application definition or variable that does not exist.

Action: Check that the name of the application definition is actually defined in SecureLogin. Verify that the name is the same as the name specified in the application definition editor.

-109: BROKER_SCRIPT_BUFFER_ALLOC_FAILED

Possible Cause: The SecureLogin client has run out of memory.

Action: Free up some memory. Try again later.

-110: BROKER_NO_MORE_PLATFORMS

Possible Cause: Data is corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-111: BROKER_NO_MORE_VARIABLES

Possible Cause: Data is corrupted or the software is not working as intended.

Action: Contact Novell Support.

-112: BROKER_NO_SUCH_VARIABLE

Possible Cause: You are trying to use an undefined variable.

Because SecureLogin is not prompting you for the variable, data has become corrupted, or some other situation is preventing the software from working as expected.

Action: Contact Novell Support.

-114: BROKER_PRIMARY_NOT_AVAILABLE

Possible Cause: You are not logged on to the directory. You are using the offline cache. Therefore, you cannot perform some directory functions. For example, you cannot change your passphrase.

Action: Log in to the directory.

-116: BROKER_HEADER_DATA_CORRUPT

Possible Cause: Data is corrupted. You might have a customized build for your site, but have installed a standard version of SecureLogin, or have gone from a standard version to a customized build for your site.

Action: Delete the local cache file and try again. If unsuccessful, contact Novell Support.

-120: BROKER_INVALID_PREF_DATA_TYPE

Possible Cause: Data is corrupted or the software is not working as intended.

Action: Contact Novell Support.

-121: BROKER_PREFERENCE_DATA_CORRUPT

Possible Cause: Data has become corrupted or the software is not working as intended.

Action: Contact Novell Support.

-122: BROKER_TARGET_ENTRY_LIST_NOT_LOADED

Possible Cause: Data has become corrupted or the software is not working as intended.

Action: Contact Novell Support.

-123: BROKER_CACHE_PASSWORD_INCORRECT

Possible Cause: You have tried to log on from offline mode, but the password you entered does not match the expected password from the local cache.

Typically, the offline password is the passphrase answer.

Action: Enter the correct passphrase answer or directory password.

-129: BROKER_ENTRY_LIST_NOT_NULL

Possible Cause: Data has become corrupted or the software is not working as intended.

Action: Delete the local cache file and try again. If unsuccessful, contact Novell Support.

-130: BROKER_ENTRY_LIST_NULL

Possible Cause: Data has become corrupted or the software is not working as intended.

Action: Delete the local cache file and try again. If unsuccessful, contact Novell Support.

-131: BROKER_YSM_LIST_NOT_NULL

Possible Cause: Memory is not handled as expected.

Action: Contact Novell Support.

-132: BROKER_SYM_LIST_NULL

Possible Cause: Data has become corrupted or the software is not working as intended.

Action: Contact Novell Support.

-138: BROKER_SYMBOL_DATA_CORRUPT

Possible Cause: Data has become corrupted in the local cache file or in the directory.

Action: Delete the local cache file and try again. If unsuccessful, contact Novell Support.

-140: BROKER_SCRIPT_DATA_CORRUPT

Possible Cause: Data has become corrupted in application definitions.

Action: Delete the local cache file and try again.

-141: BROKER_PREF_INVALID

Possible Cause: Data has become corrupted or the software is not working as intended.

Action: Contact Novell Support.

-142: BROKER_SET_PREF_INVALID

Possible Cause: Data has become corrupted or the software is not working as intended.

Action: Contact Novell Support.

-145: BROKER_SECURITY_ALERT

Possible Cause: Unable to locate security keys (AuthData), but security data appears to exist. It is possible that someone has attempted to gain access to your security data.

Action: Contact your system administrator.

-166: BROKER_INVALID_DES_KEY

Possible Cause: Hex strings are invalid. The DES_KEY variable requires hexadecimal (0-9, A-F) numbers.

Action: Make sure that the DES_KEY variable contains only hexadecimal numbers.

-167: BROKER_INVALID_DES_OFFSET

Possible Cause: Hex strings are invalid. The DES_OFFSET variable requires hexadecimal (0-9, A-F) numbers.

Action: Make sure the DES_OFFSET variable contains only hexadecimal numbers.

-168: BROKER_DESKEY_NOT_FOUND

Possible Cause: You tried to generate a one-time password for a platform. However, you have not defined the DES_KEY variable.

Action: Create the DES_KEY variable.

-169: BROKER_DESOFFSET_NOT_FOUND

Possible Cause: You tried to generate a one-time password for a platform. However, you have not defined the DES_OFFSET variable.

Action: Create the DES_OFFSET variable.

-171: BROKER_CACHE_FILE_OPEN_FAIL

Possible Cause: SecureLogin tried to read or write to the offline cache. However, SecureLogin is unable to open the cache file.

Action: Assign rights so that the specified user object has rights to the cache directory.

-173: BROKER_NO_MORE_CACHE_FILE_DATA

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-174: BROKER_CACHE_SAVE_FAILED

Possible Cause: SecureLogin is unable to save data to the offline cache.

Action: Assign rights so that the specified user object has rights to the cache directory.

-175: BROKER_CACHE_SECRETS_INCORRECT

Possible Cause: The offline cache password is incorrect for either of the following reasons:

- The key used to decrypt the cache file is not the key that the cache file was encrypted with.
- If you log on as a user to a workstation and create a cache file, and then you go to another workstation, reset your passphrase and log on, then when you return to the original workstation this error message appears.

Action: Delete the cache file.

-176: BROKER_PUBLIC_KEY_READ_FAILED

Possible Cause: SecureLogin is unable to read the public key from Active Directory System.

Action: Troubleshoot Microsoft Active Directory System and Microsoft ADAM.

-177: BROKER_PUBLIC_KEY_HAS_CHANGED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-179: BROKER_RTVALUE_DOES_NOT_EXIST

Possible Cause: You tried to read a runtime variable that is not defined.

Action: Check the application definition. Make sure that the variable is set before it is read or used as a command.

-180: BROKER_DS_VARIABLE_NOT_READ

Possible Cause: You used one of the % variables to read a directory attribute, but SecureLogin cannot read the variable.

Action: Make sure that you have spelled the attribute name correctly. Troubleshoot Microsoft Active Directory System or Microsoft ADAM.

-181: BROKER_WRONG_PASS_PHRASE

Possible Cause: The passphrase or password is incorrect. The reason could be:

- You entered the wrong passphrase.
- You tried to change your passphrase, but entered it incorrectly.
- You password protected the SecureLogin notification area (system tray) icon and entered the incorrect password.

Action: Enter the passphrase or password correctly.

-190: BROKER_NO_AUTH_DATA_FOUND

Possible Cause: Although the SecureLogin Entry attribute has data, the SecureLogin Auth attribute was blank.

Someone deleted the Novell SecureLogin Auth attribute.

Action: Delete the Prot:SSO Entry attribute.

SecureLogin creates these attributes the next time you run SecureLogin.

-192: BROKER_UNABLE_TO_INSTANTIATE

Possible Cause: A module, for example, WinSSO, is unable to connect to the Combroker.

Action: If you are using Windows 95, make sure that you have the latest DCOM update, or reinstall Internet Explorer.

For other platforms, reinstall SecureLogin.

-195: BROKER_FILE_TRAITS_OP_NOT_IMPLEMENTED

Possible Cause: Data has become corrupted or the software is not working as intended.

Action: Contact Novell Support.

-196: BROKER_DUMMY_OP_NOT_IMPLEMENTED

Possible Cause: Data has become corrupted or the software is not working as intended.

Action: Contact Novell Support.

-199: BROKER_ERROR_COMMAND_NOT_HANDLED

Possible Cause: An application definition parser encountered an unrecognizable command.

Action: Make sure that:

- The command is spelled correctly.
- The If/EndIf blocks match.

-200: BROKER_END_OF_SCRIPT

Possible Cause: Data has become corrupted or the software is not working as intended.

Action: Contact Novell Support.

-201: BROKER_UNEXPECTED_END_OF_SCRIPT

Possible Cause: `If/EndIf` or `Repeat/EndRepeat` blocks do not match. SecureLogin reached the end of the application definition without finding an expected `EndIf` or `EndRepeat` command.

Action: Check the application definition. Make sure that the `If/EndIg` and `Repeat/EndRepeat` blocks match.

-206: BROKER_BREAK_BLOCK

Possible Cause: Data has become corrupted or the software is not working as intended.

Action: Contact Novell Support.

-207: BROKER_END_SCRIPT_NOW

Possible Cause: Data has become corrupted or the software is not working as intended.

Action: Contact Novell Support.

-210: BROKER_CORPORATE_MOD_ABORTED

Possible Cause: Data has become corrupted or the software is not working as intended.

Action: Contact Novell Support.

-211: BROKER_ENTRY_ALREADY_ON_LIST

Possible Cause: You tried to add an application definition or variable, but an application definition or variable with that name already exists.

Action: Do one of the following

- Use a different name for the application definition or variable.
- Rename the existing application definition or variable in the application definition editor.

-213: BROKER_NDS_OP_NOT_IMPLEMENTED

Possible Cause: Data has become corrupted or the software is not working as intended.

Action: Contact Novell Support.

-214: BROKER_UNABLE_TO_GET_CURRENT_OU

Possible Cause: Data has become corrupted or the software is not working as intended.

Action: Contact Novell Support.

-217: BROKER_ARG_NUM

Possible Cause: In application definition language, each command expects a certain number of arguments. You have used either too few or too many arguments for a given command.

Action: Make sure you are passing the correct number of arguments to the command.

-219: BROKER_NOT_A_NUMBER

Possible Cause: The application definition language was expecting a decimal number, but characters other the 0-9 appeared.

Action: Remove incorrect characters.

-220: BROKER_HLLAPI_FUNCTION_NOT_FOUND

Possible Cause: In the Terminal Launcher configuration, you specified a `HLLAPI.DLL` and the name of the function in the DLL. The name of the function cannot be found in the DLL.

Action: Check you have specified the correct terminal emulator type. Make sure that you entered the HLLAPI function correctly.

-221: BROKER_HLLAPI_OBJECT_UNINITIALISED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-222: BROKER_HLLAPI_DLL_LOAD_FAILED

Possible Cause: Terminal Launcher was unable to load the `HLLAPI.DLL` that you specified. The HLLAPI.DLL for that emulator is looking for other DLL files that do not exist or are not installed for that emulator.

Action: Make sure that the path and file that you are entered for the DLL are correct.

Check the vendor's documentation for information about that emulator.

-223: BROKER_HLLAPI_OBJECT_ALREADY_INITIALISED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-224: BROKER_ERROR_DURING_WINHLLAPICLEANUP

Possible Cause: Terminal Launcher has called the WinHLLAPI cleanup function for a WinHLLAPI emulator.

Action: Check the vendor's documentation for information about that emulator.

-225: BROKER_CANNOT_FIND_WINHLLAPISTARTUP_FUNCTION_IN_DLL

Possible Cause: In the Terminal Launcher configuration, you incorrectly specified that the emulator is a WinHLLAPI emulator.

Action: Make sure that you have specified the correct emulator type.

-226: BROKER_ERROR_DURING_WINHLLAPISTARTUP

Possible Causes: The reason can be the following:

- The terminal emulator does not support the right version of HLLAPI (requires at least V.1.1).
- The attempt to reset a connection to a HLLAPI terminal emulator failed.

Action: Check the vendor's documentation for information about that emulator.

-227: BROKER_CANNOT_FINDWINHLLAPICLEANUP_FUNCTION_IN_DLL

Possible Cause: In the Terminal Launcher configuration, you incorrectly specified that the emulator is a WinHLLAPI emulator.

Action: Make sure you have specified the correct emulator type.

See the Novell Web site for information about configuring specific terminal emulators.

-228: BROKER_BUTTON_NOT_FOUND

Possible Cause: For a Windows single sign-on application, no button exists for the control ID you specified. For example, if you specified Click #3, no button exists for control ID #3.

Action: Specify the correct emulator type.

-230: BROKER_SETPLAT_FAILED

Possible Cause: The regular expression that you supplied in the SetPlat command is invalid.

Action: Check the syntax of the regular expression that you provided.

-231: BROKER_AUTH_CANCEL

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-232: BROKER_UNABLE_TO_START_PROGRAM

Possible Cause: The Run command was unable to find and start the requested program.

Action: Make sure that the executable program exists and that the path is correct.

-234: BROKER_FREE_PLATFORM_SCRIPT_NULL_PTR

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-235: BROKER_VBA_LOGIN_INTERFACE_NOT_IMPLEMENTED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-236: BROKER_CHANGEPASSWORD_INVALID_VARIABLE_SYNTAX

Possible Cause: One of the parameters that you pass to the ChangePassword command must be a variable. The parameter that you provided is not a variable.

Action: Specify a variable.

-237: BROKER_MAD_COMMAND_SET_INVALID_VARIABLE_SYNTAX

Possible Cause: The first parameter that you pass to the Set command must be a variable. The parameter that you provided is not a variable.

Action: Specify a variable.

-239: BROKER_POLICY_SCRIPT_ARG_NUM

Possible Cause: One of the commands in a password policy script has too few or too many arguments.

Action: Include the correct number of arguments.

-240: BROKER_VALID_CHARS_OUTNUMBERED

Possible Cause: A password is unable to satisfy a password policy. This is because the maximum number of allowable characters is less than the minimum number of allowable characters.

Action: Set the maximum number of a particular class of characters to a greater number than the minimum number of specified allowable characters.

-241: BROKER_PASSWORD_LOGIC_ERROR

Possible Cause: You have incorrectly set up a password policy. No password can satisfy all the settings.

Action: Work through each restriction in the password policy, and make sure that one restriction does not contradict another restriction in the policy.

-242: BROKER_EXECEPTION_CHARACHER_FOUND

Possible Cause: You entered a password that contains a character that is not allowed.

Action: Use allowable characters in your password.

-243: BROKER_PASSWORD_TOO_SHORT

Possible Cause: You entered a password that does not have enough characters.

Action: Provide enough characters in your password.

-244: BROKER_PASSWORD_TOO_LONG

Possible Cause: You entered a password that has too many characters.

Action: Enter the correct number of characters.

-245: BROKER_INSUFFICIENT_UPPERCASE_CHARS

Possible Cause: You entered a password that has too few uppercase characters.

Action: Use the specified number of uppercase characters in your password.

-246: BROKER_TOO_MANY_UPPERCASE_CHARS

Possible Cause: You entered a password that has too many uppercase characters.

Action: Use the specified number of uppercase characters in your password.

-247: BROKER_INSUFFICIENT_LOWERCASE_CHARS

Possible Cause: You entered a password that has too few lowercase characters.

Action: Use the specified number of lowercase characters in your password.

-248: BROKER_TOO_MANY_LOWERCASE_CHARS

Possible Cause: You entered a password that has too many lowercase characters.

Action: Use the specified number of lowercase characters in your password.

-249: BROKER_INSUFFICIENT_PUNCTUATION_CHARS

Possible Cause: You entered a password that has too few punctuation characters.

Action: Use the specified number of punctuation characters in your password.

-250: BROKER_TOO_MANY_PUNCTUATION_CHARS

Possible Cause: You entered a password that has too many punctuation characters.

Action: Use the specified number of punctuation characters in your password.

-251: BROKER_INSUFFICIENT_NUMERALS

Possible Cause: You entered a password that has too few numerals.

Action: Use the specified number of numerals in your password.

-252: BROKER_TOO_MANY_NUMERALS

Possible Cause: You entered a password that has too many numerals.

Action: Use the specified number of numerals in your password.

-253: BROKER_NT_FILE_TRAITS_OP_NOT_IMPLEMENTED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-256: BROKER_UNABLE_TO_GET_NT_CHACE_DIR

Possible Cause: You are using Windows NT 4 Domains mode, but you have not defined or mapped a Home drive.

Action: Log in as the user to determine whether the Home drive and Home path variables are set. If the variables are not set, use the Windows NT domain administrative tools to set them.

NOTE: Version 3.6 and above do not support Windows NT.

-257: BROKER_UNABLE_TO_CREATE_NT_CACHE_DIR

Possible Cause: The user object did not have rights to create a directory on the user's local drive.

Action: Grant the user object rights to the directory.

-259: BROKER_MUST_BEGIN_WITH_UPPERCASE

Possible Cause: You entered a password that did not begin with an uppercase character.

Action: Enter an uppercase character at the beginning of the password.

-260: BROKER_NO_DATA_STORES_LOADED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-261: BROKER_ENTRY_SRC_OBJECT_MISMATCH

Possible Cause: You are using a platform other than NDS or eDirectory and have moved an object. The directory object that you are reading entries from is not the directory object that the entries were saved to.

Action: Manually copy and paste the scripts between the objects.

-262: BROKER_CACHE_FILE_INCORRECT_VERSION

Possible Cause: The cache file that you are trying to load was created by a later version of SecureLogin.

Action: Use the version of SecureLogin that created the cache file.

Install the latest version of SecureLogin.

-263: BROKER_DDE_LOGIN_INTERFACE_NOT_IMPLEMENTED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-264: BROKER_DDE_CONNECT_FAILED

Possible Cause: Terminal Launcher could not connect to a specified DDE emulator.

Action: Make sure that the emulator launched correctly and the emulator's DDE support is turned on.

-265: BROKER_DDE_DISCONNECT_FAILED

Possible Cause: Failed attempt to disconnect from a DDE-supporting terminal emulator.

Action: See the vendor's documentation.

-266: BROKER_NT_FILE_

_SAVE_FAILED

Possible Cause: The user object was unable to save to the equivalent of a cache file in the Home directory using Windows NT 4 Domains.

Action: Grant the user object rights so that the user can write files to the Home directory.

NOTE: Version 3.6 and above do not support Windows NT.

-269: BROKER_NOT_A_PASSWORD_POLICY_COMMMAND

Possible Cause: An invalid command was used in a password policy.

Action: Make sure that the command is spelled correctly.

-271: BROKER_PASSWORD_UNACCEPTABLE

Possible Cause: The password did not meet the requirements as specified in password policies.

Action: Enter the password correctly.

-273: BROKER_MSTELNET_OPERATION_NOT_SUPPORTED

Possible Cause: The generic emulator cannot support a particular operation, for example, SetCursor.

Action: Do not use the command for generic emulators.

-279: BROKER_EMULATOR_LAUNCH_FAILED

Possible Cause: In Terminal Launcher, you can configure the path to the executable that will run. However, the specified executable is unable to run.

Action: Make sure the path to the emulator is correct.

-280: BROKER_UNABLE_TO_CREATE_EMULATOR

Possible Cause: You have specified an invalid terminal type in TLAUNCH.INI (or the Terminal Launcher configuration).

Action: Specify the correct terminal type.

-281: BROKER_INVALID_CHARACTER_FOUND_IN_PASTE_ID_LIST

Possible Cause: A comma does not separate decimal numbers for copy IDs.

Action: For generic emulators, you must specify a set of copy control IDs. Use a comma to separate decimal numbers.

-282: BROKER_INVALID_CHARACTER_FOUND_IN_COPY_ID_LIST

Possible Cause: A comma does not separate decimal numbers for copy IDs.

Action: For generic emulators, you must specify a set of copy control IDs. Use a comma to separate decimal numbers.

-283: BROKER_UNABLE_TO_READ_TLAUCH_INI

Possible Cause: SecureLogin is unable to read the `TLAUNCH.INI` file because the file has been deleted.

Action: Do one of the following:

- Create a blank `TLAUNCH.INI` file.
- Return to the default `TLAUNCH.INI` file by reinstalling SecureLogin.

-284: BROKER_NO_TERMINAL_TYPE_DEFINED

Possible Cause: The `TLAUNCH.INI` file contains an error. The terminal type for the emulator is not defined.

Action: Use Terminal Launcher to specify a terminal type for the emulator.

-285: BROKER_EMULATOR_INFO_NOT_FOUND

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-286: BROKER_RELOAD_NOT_ENABLED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-287: BROKER_TERMINAL-CONNECT-TRY-AGAIN

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-289: BROKER_WRONG_OBJECT_TYPE

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-290: BROKER_FILE_LOAD_FAILED

Possible Cause: You do not have enough rights to convert an earlier `TLAUNCH.INI` file to a later format.

Action: Do one of the following:

- Read an earlier `TLAUNCH.INI` file.
- Create a new `TLAUNCH.INI` file.

NOTE: Ask the administrator to assign you necessary rights.

-292: BROKER_DLL_NOT_INITIALISED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-294: BROKER_SETPLAT_VARIABLE_MUST_BE_RUN_TIME

Possible Cause: The first argument to a `SetPlat` argument can be a variable. The variable used is not a runtime variable.

Action: Make the first argument a runtime variable.

-295: BROKER_ERROR_CONDITIONAL_COMMAND_NOT_HANDLED

Possible Cause: SecureLogin does not handle text in the second part of an If command.

Action: Make sure that the command is the one listed and documented correctly.

-297: BROKER_PARSER_ELSE_STATEMENT_FOUND

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-298: BROKER_RAW_MODE_MUST_BE_SECOND_ARG

Possible Cause: For the Click command, you have placed the –X and –Y arguments before –Raw.

Action: If you use –Raw, place it as the first argument.

-299: BROKER_DISALLOWED_REPEATS_EXIT

Possible Cause: You have tried to use repeated characters in a Password Policy that does not allow them.

Action: Avoid repeated characters.

-300: BROKER_DISALLOWED_SEQUENTIALS_EXIST

Possible Cause: You have tried to use sequential characters in a password, but a Password policy does not allow them.

Action: Avoid sequential characters.

-301: BROKER_DISALLOWED_KEYBOARD_ADJACENTS_EXIST

Possible Cause: You entered a password that has an unacceptable sequence of characters.

Action: Enter an approved sequence of characters.

-303: BROKER_CHARACTER-NOT-IN-REQUIRED-POSITION

Possible Cause: You entered a password that does not have a character in a required position.

Action: Enter the password correctly.

-308: BROKER_BAD_POSITION_ARGUMENT

Possible Cause: While calling a SetCursor command, you tried to move the cursor to an invalid position. For example, out of the terminal session's boundary.

Action: Specify a valid position.

-309: BROKER_ERROR_CONVERTING_POSITION

Possible Cause: The conversion from –X and –Y coordinates for the SetCursor command has failed.

Action: Specify the –X and –Y coordinates for one offset from the top left-hand corner of the screen.

-310: BROKER_NOT_A_WRITABLE_VARIABLE

Possible Cause: You tried to save a new value to a type of variable that cannot be written to.

Action: Use a runtime or normal variable.

-311: BROKER_RUN_SCRIPT_AGAIN

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-312: BROKER_NO_OU_PERIOD_FOUND

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-314: BROKER_COPY_BACKUP_FAILED

Possible Cause: When SecureLogin begins to update the cache file, SecureLogin first copies the current cache file to a file with the same name, but uses the extension `.GOOD`.

SecureLogin was unable to copy the file. The `.GOOD` file is already open because another process is using it.

Possible Cause: You do not have rights to create files in the directory.

Action: Ask the administrator to assign you rights to the directory.

-315: BROKER_GOTO_LABEL_ALREADY_DEFINED

Possible Cause: You have used a `GoTo` command, but the label that you directed it to has already been used.

Action: Remove the second label command.

-316: BROKER_GOTO_LABEL_NOT_DEFINED

Possible Cause: You have used a `GoTo` command, but the label that you directed it to has not been defined.

Action: Define the label.

-317: BROKER_INCORRECT_DATABASE_VERSION

Possible Cause: The version of SecureLogin that you are using does not handle the version of SecureLogin that is stored in the directory.

Action: Upgrade to the latest version of SecureLogin.

-318: BROKER_DIRECTORY_CRC_DOES_NOT_MATCH

Possible Cause: Whenever SecureLogin stores an entry in Microsoft Active Directory, SecureLogin employs a redundancy check. If the redundancy check does not match when SecureLogin reloads the entry, then the data in Microsoft Active Directory has been corrupted.

Action: Troubleshoot Microsoft Active Directory or Microsoft ADAM.

-319: BROKER_DISALLOWED_DUPLICATE_EXIST

Possible Cause: You entered a password that has unacceptable duplicate characters.

Action: Enter the password correctly.

-320: BROKER_GOTO_LIST_ASSERTION

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-321: BROKER_SUBROUTINE_NOT_DEFINED

Possible Cause: A Call command is calling a subroutine that has not yet been defined.

Action: Define the subroutine.

-322: BROKER_UNABLE_TO_FIND_PASSWORD_FIELD

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-323: BROKER_PASSWORD_FIELD_STYLE_NOT_SET

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-324: BROKER_WEB_ACTION_NOT_SUPPORTED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-325: BROKER_ENTRY_MUST_HAVE_NON_NULL_KEY

Possible Cause: You tried to add an application definition or variable that is a blank string.

Action: Provide a name for the application definition or variable.

-326: BROKER_VARIABLE_REQUIRED

Possible Cause: Some commands, for example, ReadText, require a variable to copy the data that they are returning to. The argument must be a variable.

Action: Change the argument to a variable.

-327: BROKER_OBJECT_NOT_FOUND

Possible Cause: Microsoft Active Directory/ADAM library was unable to allocate memory.

Action: Troubleshoot Microsoft Active Directory or Microsoft ADAM.

-328: BROKER_ADS_MEMORY_FAILURE

Possible Cause: The Microsoft Active Directory/ADAM library was unable to allocate memory.

Action: Close one or more applications and try again.

-329: BROKER_ADS_ERROR_GETTING_ATTRIBUTE

Possible Cause: Although data exists in Microsoft Active Directory/ADAM, SecureLogin is unable to read the data.

Action: Troubleshoot Microsoft Active Directory or Microsoft ADAM.

-330: BROKER_ADS_INSUFFICIENT_RIGHTS_TO_DELETE

Possible Cause: When you removed an application definition, SecureLogin tried to delete part of an attribute from Microsoft Active Directory/ADAM. However, you are unable to delete the attribute because you do not have sufficient rights.

Action: The administrator must assign sufficient directory rights for each user object so that the user can modify SecureLogin attributes.

-331: BROKER_ADS_ERROR_DELETING_VALUE

Possible Cause: Microsoft Active Directory/ADAM was unable to delete a value.

Action: Troubleshoot Microsoft Active Directory or Microsoft ADAM.

-332: BROKER_NO_PASSWORD_FIELD_VARIABLE_IN_SCRIPT

Possible Cause: A Web application definition must have at least one Type command that has "password" as the second argument.

The following lines illustrate a typical application definition:

- `Type $Username`
- `Type $Password Password`

However, the application definition has no `Type` command followed by the Password attribute.

Action: Add a Type command followed by the Password attribute.

-333: BROKER_REGEX_GET_REPLACE_STRING_FAILED

Possible Cause: On the RegSplit command, the string that you are running through the regular expression did not match.

Action: Change the regular expression.

-335: BROKER_REGEX_COMPILE_FAILED

Possible Cause: The syntax of the regular expression was incorrect.

Action: Revise the syntax of the regular expression.

-336: BROKER_DIRECTORY_AUTH_DATA_CORRUPT

Possible Cause: The SecureLogin:SSOAuth data attribute has become corrupt.

Action: Contact Novell Support.

-337: BROKER_DES_KEY_NOT_SET

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-338: BROKER_DES_INVALID_BLOCK_LEN

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-339: BROKER_INVALID_ENCRYPTION_TYPE

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-340: BROKER_UNKNOWN_DATABASE_VERSION

Possible Cause: You are using an earlier version of SecureLogin.

Action: Upgrade to the latest version of SecureLogin.

-341: BROKER_USER_KEY_NOT_SET

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-343: BROKER_PRIMARY_KEY-DECRYPT_FAILED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-344: BROKER_SECONDARY_KEY_DECRYPT_FAILED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-345: BROKER_MERGE_WRONG_ENTRY_TYPE

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-348: BROKER_PASSWORD_RESET_DETECTED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-349: BROKER_UNABLE_TO_FIND_SESSION_FILE

Possible Cause: Terminal Launcher could not find a session file for an emulator.

Action: Configure Terminal Launcher with the correct path to the file for the emulator session.

-352: BROKER_AUTH_DATA_INCORRECT

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-353: BROKER_RECURSIVE_SCRIPT_INCLUDE_DETECTED

Possible Cause: While using the Include command, you included an application definition twice.

Action: Only include an application definition once.

-354: BROKER_NETWORK_PASSWORD_INCORRECT

Possible Cause: You have turned on the option to prompt the user for the network password before the user can access options on the taskbar, and the user entered an incorrect password.

Action: Enter the correct password.

-355: BROKER_USER_ABORTED_LOAD_PROCESS

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-356: BROKER_INVALID_CHARACTER_FOUND_IN_STARTUP_ID_LIST

Possible Cause: For generic emulators, you specify the startup control ID.

A comma must separate a list of numbers. You have used a character other than a comma.

Action: Remove unacceptable characters.

-357: BROKER_ERRO_REG_CACHE_NO_DETAILS

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-358: BROKER_ERROR_REG_CHACE_SAVE_FAILED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-359: BROKER_ERROR_REG_CACHE_SPLIT

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-360: BROKER_PASSWORD_VARIABLE_NOT_ALLOWED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-361: BROKER_NMAS_DLL_NOT_AVAILABLE

Possible Cause: SecureLogin cannot pad the DLL file for NMAS for use with the AAVerify command.

Action: To use features for AAVerify, install NMAS.

-362: BROKER_NMAS_LEGACY_RELOGIN_NOT_FOUND

Possible Cause: SecureLogin could not find the NMAS relogin function in the DLL for NMAS.

Action: Install the latest version of NMAS.

-363: BROKER_STANDARD_VARIABLE_REQURED

Possible Cause: A ? variable has been used and this command requires a $ variable.

Action: Provide a $ variable.

-364: BROKER_LDAP_LOGIN_CANCELLED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-365: BROKER_LDAP_INIT_FAILED

Possible Cause: The initialization of the LDAP SSL layer failed.

Action: Contact Novell Support.

-367: BROKER_REG_AUTH_CACHE_MISMATCH

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-368: BROKER_LDAP_TOKEN_DELETED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-369: BROKER_CRED_LIST_NOT_NULL

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-370: BROKER_CRED_LIST_NULL

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-371: BROKER_NO_MORE_CRED_SETS

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-372: BROKER_ACCESS_IS_DENIED

Possible Cause: For LDAP, you do not have rights to the area of the directory that you are trying to access.

Action: Grant user objects the correct rights.

-373: BROKER_HLLAPI-CONNECT_FAILED

Possible Cause: Terminal Launcher was unable to connect to the emulator.

Action: Make sure that the emulator has HLLAPI enabled.

-374: BROKER_DUPLICATE_ENTRIES_EXIST

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-375: BROKER_NOT_RUNNING_NT

Possible Cause: Although you are not running Windows NT, you tried to use a feature that is available only through Windows NT.

Action: Do not use that feature unless you are running Windows NT.

-376: BROKER_WINNT_CACHE_AUTH_REG_FAILED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-377: BROKER_WINNT_CACHE_AUTH_REG_WRONG_USER

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-378: BROKER_INVALID_PIPE_STRING_FOUND

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-379: BROKER_HEX_LENGTH_INCORRECT

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-380: BROKER_HLLAPI_NOT_CONNECTED_TO_PS

Possible Cause: Terminal Launcher tried to use a HLLAPI function. However, the HLLAPI DLL is not connected to the emulator presentation space.

Action: Make sure that Terminal Launcher is set up correctly with the emulator.

-381: BROKER_HLLAPI_SPECIFYING_PARAMETERS_ERROR

Possible Cause: Incorrect parameters were given to a command that uses a HLLAPI function.

Action: Contact Novell Support.

-382: BROKER_HLLAPI_INVALID_PS_POSITION

Possible Cause: An attempt was made to move the cursor or read text from an invalid (out of bounds) position on the emulator presentation space.

Action: Correct the positioning parameter in the application definition.

-383: BROKER_HLLAPI_SYSTEM_ERROR

Possible Cause: Terminal Launcher is not configured correctly for the emulator.

Action: Make sure that Terminal Launcher is set up correctly with the emulator and that the emulator correctly supports HLLAPI.

-384: BROKER_HLLAPI_PS_BUSY_ERROR

Possible Cause: A HLLAPI function is being called while the emulator presentation space is unavailable.

Action: Make sure that the emulator is not being used by another HLLAPI application.

-385: BROKER_HLLAPI_INPUT_REJECTED

Possible Cause: The emulator rejected an attempt to input data into the emulator presentation space.

Action: Make sure that the emulator presentation space is not locked.

-386: BROKER_HLLAPI_ERROR_QUERYING_SESSIONS

Possible Cause: SecureLogin is unable to query available HLLAPI sessions.

Action: Make sure that the Terminal Launcher is set up correctly with the emulator.

-387: BROKER_LAST_NDS_USER_NOT_FOUND

Possible Cause: The last NDS or eDirectory user object, as stored in the registry, could not be read for use in an NMAS login.

Action: Make sure the last NDS or eDirectory user object is stored correctly in the registry.

-388: BROKER_LAST_NDS_USER_UNWORTHY

Possible Cause: The last NDS or eDirectory user object, as stored in the registry, was not in the correct format. An NMAS login was unable to use the format.

Action: Make sure the last NDS or eDirectory user object is stored correctly in the registry.

-389: BROKER_NMAS_DISCONNECTED_LOGIN_NOT_FOUND

Possible Cause: NMAS disconnected login function not found in `NMAS.DLL`.

Action: Make sure that the correct `NMAS.DLL` is installed.

-390: BROKER_LDAP_SSL_INIT_FAILED

Possible Cause: SecureLogin could not initialize the LDAP SSL libraries.

Action: Contact Novell Support.

-391: BROKER_LDAP_SSL_ADD_CERT_FAILED

Possible Cause: SecureLogin could not open the certificate you supplied for LDAP over SSL. Either the file does not exist or it is in the incorrect format. If the certificate file specified ends in `.DER`, then SecureLogin uses Distinguished Encoding Rule (DER) format. Otherwise SecureLogin uses B64 format.

Action: Make sure that the path to the certificate is correct and that it is in DER format.

-392: BROKER_BUILTIN_VARIABLE_NOT_FOUND

Possible Cause: A built-in variable such as `?sysversion` was not found.

Action: Check that the format of the variable name is `?SysVersion(system)`.

-393: BROKER_SCRIPT_NOT_PURELY_INDEXED

Possible Cause: While working with Web modules, you mix indexed and nonindexed commands.

For example, you entered the following:

```
Type $Username #1
```

```
Type $Password
```

Action: Make sure that all commands use indexes, or remove all indexes.

-394: BROKER_LDAP_PASSWORD_INCORRECT

Possible Cause: The password supplied to log in to LDAP was incorrect.

Action: Check the password.

-395: BROKER_LDAP_USER_NON_EXISTANT

Possible Cause: The user name that you used to log on to LDAP does not exist.

Action: Make sure that the user name exists in the directory and that the LDAP context is correct.

-396: BROKER_LDAP_SERVER_DETAILS_INCORRECT

Possible Cause: One or more of the LDAP server parameters supplied was incorrect.

Action: Check the LDAP server address and port number.

Make sure that the LDAP server you are connected to is running.

-398: BROKER_WIZ_CP_WRONG_SCRIPT_TYPE

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-399: BROKER_DIVIDE_BY_ZERO_IS_BAD

Possible Cause: Using the Divide command, you attempted division by zero.

Action: Do not attempt division by zero.

-400: BROKER_WRONG_SECTION_NAME

Possible Cause: You manually edited a wizard-generated application definition.

Action: When editing an application definition, do not edit the specially generated comments. Only edit the actual commands. If this error occurs, you will no longer be able to use the wizard for that application definition.

-401: BROKER_INVALID_GLOBAL_WIZARD_CONFIG

Possible Cause: You manually edited a wizard-generated application definition.

Action: Do not edit the specially generated comments in an application definition. Only edit the actual commands. If this error occurs, you will no longer be able to use the wizard for that application definition.

-402: BROKER_LDAP_ATTRIBUTE_DOES_NOT_EXIST_IN_SCHEMA

Possible Cause: Either of the following:

- You are running LDAP on eDirectory, but have not correctly mapped the LDAP attributes.
- You are running LDAP on a platform other than eDirectory. However, the schema is not extended for that platform.

Action: Check your LDAP attribute mappings. Extend the LDAP schema.

-403: BROKER_AAVERIFY_DLL_NOT_AVAILABLE

Possible Cause: SecureLogin was unable to load `SL_AAVERIFY.DLL`.

Action: Make sure that you have the correct DLLs installed for `AAVERIFY`.

-404: BROKER_AAVERIFY_FUNCTION_NOT_FOUND

Possible Cause: You are using the incorrect version of `SL_AAVERIFY.DLL`.

Action: Check the version of `SL_AAVERIFY.DLL`.

-405: BROKER_AAVERIFY_CONSISTENCY_FAILURE

Possible Cause: You are using the incorrect version of `SL_AAVERIFY.DLL`.

Action: Check the version of `SL_AAVERIFY.DLL`.

-406: BROKER_AAVERIFY_ERROR

Possible Cause: You are using the incorrect version of `SL_AAVERIFY.DLL`.

Action: Check the version of `SL_AAVERIFY.DLL`.

-408: BROKER_DES_KEY_DATA_CORRUPT

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-409: BROKER_OPERATION_ABORTED_BY_USER

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-410: BROKER_NOT_A_STRING_ATTRIBUTE

Possible Cause: You are using % variables, but the attribute you are reading is not a plain string attribute (SYN_CE_STRING or SYN_CI_STRING on eDirectory).

Action: Check the schema definition of the attribute to confirm that the syntax is SYN_CE_STRING or SYN_CI_STRING.

-411: BROKER_LDAP_INVALID_DN_SYNTAX

Possible Cause: The format of your LDAP user name was invalid.

Action: Check the format of the user name that you entered.

-412: BROKER_INVALID_OPTION_COMBINATION

Possible Cause: An invalid combination of options was passed to an application definition command.

For example, you passed –Right and –Raw to the `Click` command.

Action: See the appropriate application definition command.

-413: BROKER_AAVERIFY_SLOGIN_DOES_NOT_EXIST

Possible Cause: `SL_AAVERIFY.DLL` generates these errors. There is a problem connecting to the SecureLogin server.

Action: Troubleshoot service location problems by reviewing documentation on SecureLogin Advanced Authentication.

-414: BROKER_AAVERIFY_ERR_SLOGIN_NOT_RUNNING

Possible Cause: `SL_AAVERIFY.DLL` generates these errors. There is a problem connecting to the SecureLogin server.

Action: Troubleshoot service location problems by reviewing documentation on SecureLogin Advanced Authentication.

-415: BROKER_AAVERIFY_ERR_LOAD_LIB_SLPAM

Possible Cause: `SL_AAVERIFY.DLL` generates these errors. There is a problem connecting to the SecureLogin server.

Action: Troubleshoot service location problems by reviewing documentation on SecureLogin Advanced Authentication.

-416: BROKER_WI_GETEXENAME_ERR

Possible Cause: The wizard was unable to retrieve the executable name for the window you selected.

Action: Do not use the wizard for this application.

-417: BROKER_ADS_PUT_OCTET_INSUFFICIENT_RIGHTS

Possible Cause: You do not have sufficient rights to Microsoft Active Directory/ADAM to perform the current operation.

Action: Ask the directory administrator to assign you additional Microsoft Active Directory/ADAM system rights.

-418: BROKER_ADS_CLR_OCTET_INSUFFICIENT_RIGHTS

Possible Cause: You do not have sufficient rights to Microsoft Active Directory/ADAM to perform the current operation.

Action: Ask the directory administrator to assign you additional Microsoft Active Directory/ADAM system rights.

-420: BROKER-_SLAASSO_ERR_CRYPTO_KEY_NOT_SET

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-421: BROKER_SLASSO_ERR_UNKNOWN_DATA

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-422: BROKER_SLASSO_OUT_OF_MEMORY

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-423: BROKER_ERROR_INITIALISING_DATA_STORES

Possible Cause: SecureLogin was unable to initialize either the primary or secondary datastore.

Action: Contact Novell Support.

-424: BROKER_UNABLE_TO_LOAD_SLOTP_DLL

Possible Cause: `SLOTP.DLL` could not be loaded. This DLL is required for synchronizing one-time password to LDAP directories.

Action: Review documentation for one-time passwords.

-425: BROKER_LDAP_NO_SUCH_ATTRIBUTE

Possible Cause: You have used a % variable on LDAP. However, the requested attribute does not exist.

Action: Check the spelling of the attribute name against the LDAP schema.

-426: BROKER_SYS_VARIABLE_NOT_AVAILABLE

Possible Cause: A system variable, for example, ?syspassword, was requested but was not available. `SLINA.DLL` or `SLNMAS.DLL` must be correctly installed for these variables to function.

Action: Make sure that either `SLINA.DLL` or `SLNMAS.DLL` is installed.

-427: BROKER_USERNAME_UNSUITABLE_FOR_READING_SLINA_CREDS

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-428: BROKER_NO_EXCEPTION_HANDLER_DEFINED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-429: BROKER_EXCEPTOPN_RAISED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Support.

-430: BROKER_MUST_BE_CALL_OR_GOTO

Possible Cause: When using the `OnException` command, the second parameter must be Call or `GoTo`.

Action:

-442: BROKER_CHAR_UCASE_NOT_IN_REQUIRED_POSITION

Possible Cause: There is not an uppercase character in a position where one is required.

Action: Check the password for compliance with the Password Policy.

-443: BROKER_CHAR_LCASE_NOT_IN_REQURED_POSITION

Possible Cause: Raised by the Password Policy code if there is not a lower case character in a position where one is required.

Action: Check the password for compliance with Password Policy.

-444: BROKER_PUNCTUATION_NOT_IN_REQUIRED_POSITION

Possible Cause: There is not a punctuation character in a position where one is required.

Action: Check password for compliance with Password Policy.

-477: BROKER_UNABLE_TO_GET_REGISTRY_DATA

Possible Cause: The SecureLogin application definition `GetReg` command could not read the required registry information.

Action: Contact Novell Support.

-478: BROKER_ERROR_PARSING_PARAMETER

Possible Cause: The registry entry name passed to the SecureLogin application definition `GetReg` command was incorrect.

Action: Make sure that the name begins {HKCR, HKCC, HKCU, HKLM, or HKU} and corresponds to one of the Windows registry hives. Also, it must contain the path to the desired registry entry within the node.

-481: BROKER_AUTH_QUERY_ON_WRONG_OBJECT_TYPE

Possible Cause: SecureLogin has attempted to load data from a directory object of an incorrect type.

Action: Contact Novell Support.

-482: BROKER_VERSION_NO_ROLL_BACK

Possible Cause: The SecureLogin datastore version cannot be returned to an older datastore version after it has been set to version 6.0.

Action: Contact Novell Support.

-483: BROKER_SECURE_CONNECTION_REQUIRED

Possible Cause: SecureLogin cannot load sensitive data from the server over insecure connections.

Action: Contact Novell Support.

-500: BROKER_ERROR-ACCOUNT-EXPIRED

Possible Cause: SecureLogin was unable to authenticate your Active Directory account because your user account has expired.

Action: Contact your system administrator.

-501: BROKER_ERROR_ACCOUNT_DISABLED

Possible Cause: SecureLogin was unable to authenticate your Active Directory account because your user account has been disabled.

Action: Contact your system administrator.

-502: BROKER_ERROR_ACCOUNT_LOCKED

Possible Cause: SecureLogin was unable to authenticate your Active Directory account because your user account has been locked.

Action: Contact your system administrator.

-503: BROKER_ERROR_PASSWORD_EXPIRED

Possible Cause: SecureLogin was unable to authenticate your Active Directory account because your password has expired.

Action: Change your Active Directory password or contact your system administrator.

-600: BROKER_NONFIR_INVALID_TARGET

Possible Cause: A non-directory datastore is unable to load the local rule that contains the required data for an object. This could be because of the following:

- Insufficient user permissions.
- File failed to download.
- File has been deleted.

Action: Contact your system administrator.

-2147016656: Error opening specified object

Possible Cause: Microsoft Active Directory code error message (value 0x80072031): There is no such object on the server.

Action: You have entered an incorrect object or container definition when assigning user rights. Reenter the correct object or container definition.

B Schema Updates

This section provides information on the following:

- Section B.1, “Schema Attributes,” on page 281
- Section B.2, “Active Directory Environments,” on page 281
- Section B.3, “LDAP Environments,” on page 283
- Section B.4, “Security Rights Assignments,” on page 286

B.1 Schema Attributes

SecureLogin adds six schema attributes to the directory. The attributes are added during installation using the appropriate schema extension tool, depending on your choice of directory for SecureLogin data storage. In Active Directory and Active Directory with LDAP environments, `adsschema.exe` is used. For Novell NDS or eDirectory environments, `ldapschema.exe` and `ndsschema.exe` is used.

These attributes are required for the encryption and storage of SecureLogin data against directory objects such as user objects and organizational units. The following descriptions include the type of data stored for each attribute and the security rights required to permit the data to be saved for the SecureLogin client.

Before installing SecureLogin, you need to extend the directory schema. For information on extending the schema, see “Extending the eDirectory Schema”in the *Novell SecureLogin Installation Guide*.

If you are upgrading from a SecureLogin version older than 3.5, you need to extend your schemas.

B.2 Active Directory Environments

In Active Directory environments, `adsschema.exe` is used.

- Section B.2.1, “Protocom-SSO-Auth-Data,” on page 281
- Section B.2.2, “Protocom-SSO-Entries,” on page 282
- Section B.2.3, “Protocom-SSO-Entries-Checksum,” on page 282
- Section B.2.4, “Protocom-SSO-Profile,” on page 282
- Section B.2.5, “Protocom-SSO-Security-Prefs,” on page 283
- Section B.2.6, “Protocom-SSO-Security-Prefs-Checksum,” on page 283

B.2.1 Protocom-SSO-Auth-Data

This attribute contains all user-specific authentication data, such as the passphrase.

Attribute Name	Protocom-SSO-Auth-Data
Classes assigned to	User
Syntax	Octet String
Optional Flags	Synchronize
X.500 OID	1.2.840.113556.1.8000.60.2

B.2.2 Protocom-SSO-Entries

This attribute contains the following:

- All the user's login credentials, including passwords.
- Specific preferences and application definitions at the user object.
- Corporate application definitions and preferences at the container and organizational unit objects.

Attribute Name	Protocom-SSO-Entries
Classes assigned to	Container
	Organizational Unit
	User
Syntax	Octet String
Optional Flags	Synchronize
X.500 OID	1.2.840.113556.1.8000.60.1

B.2.3 Protocom-SSO-Entries-Checksum

This attribute stores a checksum so that the single sign-on client can easily determine whether a complete reload of single sign-on adapter information is required.

Attribute Name	Protocom-SSO-Entries Checksum
Classes assigned to	Container
	Organizational Unit
	User
Syntax	Octet String
Optional Flags	Synchronize
X.500 OID	1.2.840.113556.1.8000.60.5

B.2.4 Protocom-SSO-Profile

This attribute stores the address of the organizational unit to be redirected to.

Attribute Name	Protocom-SSO-Profile
Classes assigned to	Container
	Organizational Unit
	User
Syntax	Distinguished Name
Optional Flags	Synchronize
X.500 OID	1.2.840.113556.1.8000.60.7

B.2.5 Protocom-SSO-Security-Prefs

This attribute stores the data required for advanced passphrase policies, including administrator set passphrase questions and passphrase help information and settings.

Attribute Name	Protocom-SSO-Security-Prefs
Classes assigned to	Container
	Organizational Unit
	User
Syntax	Octet String
Optional Flags	Synchronize
X.500 OID	1.2.840.113556.1.8000.60.3

B.2.6 Protocom-SSO-Security-Prefs-Checksum

A checksum used to optimize reading of the Security Preference attribute.

Attribute Name	Protocom-SSO-Security-Prefs-Checksum
Classes assigned to	Container
	Organizational Unit
	User
Syntax	Octet String
Optional Flags	Synchronize
X.500 OID	1.2.840.113556.1.8000.60.6

B.3 LDAP Environments

In LDAP environments, `ldapschema.exe` is used.

- Section B.3.1, "Protocom-SSO-Auth-Data," on page 284
- Section B.3.2, "Protocom-SSO-Entries," on page 284

B.3.1 Protocom-SSO-Auth-Data

This attribute contains all user-specific authentication data, such as the passphrase.

Attribute Name	Protocom-SSO-Auth-Data
Classes assigned to	User
OID	2.16.840.1.113719.2.26.4.1.1

B.3.2 Protocom-SSO-Entries

This attribute contains the following:

- All the user's login credentials, including passwords.
- Specific preferences and application definitions at the user object.
- Corporate application definitions and preferences at the container and organizational unit objects.

Attribute Name	Protocom-SSO-Entries
Classes assigned to	Container Organizational Unit User
OID	2.16.840.1.113719.2.26.4.2.1

B.3.3 Protocom-SSO-Entries-Checksum

This attribute stores a checksum so that the single sign-on client can easily determine whether a complete reload of single sign-on adapter information is required.

Attribute Name	Protocom-SSO-Entries Checksum
Classes assigned to	Container Organizational Unit User
OID	2.16.840.1.113719.2.26.4.5.1

B.3.4 Protocom-SSO-Profile

This attribute stores the address of the organizational unit to be redirected to.

Attribute Name	Protocom-SSO-Profile
Classes assigned to	Container
	Organizational Unit
	User
OID	2.16.840.1.113719.2.26.4.17.1

B.3.5 Protocom-SSO-Security-Prefs

This attribute stores the data required for advanced passphrase policies including administrator set passphrase questions and passphrase help information and settings.

Attribute Name	Protocom-SSO-Security-Prefs
Classes assigned to	Container
	Organizational Unit
	User
OID	2.16.840.1.113719.2.26.4.4.1

B.3.6 Protocom-SSO-Security-Prefs-Checksum

A checksum used to optimize reading of the Security Preference attribute.

Attribute Name	Protocom-SSO-Security-Prefs-Checksum
Classes assigned to	Container
	Organizational Unit
	User
OID	2.16.840.1.113719.2.26.4.6.1

B.3.7 Protocom-SSO-Connections

This attribute stores the connection information, ie., the ip address along with the timestamp.

Attribute Name	Protocom-SSO-Connections
Classes assigned to	User
OID	2.16.840.1.113719.2.26.4.7.1

B.3.8 Protocom-SSO-ConnectionLimit

This attribute stores the configuration parameter indicating the number of concurrent connections that are allowed for the user.

- The value of this parameter can be set between 0 and 32.
- The default value is 0, where 0 indicates that unlimited connections are allowed and the feature is disabled for the user.

Attribute Name	Protocom-SSO-ConnectionLimit
Classes assigned to	User, Organization, Organizational Unit, Country
OID	2.16.840.1.113719.2.26.4.7.2

B.3.9 Protocom-SSO-ConnectionTimeToLive

This attribute stores the configuration parameter that indicates how long the connection information will be stored. The value is stored in minutes.

- The value of this parameter can be set between 0 and 65536 (Slightly more than 45 days).
- The default value is 65536. This indicates that any entry in the `Protocom-SSO-Connections` attribute that is older than 45 days is considered outdated and hence will be removed.

Attribute Name	Protocom-SSO-ConnectionTimeToLive
Classes assigned to	User, Organization, Organizational Unit, Country
OID	2.16.840.1.113719.2.26.4.7.3

B.3.10 Protocom-SSO-ConcurrentConfig

This preference controls the inheritance of settings from a higher level container, organizational unit or country.

- The value of this parameter can be set to either *Yes* or *No*. When this option is set to *Yes*, the inheritance of settings from a higher level container, organizational unit or country is disabled.
- The default value is *No*. When this option is set to *No* or *Default*, the inheritance of settings from a higher level container, organizational unit or country is enabled.

Attribute Name	Protocom-SSO-ConcurrentConfig
Classes assigned to	User, Organization, Organizational Unit, Country
OID	2.16.840.1.113719.2.26.4.7.4

B.4 Security Rights Assignments

This section contains information on the following:

- Section B.4.1, "User-Based Attributes," on page 287
- Section B.4.2, "Container-Based Attributes," on page 287

B.4.1 User-Based Attributes

The directory user objects for people using the SecureLogin requires the following attribute rights against their own objects.

Attribute Name	Entry Rights Required
Protocom-SSO-Auth-Data	Read/Write
Protocom-SSO-Entries	Read/Write
Protocom-SSO-Entries-Checksum	Read/Write
Protocom-SSO-Profile	Read/Write
Protocom-SSO-Security-Prefs	Read/Write
Protocom-SSO-Security-Prefs-Checksum	Read/Write
Protocom-SSO-Connections	Write/Public Read
Protocom-SSO-ConcurrentConnectionLimit	Public Read
Protocom-SSO-ConcurrentConnectionTimeToLive	Public Read
Protocom-SSO-ConcurrentConfig	Public Read

B.4.2 Container-Based Attributes

In addition, users require the following directory attribute rights against all container objects.

Attribute Name	Entry Rights Required
Protocom-SSO-Entries	Read
Protocom-SSO-Entries-Checksum	Read
Protocom-SSO-Profile	Read
Protocom-SSO-Security-Prefs	Read
Protocom-SSO-Security-Prefs-Checksum	Read