AUTHORIZED DOCUMENTATION

Administration Guide

Novell® SecureLogin

7.0

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Contents

About This Guide

This manual provides you information about administering Novell SecureLogin. This manual contains the following sections.

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

For additional documentation, see the Novell SecureLogin 7.0 Documentation Web site. (http://www.novell.com/documentation/securelogin70).

The other documentation available with this manual are:

- Readme: "Novell SecureLogin 7.0 Readme"
- Quick Reference: "Novell SecureLogin Quick Reference Guide"
- Overview: *Novell SecureLogin Overview Guide*
- Installation: *Novell SecureLogin Installation Guide*
- Application Definition Administration: *Novell SecureLogin Application Definition Wizard Administration Guide*
- pcProx Administration: *pcProx Guide*
- Application Definition: *Novell SecureLogin Application Definition Guide*
- Citrix and Terminal Services: *Novell SecureLogin Citrix and Terminal Services Guide*
- End User: *Novell SecureLogin User 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.

A trademark symbol (®, ™, etc.) denotes a Novell trademark. An asterisk (*) denotes a third-party trademark.

When a single pathname can be written with a backslash for some platforms or a forward slash for other platforms, the pathname is presented with a backslash. Users of platforms that require a forward slash, such as Linux or UNIX, should use forward slashes as required by your software.

Getting Started

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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.

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:

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 16

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.

Configuring

2

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:

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 19

- Section 2.4.2, “Changing the Organizational Unit Level Datastore in an eDirectory Environment,” on page 19
- Section 2.4.3, “Deploying an Upgrade,” on page 20

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, 2000: 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. This warning message is the same, and results in the same errors, if you are running version 3.5 or 5.5 clients for some users and then upgrading 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 20. 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:

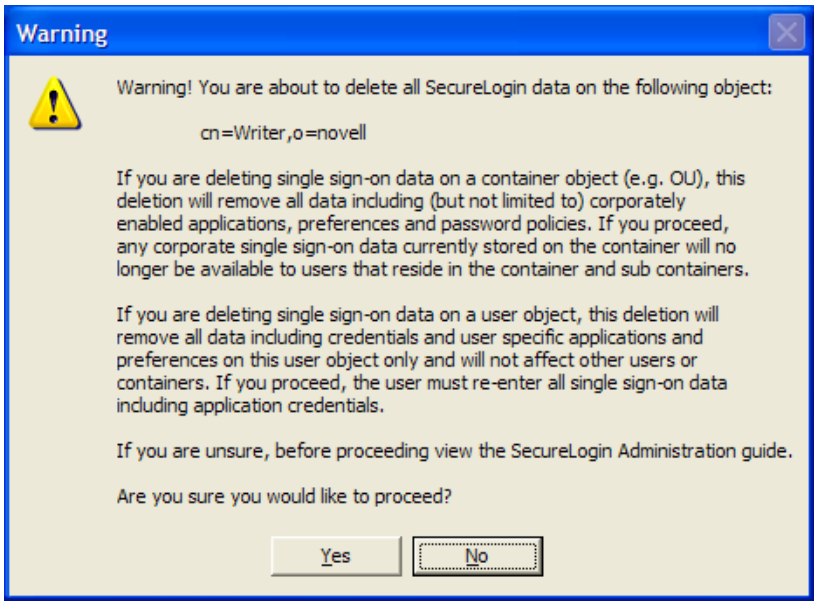
User Data Re-set Option	Action
Select the required directory object only	The Delete single sign-on configuration for this datastore object option is available at the container, group policy, ou, and user object level.
Record (external to SecureLogin) all usernames, password, and additional required credential 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.



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.

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

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 (o) 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.

Managing Preferences

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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:

3.1 Changes to Preferences

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

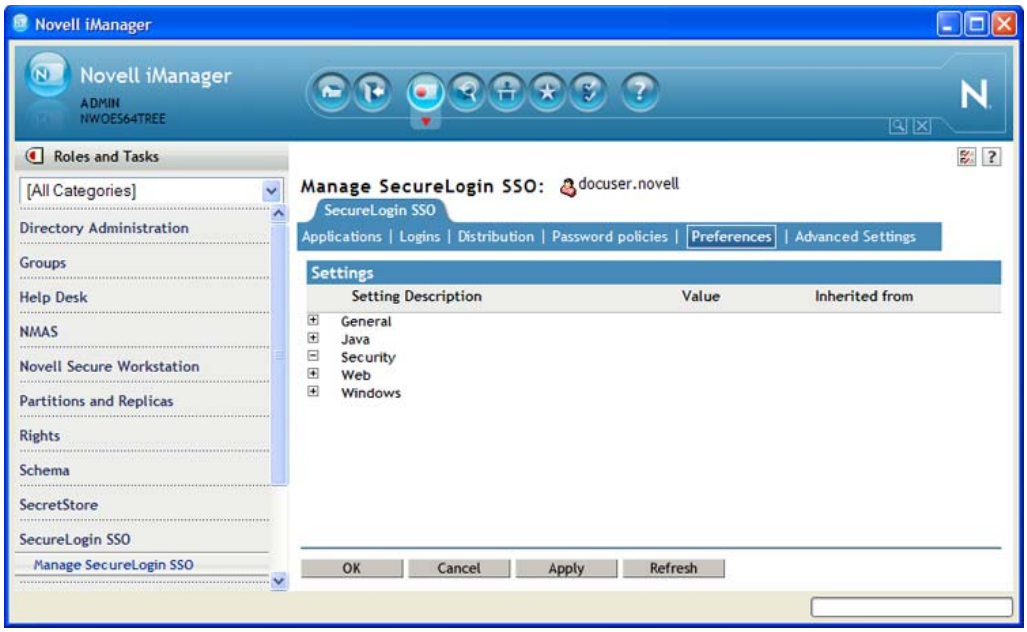
1. Launch the Administrative Management utility (iManager, SLManager, or MMC snap-ins).
2. Click *Preference*. The Preference properties table is displayed.
3. Locate the setting you want to change and then, in the *Value* column, select the appropriate value.

   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 27
- Table 3-2, “The Security Preferences Properties Table,” on page 39
- Table 3-3, “The Java Preferences Properties Table,” on page 42
- Table 3-4, “The Web Preferences Properties Table,” on page 43
- Table 3-5, “The Windows Preferences Properties Table,” on page 45

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*.

Preference	Possible Values	Description	Default Value
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*.
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*.

Preference	Possible Values	Description	Default Value
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 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*.

Preference	Possible Values	Description	Default Value
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*.
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.

Preference	Possible Values	Description	Default Value
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*.
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*.

Preference	Possible Values	Description	Default Value
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*.
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
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).	The default value is *No*.
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*.

Preference	Possible Values	Description	Default Value
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 other than the default certificate.	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 *Yes*.
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*.

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*.

Preference	Possible Values	Description	Default Value
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*.

Preference	Possible Values	Description	Default Value
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*.

Managing Passphrases

4

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.

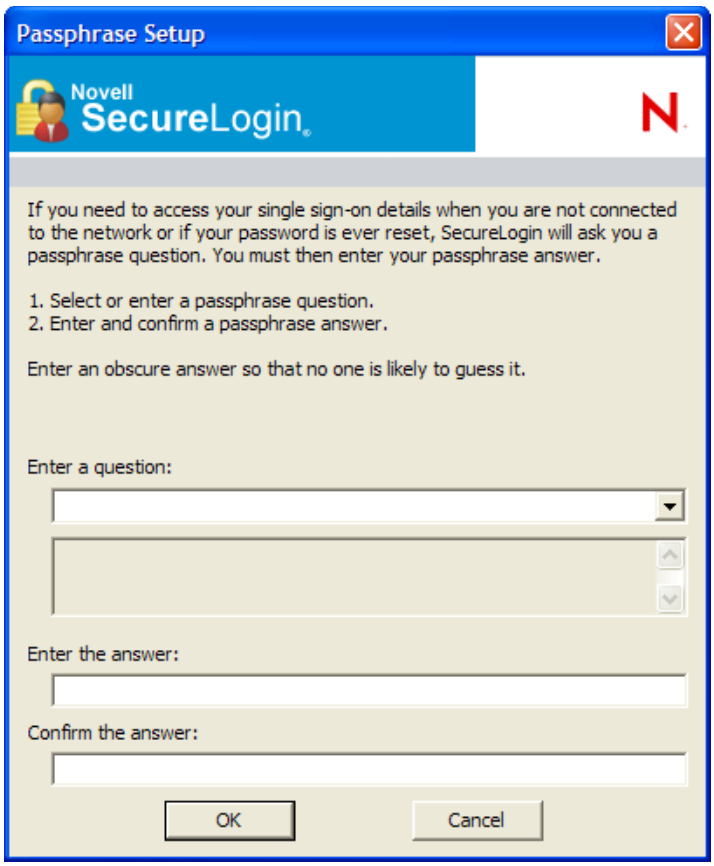
However, if you again provide a wrong password, instead of seeing a prompt for the passphrase answer, you are prompted to specify the password (that is, instead of the passphrase dialog box, the password dialog box is displayed).

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*



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:

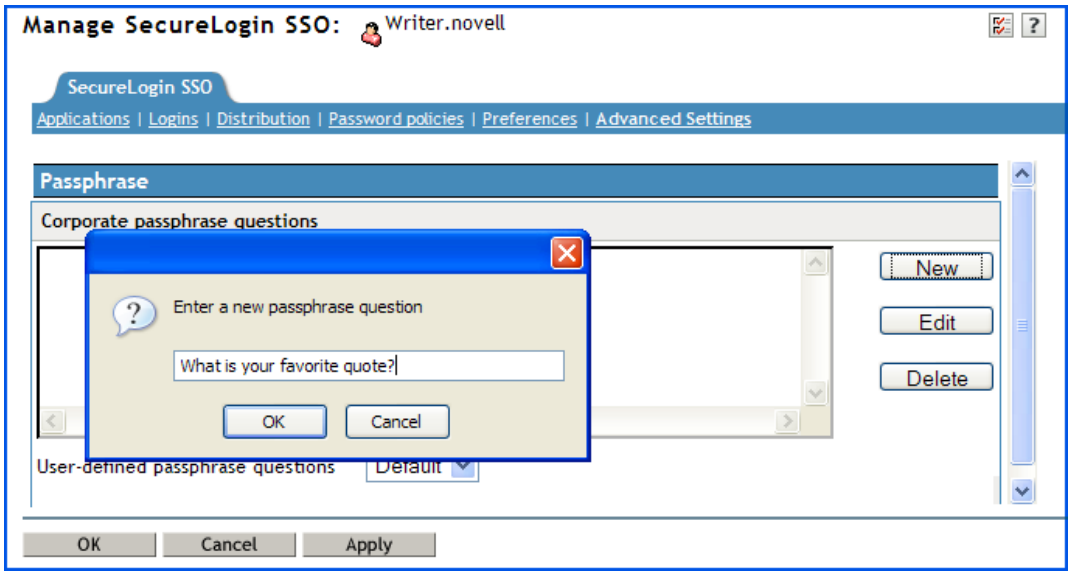
- Create one or more passphrase questions for users to select.
- Enable users to create their own passphrase question and answer.
- Set up a combination of both.

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.



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.

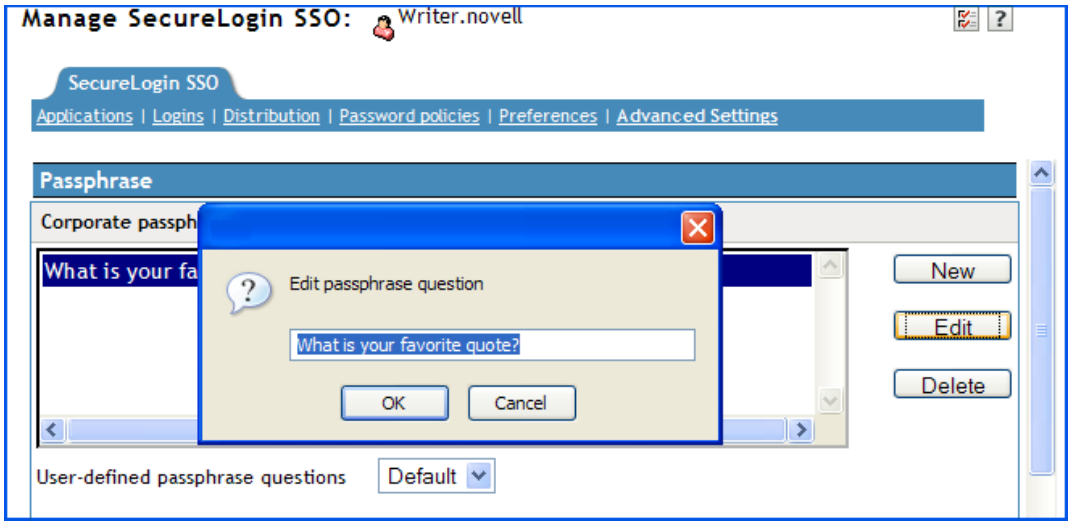
IMPORTANT: Make sure you click *OK* after you have created the passphrase question to save the changes and exit the page.

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 55.

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*.



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 20.

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.

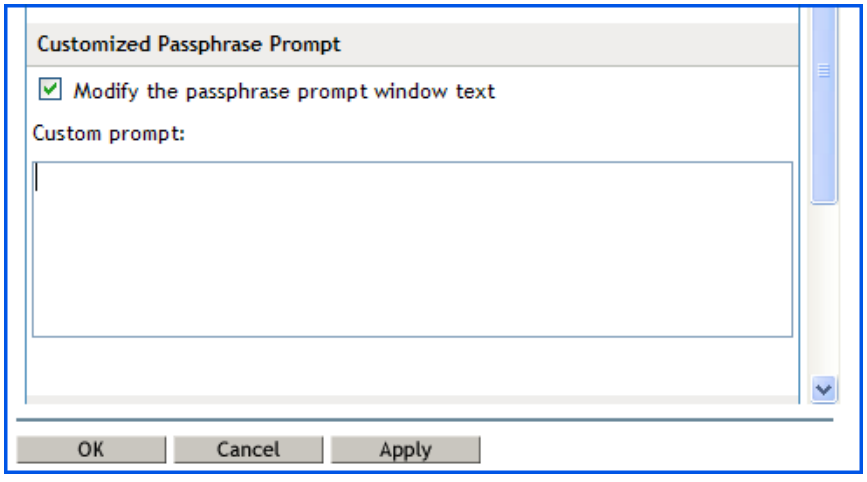
4.6 Changing the Passphrase Prompt

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.



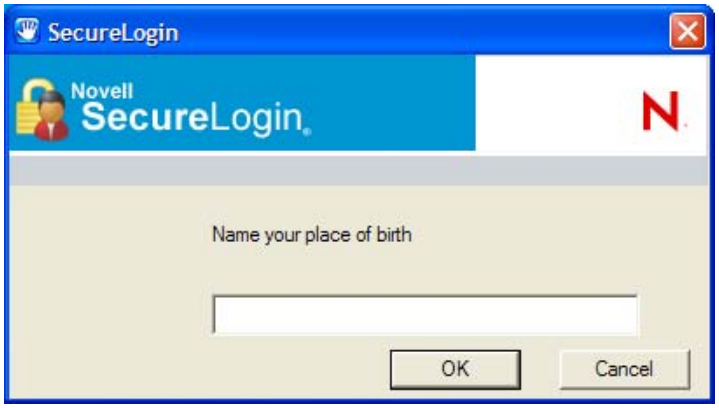
4 Specify the new prompt.

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

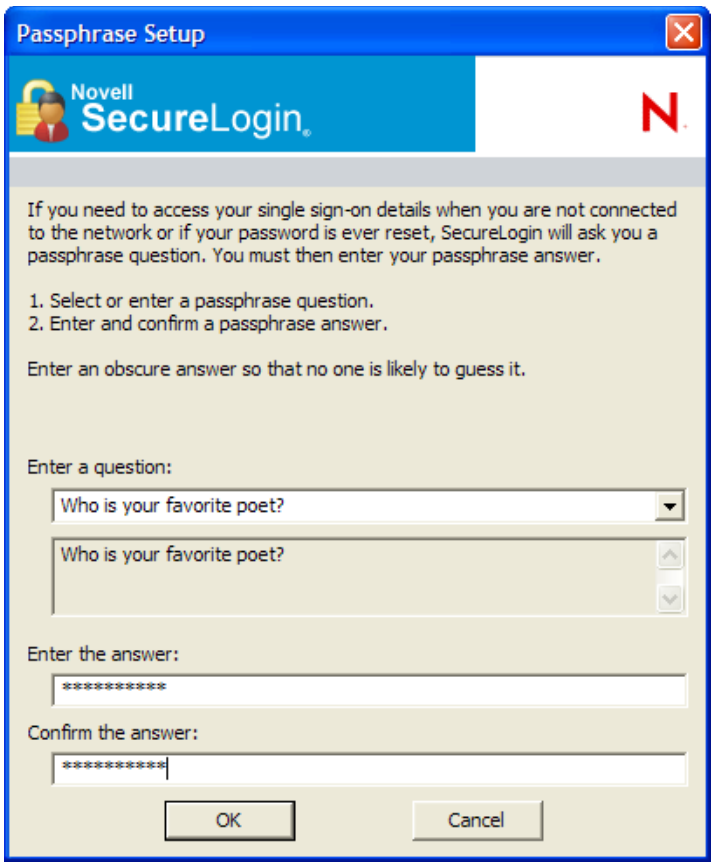
Users can change their passphrase answer depending on how you configure Novell SecureLogin.

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



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*.



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.

Managing Passphrase Policies

5

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.

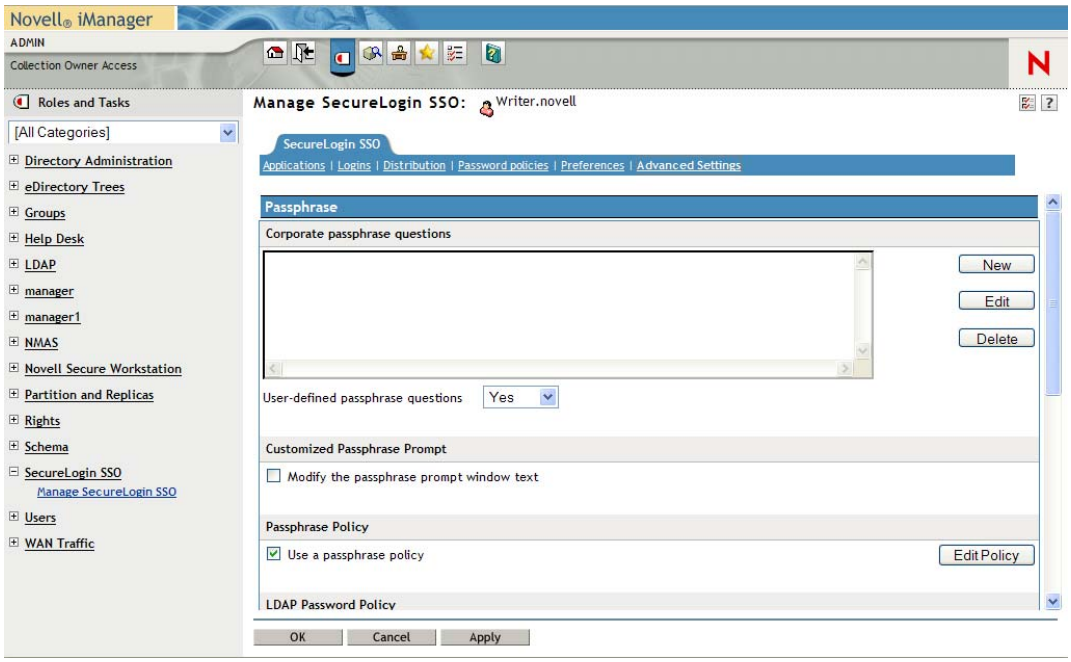
A policy is used to restrict the format and content of passphrase answers, including length, whether numeric characters are required, and whether passphrases must be uppercase or lowercase. For example, you could set *Begin with an uppercase character* to *Yes* and *Maximum uppercase characters* to *1*, 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.

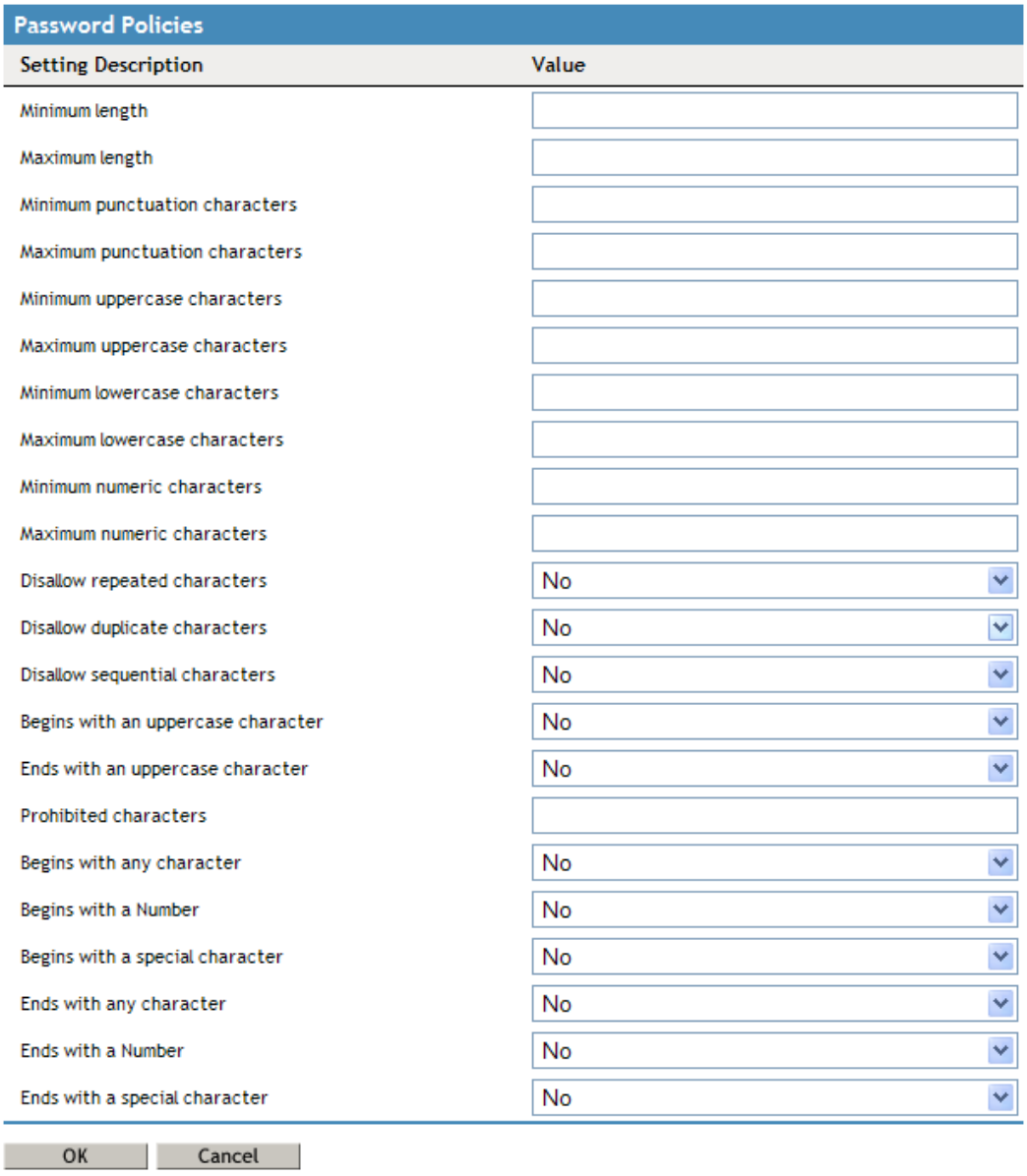
5.2 Changing a Passphrase Policy

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.



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

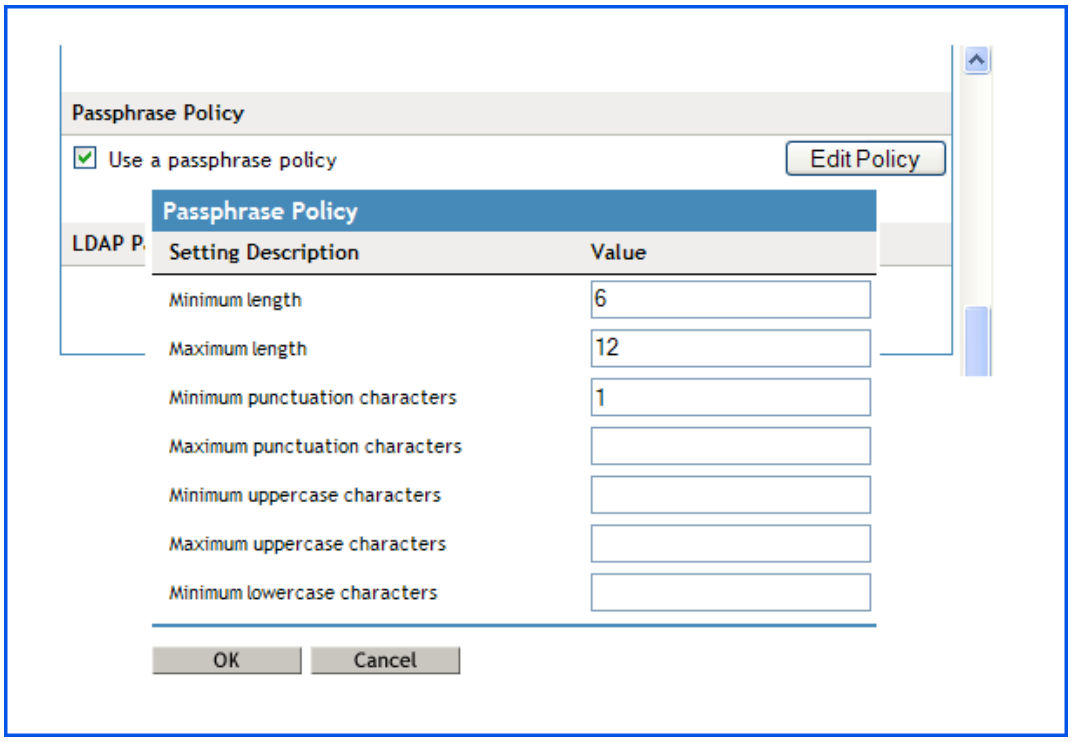


5 In the *Setting Description* column, click the policy rule you want to edit, then in the *Value* column, specify the required value.

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.



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 60
- Section 5.3.2, “Enabling the Passphrase Security Using PKI Encryption,” on page 61

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

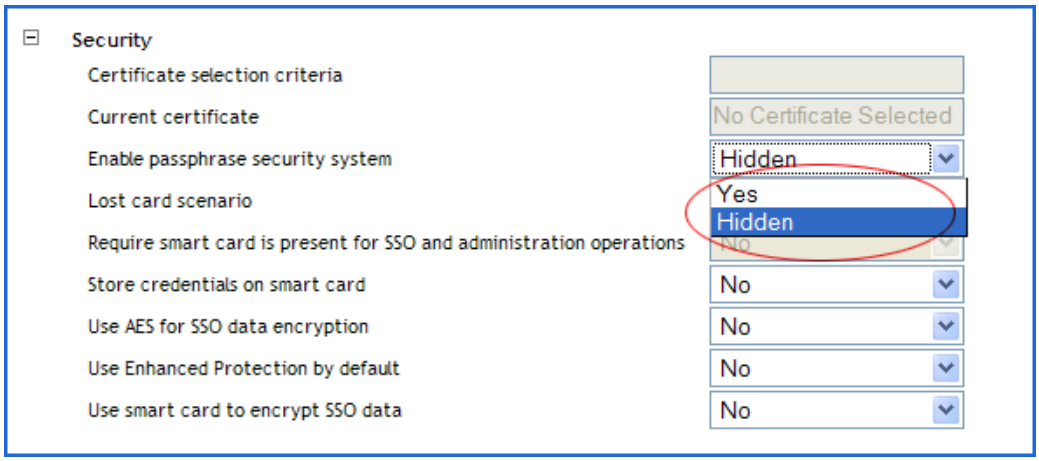
If the passphrase system is not used, this exposes the users’ single sign-on data if a third party can to reset the users network password. It is strongly recommended you enforce passphrase system on users environment.

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*.



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.

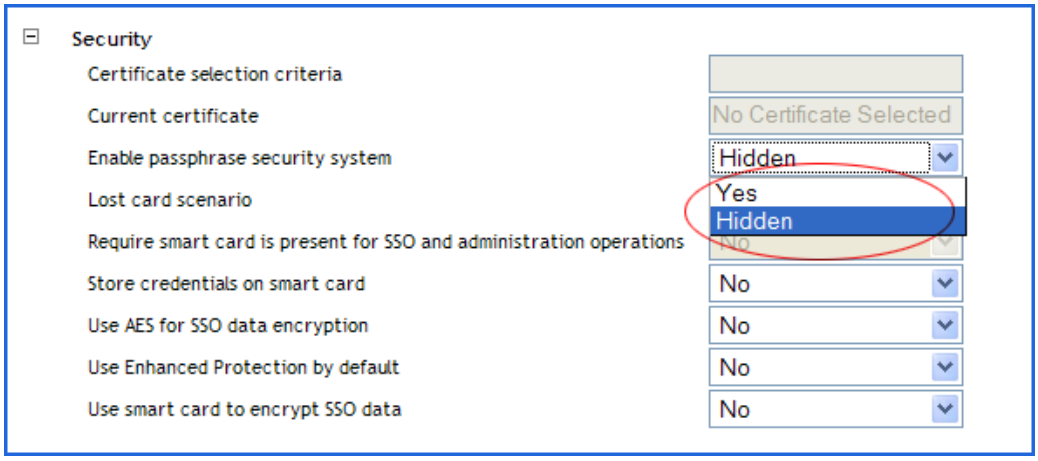
Typically, the prompt to create a passphrase is never seen after the first login. However, if an administrator resets the user's directory or network, the next time SecureLogin launches, users must answer the passphrase question before SecureLogin continues. This prevents other users from changing the 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.



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 94.

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.

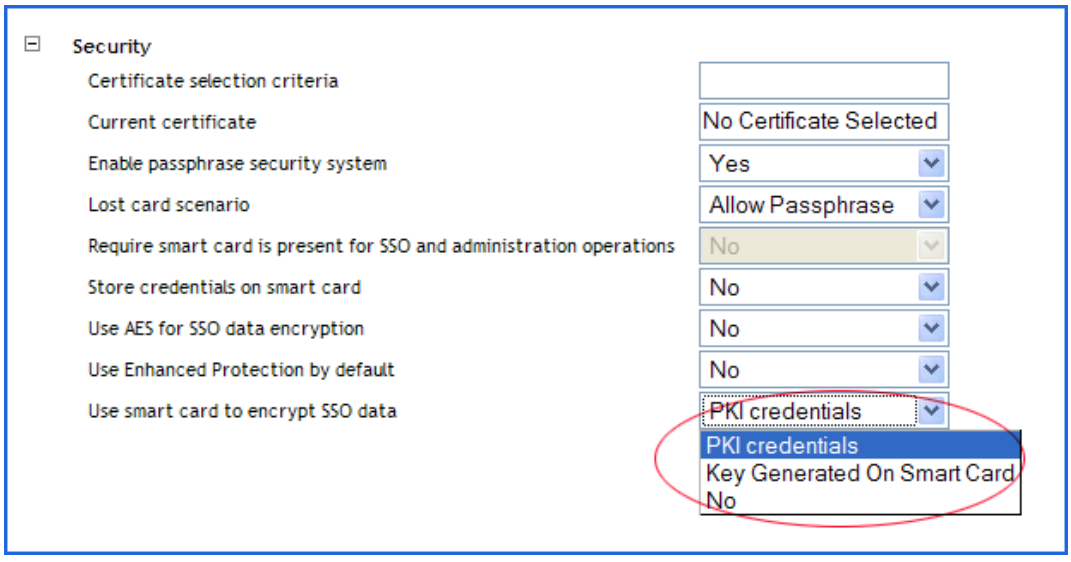
5.3.2 Enabling the Passphrase Security Using PKI Encryption

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*.



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 62.

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*

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.

Managing Credentials

6

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.

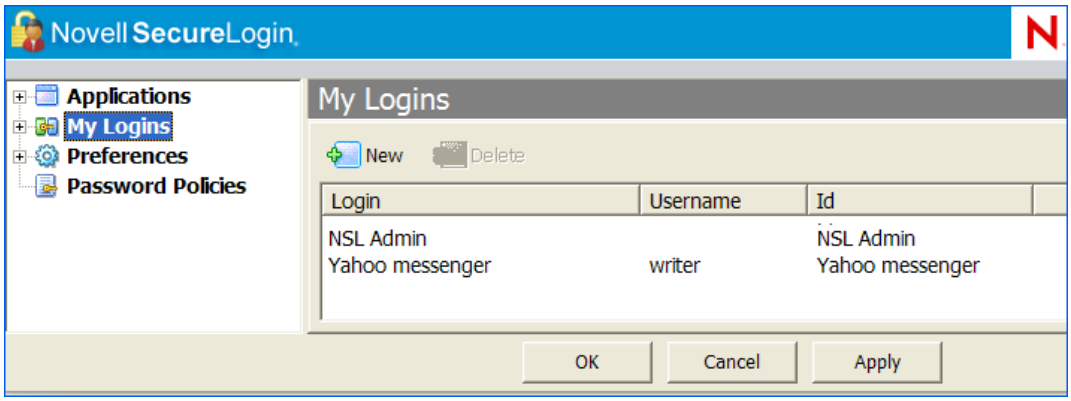
Application credentials such as e-mail, finance system, human resource system, and travel system are typically stored for user objects and apply only to (and can be used by) the particular user. For example, John’s application credentials are encrypted and stored against John’s user object and only available 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

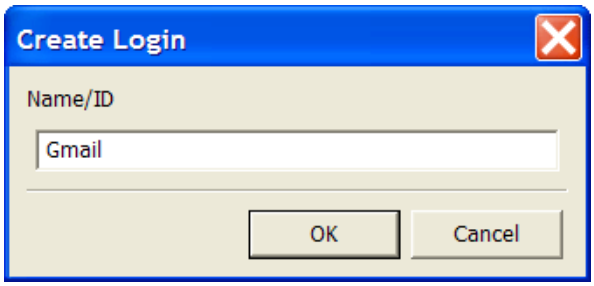
Logins and credentials are typically created automatically as part of the application definition, but you can manually create and edit them, if required.

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.



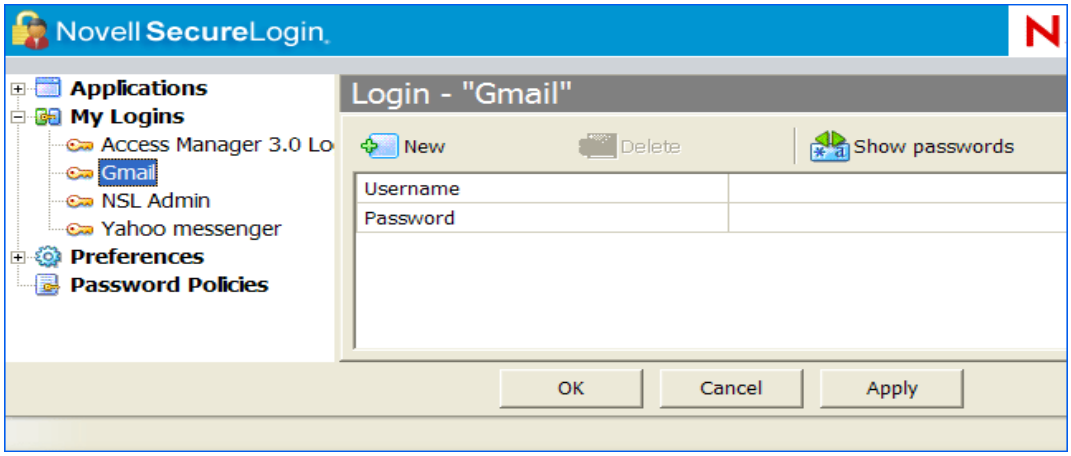
3 Click *New*. The Create Login dialog box is displayed.



4 In the *Name/Id* field, specify a Name/ID for the login.

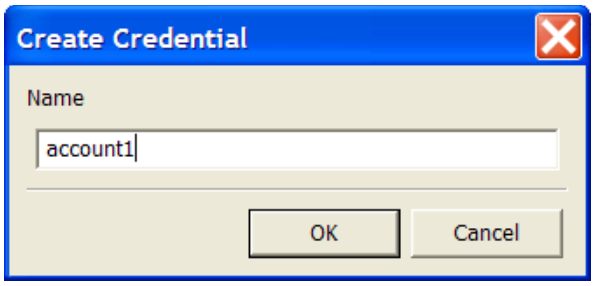
5 Click *OK*. The Login name/ID is added to the My Logins pane.

6 From the My Logins on the left pane, select the login you have created.

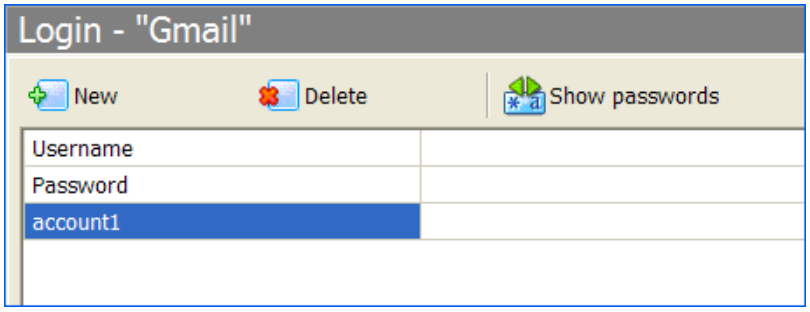


7 Click *New*. The Create Credential dialog box is displayed.

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



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



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

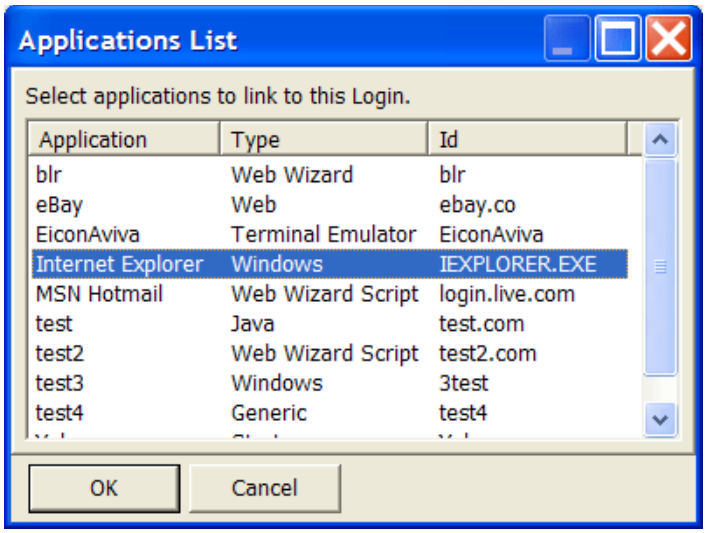
You can link a login to an application in the appropriate Login pane. For example, if users are logging in to Microsoft Outlook using a set of credentials and they are also logging in to Outlook Web Access, then they can share or link the credentials to the Web login application definition.

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.

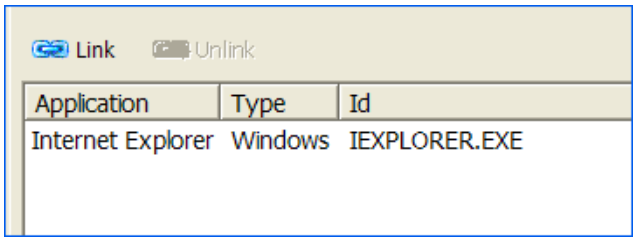
2 Click *My Login* and the login that you want to an application.

3 Click *Link* icon. The Applications List dialog box displays the list of enabled predefined applications and application definitions.



4 Select the application that you want to link.

5 Click *OK*. The linked application is added.



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

6.4 Deleting Login Credentials

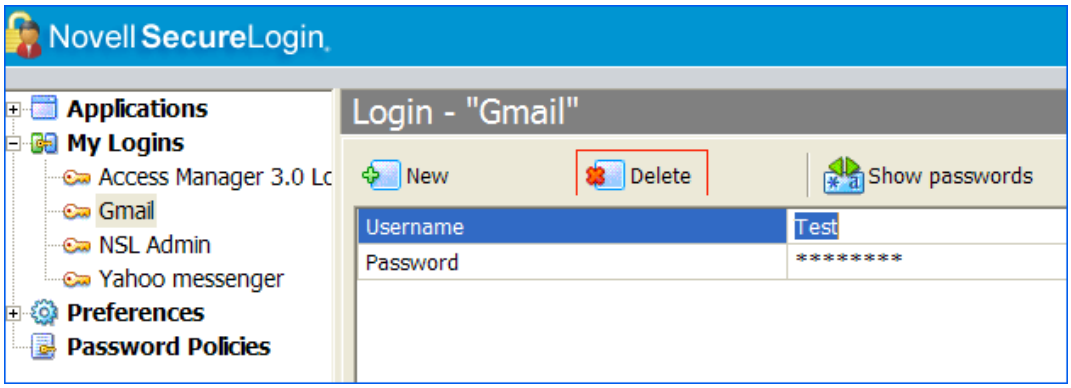
To delete log in credentials:

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*.



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*.

Managing Password Policies 7

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:

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.

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

Policy	Value To Be provided	Description
End with any symbol	*No*/*Yes*	This parameter requires a password to end with a symbol. These characters are: ~!@#$%^&*()_+|-=\\{}[]:\\";'<>?/,.` The default value is *No*. If this option is set to *Yes*, it automatically disables all other policies that specify what the password should end with.

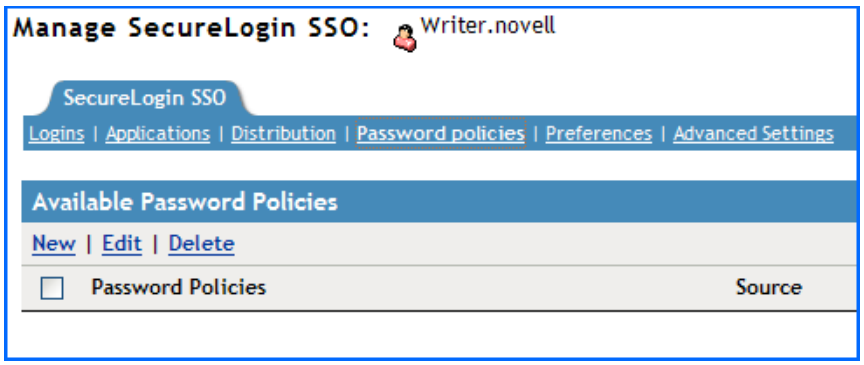
7.3 Creating a New Password Policy

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".

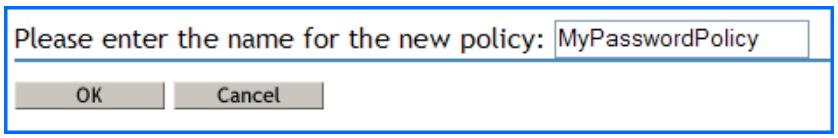
2. Click *Password Policies*. The Password Policies page is displayed.



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.

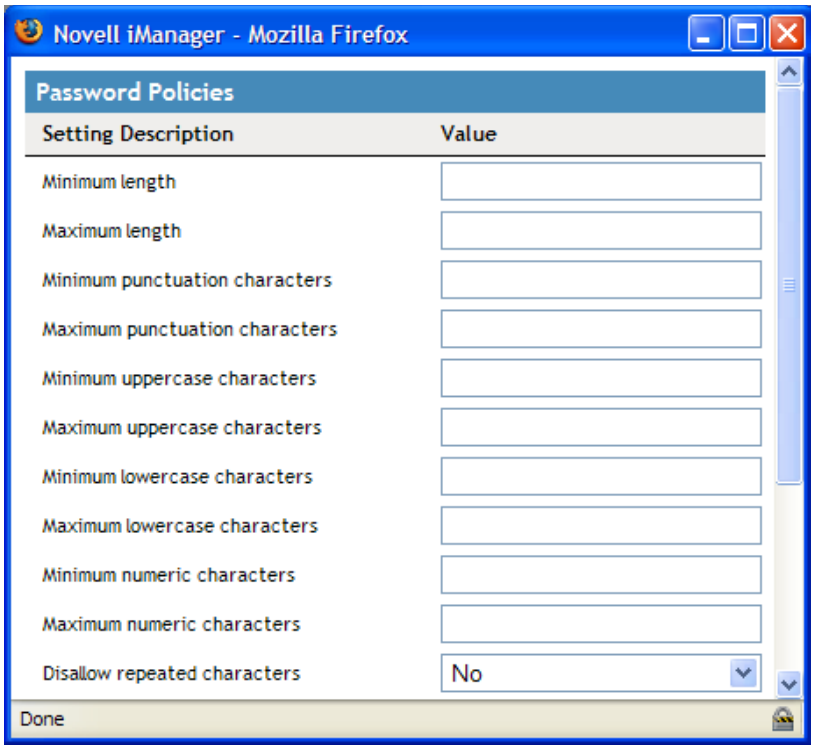
4. In the *Enter a name for the new password policy* field, specify a name for the policy. The new policy is added under the Password Policies.



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.



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.

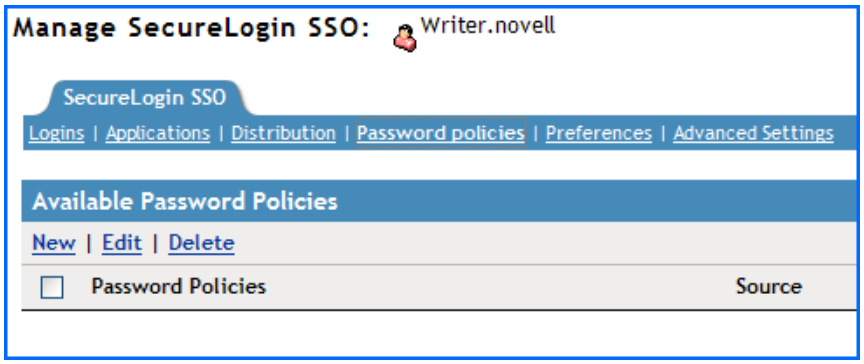
7.4 Editing a Password Policy

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.



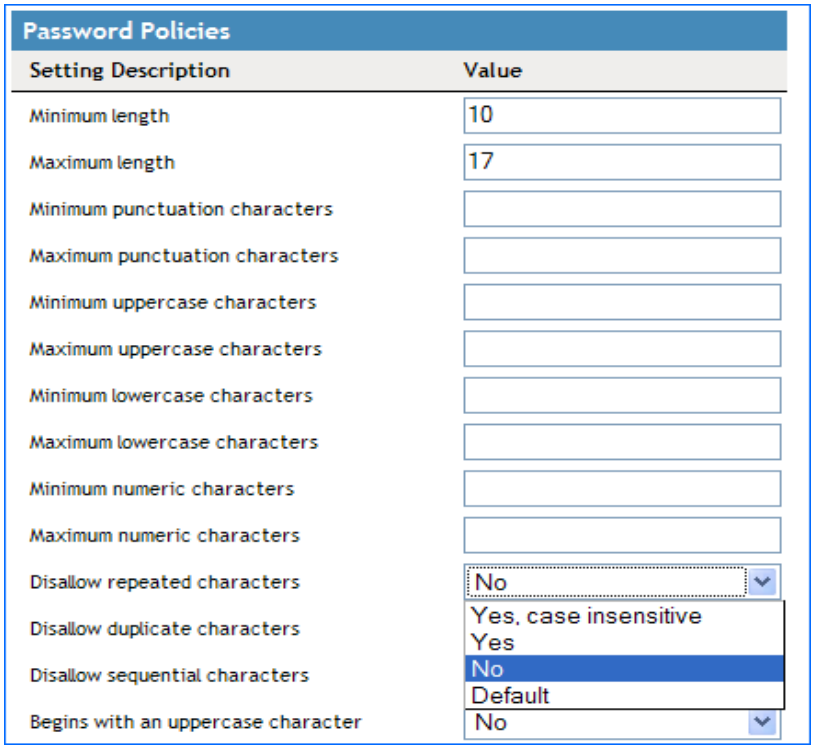
3 Click the password policy that you want to change. The policy details are displayed.

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.



5 Click *Apply* to save changes.

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

7.5 Deleting a Password Policy

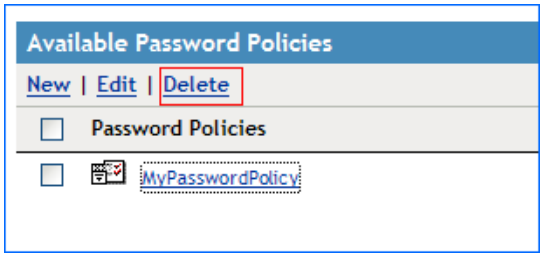
To delete a password policy:

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
```

Managing Smart Card Integration

8

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:

8.1 How Novell SecureLogin Uses Smart Cards

This section provides information on the following:

8.1.1 Prerequisites

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: Novell SecureLogin only supports ActivClient*, Gemalto* (formerly Axalto) and AET* SafeSign* smart card middleware. 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 87 in the *Novell SecureLogin Installation Guide* for more information on enabling smart card support during installation and deployment.

NOTE: If a user tries to log into SecureLogin in the LDAP mode, using the same smart card used to authenticate in eDirectory mode, the authentication fails. This is because SecureLogin smart card implementation sees them as two different users.

8.1.2 Using Smart Card to Log In to Workstation

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

However, a user can only log in by using both a smart card and password log in 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.

Using Smart Card for an Initial Log In

When no smart card preferences are applied to the user, the *Enable passphrase security system preference* is set to *Yes*, and the user has not initially logged in by using his or her username and password, a warning message is displayed.

For security reasons, Novell SecureLogin a user must log in at least once by using the username and password before their smart card access is available.

Also, if the *Enable passphrase security system* option is modified, you must log in again before launching SecureLogin for the settings to take effect.

When the *Enable passphrase security system* preference is set to *Hidden* and the smart card preferences are applied to the user, then the user can initially log in by using either the smart card or the username and password. The security warning is not displayed.

If the *Disable passphrase security system* option is set to *Yes* when configuring Novell SecureLogin 3.5, then you upgrade Novell SecureLogin from 3.5.x to 6.1 and upgrade the data store from 3.5 to 6.0, the *Enable passphrase security system* value is displayed as *Yes* in Novell SecureLogin 6.1.

NOTE: The *Disable passphrase security system* preference was changed to *Enable passphrase security system* in version 6 releases and above.

The *Enable passphrase security system* option must be set to *Hidden*, because the *Disable passphrase security system* value was set to *No* in Novell SecureLogin 3.5.

This issue appears only in SecureLogin Manager.

8.1.3 Storing Single Sign-on Credentials

SecureLogin uses a store-and-forward approach to single sign-on credentials, and records user IDs and passwords in this store. It is likely that many, if not all, of an individual user's passwords will be stored in this credential store. Given this architecture, the security of SecureLogin credential store is extremely important.

When a smart card is used in conjunction with SecureLogin, a number of new features can be optionally implemented to increase security. Some of them are:

- Using smart card to encrypt SecureLogin.
- Storing single sign-on credentials such as application usernames and passwords on the smart card.
- Typing single sign-on availability to the smart cards so only those who log in using a smart card are able to start and administer single sign-on.

SecureLogin uses a two-tier encryption process to secure users' sensitive credentials and information. All user passwords are encrypted with the user key, and all user data, including password fields, are encrypted with the master key.

The result is a two-tier encryption process where password values are encrypted twice: once with the user key and once with the master key, while all other data is encrypted once with master key.

Using SecureLogin in conjunction with a smart card provides an additional level of security because the key used to decrypt data is stored on the smart card, and authentication is through two-factor authentication: smart card and PIN. If the you select the option *Use smart card to encrypt SSO data* option, users must insert a smart card and enter a PIN for SecureLogin to load.

8.1.4 Storing Novell SecureLogin Credentials

Novell SecureLogin uses a store-and-forward approach to single sign-on credentials and records user IDs and passwords in a local store. It is likely that many, if not all, of an individual user's passwords will be stored in this credential store. Given this architecture, the security controlling the Novell SecureLogin credential store is extremely important.

IMPORTANT: To use Novell SecureLogin version 7.0 features such as encryption of the datastore using PKI-based credentials, and AES encryption algorithm support, the data store mode must be version 6; see Section 2.3, "Updating the Datastore Objects," on page 18.

If you have used a smart card to store the credentials when enabling single sign-on for Web applications such as Gmail*; the next time you access the Web site with the smart card removed, you are prompted to insert the smart card. If you cancel the message, SecureLogin closes. An error might also occur in executing the application definition.

Novell SecureLogin uses a two-tier encryption process to secure sensitive user credentials and information. All user passwords are encrypted using the user key, and all user data, including password fields, are then encrypted using the master key.

The result is a two-tier encryption process where password values are encrypted twice (once with the user key and once with the master key), while all other data is encrypted once with the master key.

Using Novell SecureLogin in conjunction with a smart card provides an additional level of security since the key used to decrypt data is stored on the smart card, and authentication is via two-factor authentication; something you have (a smart card) and something you know (PIN). If the administrator selects the option *Use smart card to encrypt SSO data* the user must insert their smart card and enter their PIN for Novell SecureLogin to start.

8.1.5 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

The existing version of the `AAVerify` command relies on either SecureLogin Advanced Authentication (SLAA) or Novell Modular Authentication Services (NMAS) being deployed on the server of 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 SLAA or NMAS and can be used to enforce strong user-friendly re-authentication by using a smart card and PIN or password without installing SLAA or NMAS.

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

- 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.

Supported Operating System Environment

The new AAVerify command functionality has been completely tested in the following systems:

- Microsoft Windows XP SP2
- Microsoft Windows Vista (32-bit)

Supported Directory Environments

The Novell SecureLogin AAVerify command functionality is not currently supported in either LDAP or stand-alone mode.

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, SLAA or NMAS can be integrated 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 store their Novell SecureLogin data or 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) and AET SafeSign smart card middleware. Contact Novell Support if your organization uses another 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

We support ActivClient smart card middleware for use with Novell SecureLogin. Novell SecureLogin might work with other smart card vendor middleware but these are untested and are not supported. The tested support middlewares are:

- ActivClient version 6.1 SP2 or later.
- Gemalto (formerly Axalto) 5.3 hotfix 11
- AET SafeSign 2.3.0

When deployed with ActivClient, SecureLogin automatically configures the cryptographic service provider and PKCS#11 dynamic link library file during installation. If the appropriate version of PKCS#11 library file is not present during installation, SecureLogin installs without smart card support. If ActivClient is installed after SecureLogin is installed, the registry key settings must changed manually to activate smart card support, uninstall or re-install SecureLogin.

If you want to use alternative smart card middleware, install it prior to setting smart card options in Novell SecureLogin.

If your implementation of Novell SecureLogin does not use ActivClient smart card or system administrators wish to change the smart card provider or cryptographic token then the appropriate cryptographic service provider middleware can be manually selected.

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.

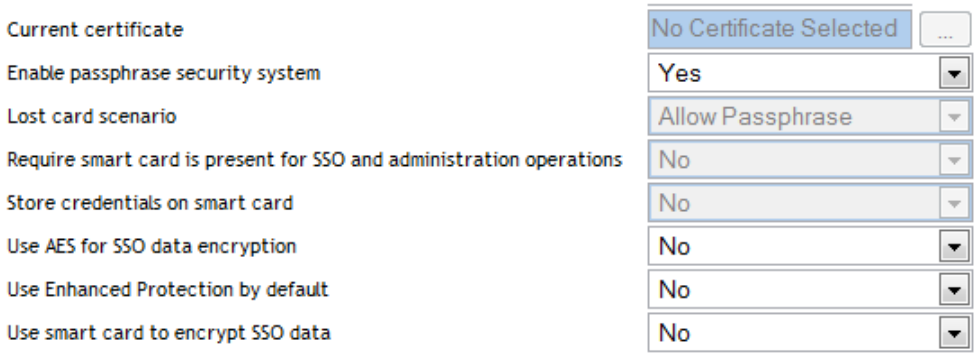
8.3 Configuring SecureLogin for Smart Cards

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.

IMPORTANT: To use Novell SecureLogin version 7.0 features such as the storage of SSO credentials on the user's smart card, encryption of the datastore using PKI-based credentials, and AES encryption algorithm support, the data store mode must be version 6; see Section 2.3, "Updating the Datastore Objects," on page 18.

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.



4 Click *Apply*.

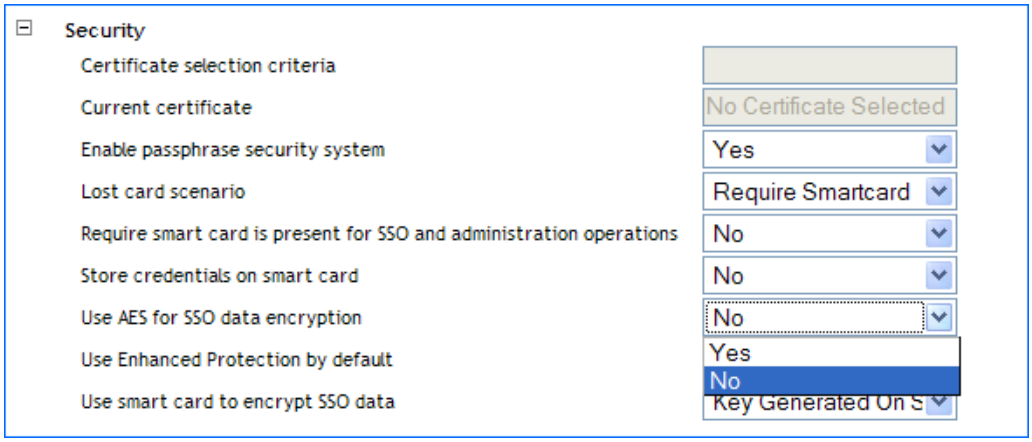
5 Click *OK*.

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*



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.

8.3.2 Using a Smart Card to Encrypt SSO Data

SecureLogin offers various encryption options. By default, SecureLogin encrypts data using either a user-defined passphrase key or a randomly generated key. The *Use smart card to encrypt SSO data* option can be used to determine whether PKI credentials or the self-generated key are stored on the smart card and then used to encrypt the user's single sign-on data.

If you select *No*, all other smart card options are dimmed and not available.

If you select *PKI credentials*, single sign-on data is encrypted by using the user's PKI credentials. Single sign-on data stored in the directory and in the offline cache (if enabled) is encrypted by using the public key from the selected certificate, and the private key (stored on a PIN protected smart card) is used for decryption.

If you select *Key generated on smart card* option, single sign-on data is encrypted by 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).

If you have inadvertently changed:

1. *Use smart card to encrypt SSO data* option to *PKI credentials*,
2. *Lost card scenario* option to *Require Smartcard*

   and
3. *Require Smart Card is present for SSO and administration operations* option to *Yes*

then both the *Lost card scenario* and *Require smart card for SSO and administration operations* are set to *Require smart card*.

In such a scenario, set these preferences in the following order:

1. Set the *Store credentials on smart card* to *No* (which is the default value).
2. Set the *Use smart card to encrypt SSO data* option to *PKI credentials*.
3. Click *Apply*.
4. Close and then reactivate SecureLogin. Check to see if the options are correctly set.

When a smart card is deployed with a user's PKI credentials, consider using key escrow, archiving, and backup through an enterprise card management system for the user's private key to be recovered in a lost card scenario. If no escrow is used, the *Enable passphrase security system* option should be set to *Yes* or *Hidden* to prevent the loss of the user's single sign-on credentials if a user loses a card.

8.4 Using PKI Encryption for the Datastore and Cache

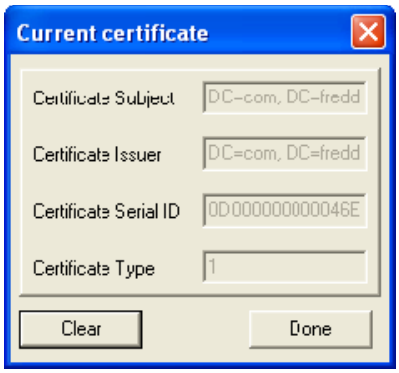
If PKI credentials are used to encrypt Novell SecureLogin data with the passphrase security system off (set to *No*), you should consider implementing a key archive/backup and recovery. If key archive/backup and recovery is not implemented and the passphrases security system is not enabled, the users 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 92
- Section 8.4.2, “Certificate Selection Criteria,” on page 93
- Section 8.4.3, “Current Certificate,” on page 94

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.



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.

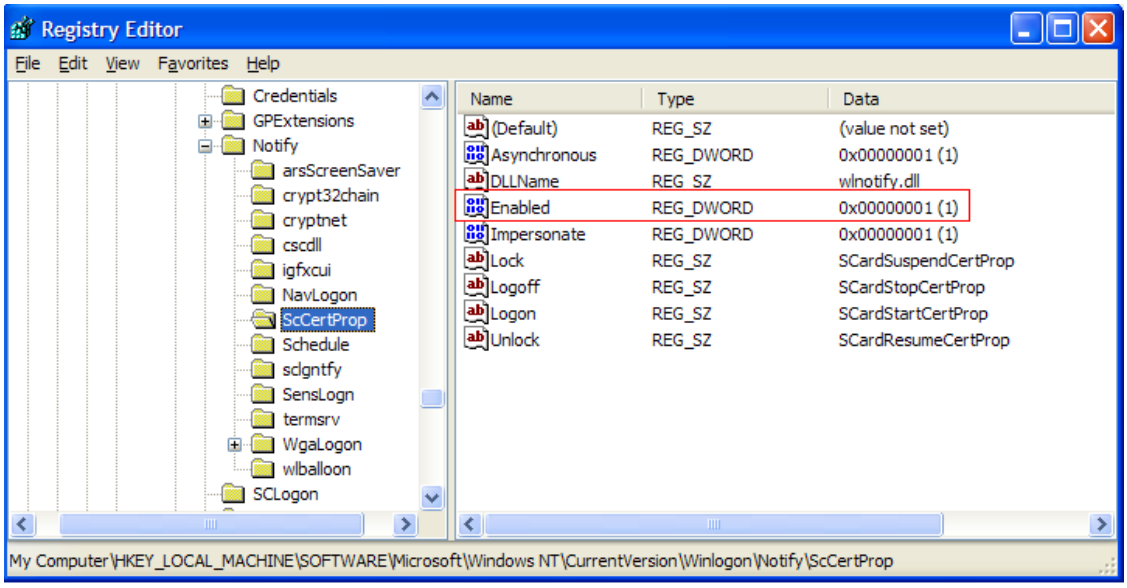
IMPORTANT: If you using PKI encryption and the certificate selection criteria depends on the certificate's friendly name, disable the Microsoft certificate propogation.

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.

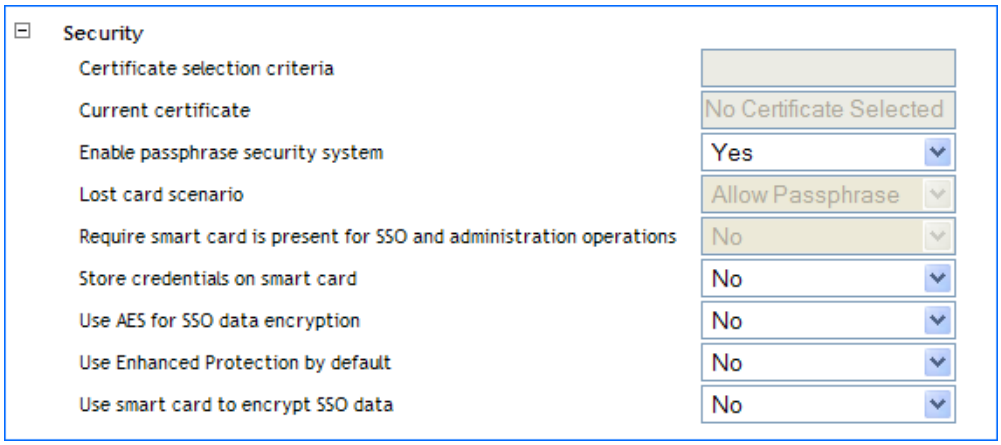
Figure 8-2 *Setting the DWORD Value for Disabling Microsoft Certificate Propogation*



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*



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

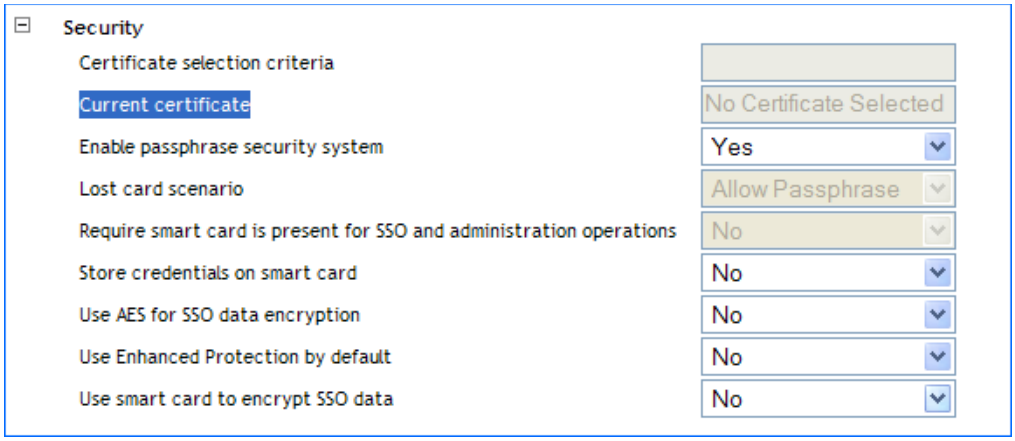
```
CN=IssuingCA1,OU=AD,DC=undiscovered,DC=com
```

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*

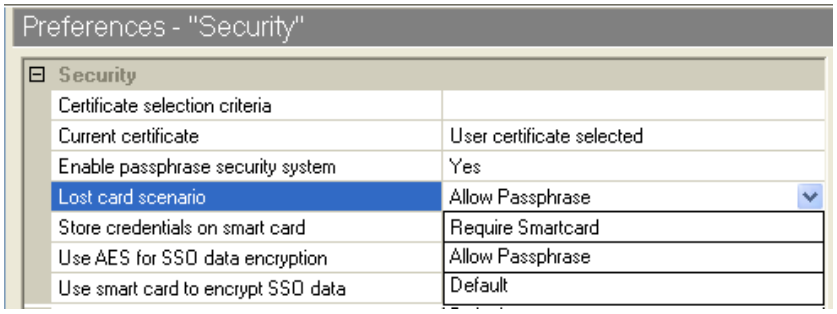


8.5 Lost Card Scenarios

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*.



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 97
- "Accessing Without a Card Management System" on page 97
- "PKI Credentials" on page 98
- "Key Generated on Smart Card" on page 99

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.

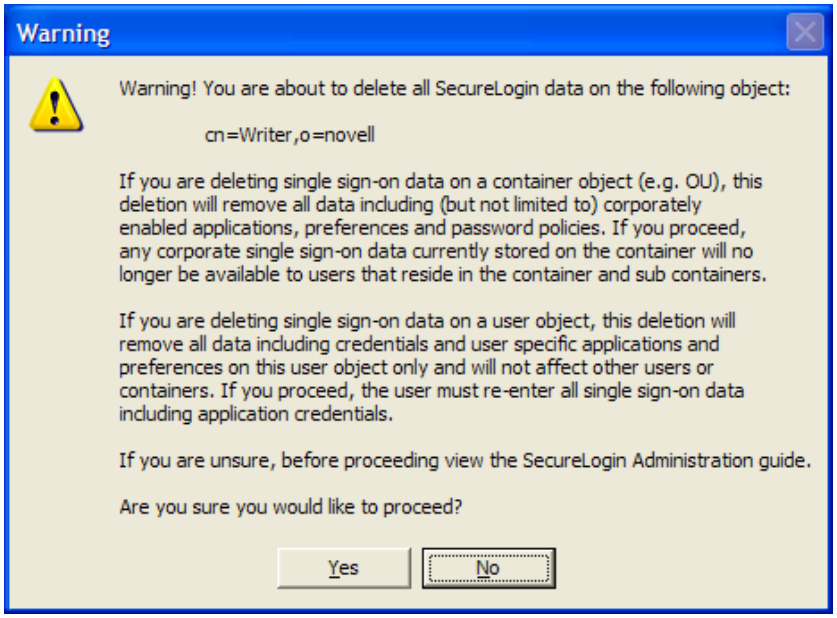
The procedure to reset a user's data store is described in Section 2.6, "Deleting or Re-setting User Data," on page 20.

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.



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 Password Login

SCPL provides a smart card-based Windows login that is not Public Key Infrastructure (PKI)-based and is specifically designed to simplify a user’s Windows, network and single sign-on experience.

SCPL stores and manages a user’s Windows login credentials (user name, password, and network) in a PIN-protected container on the card. SCPL provides efficient network login by allowing a user to insert their card and enter their PIN to achieve network access. SCPL retrieves the user's Windows user name and password from their smart card and automatically enters them into the Windows GINA interface as soon as the user enters their PIN.

SCPL is a stand-alone product that need not be deployed with Novell SecureLogin. However, SCPL ActivClient smart card middleware must be installed. SCPL is not based on PKI and Windows log in is effected using a password stored on the smart card, rather than verifying a digital signature based on asymmetric (PKI) keys and certificates.

SCPL also allows Windows change password events to be captured and updated on the smart card.

Enabling Terminal Emulator Applications

9

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 103
- Section 9.2.2, “Building a Terminal Emulator Application Definition,” on page 103
- Section 9.2.3, “Running a Terminal Launcher,” on page 104
- Section 9.2.4, “Creating a Terminal Emulator Desktop Shortcut,” on page 107
- Section 9.2.5, “Setting Terminal Launcher Command Line Parameters,” on page 108

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 Eicon Aviva, type the following in the text box:

```
WaitForText "WELCOME TO THE EICON TECHNOLOGY DATA CENTER "
Type @E
WaitForText "ENTER USERID -"
Type $Username
Type @E
WaitForText "Password  ===>"
Type $Password
Type @E
WaitForText " Welcome to Eicon Technology"
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.

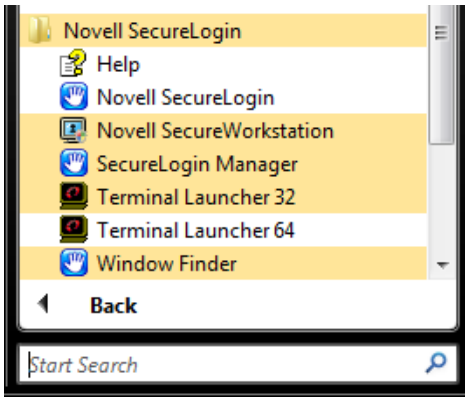
12 Click *OK*.

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.

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*.

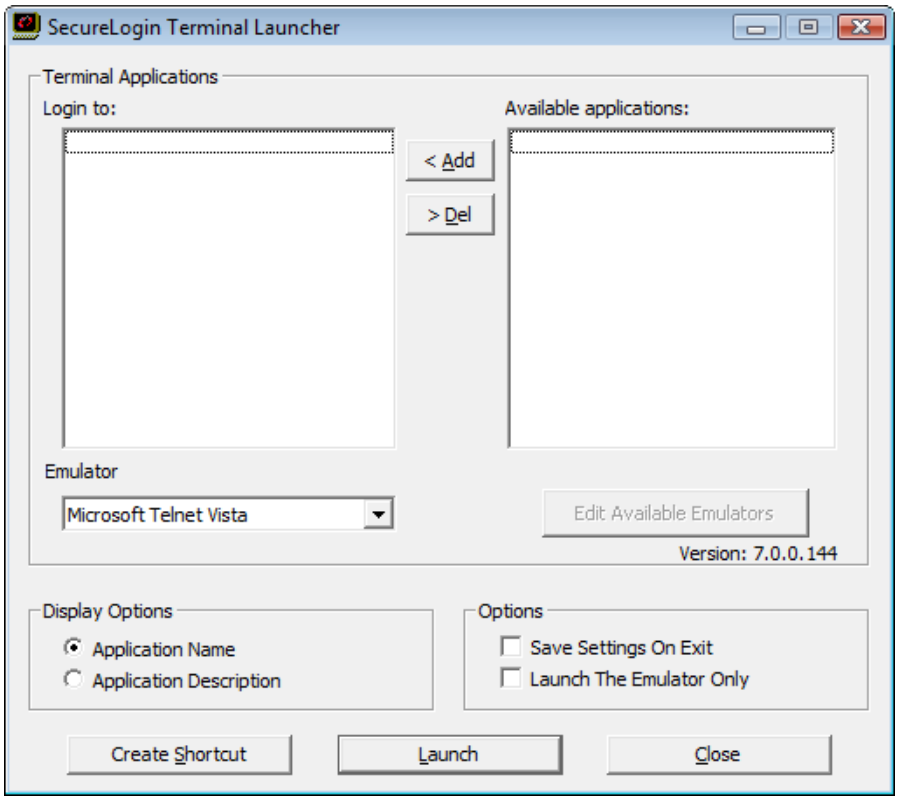


Use *Terminal Emulator 32* to to enable 32-bit emulator sessions. Use *Terminal Emulator 64* to enable 64-bit emulator sessions.

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.

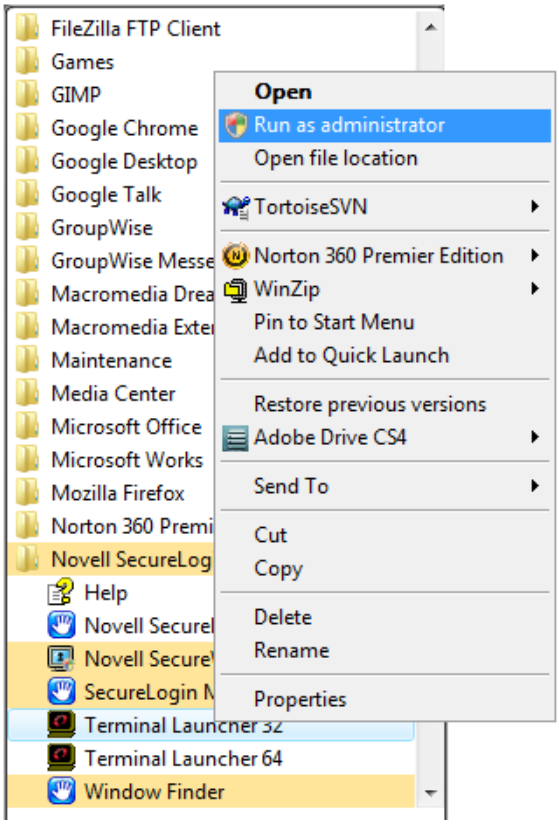
4 Click *Edit Available Emulators*. The Available Emulators dialog box is displayed.



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*.

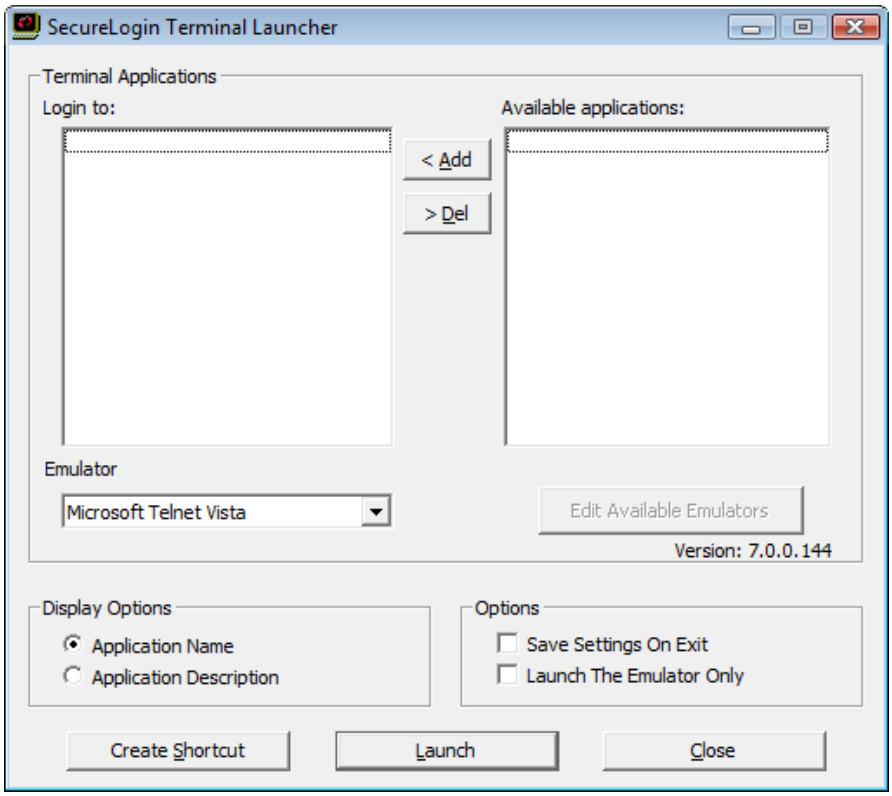
You can choose to start emulator applications in Terminal Launcher; however, users might not have access to Terminal Launcher. To simplify login for users, a desktop shortcut is created.

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

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



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"Eicon Aviva" /pEicon Aviva /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 107.

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 /eEicon Aviva /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.

Parameter	Description
/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 box). For example: C:\<....>\TLaunch.exe /auto /q
/s	Suppress errors.
/t	Unlimited timeout during connection. For example:C:\<....>\TLaunch.exe /auto /eEicon Aviva /pBackground /b /t /m /hA /s /q

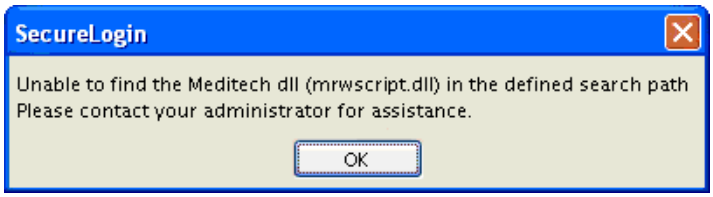
9.3 Support for the MEDITECH Predefined Application

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*



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 9-3 *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 111
- “Including Applications for Single Sign-On” on page 111
- “Disabling the Default Behavior” on page 112

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.

Reauthenticating Applications

10

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 SecureLogin Advanced Authentication (SLAA) or the 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:

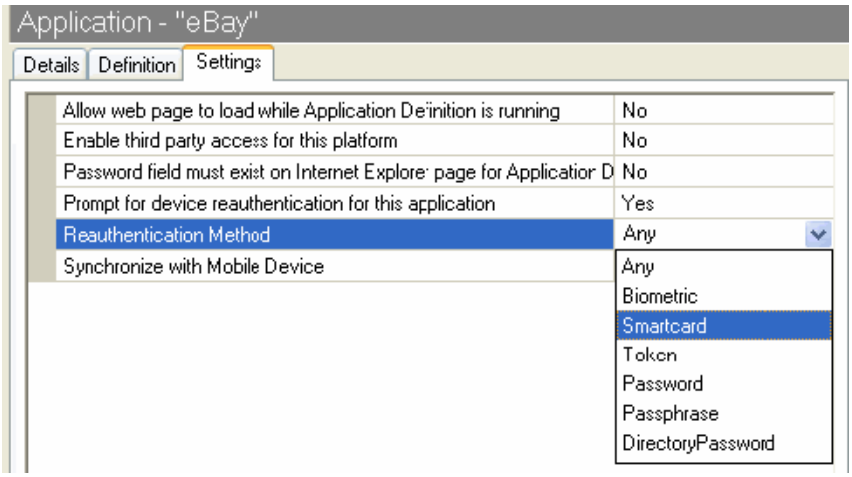
- Section 10.1, "Using the Administrative Management Utility to Reauthenticate Applications," on page 113
- Section 10.2, "Using the Application Definition Wizard to Reauthenticate Applications," on page 114
- Section 10.3, "Using the AAVerify Command to Reauthenticate Applications," on page 114

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 SLAA or 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.



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*.

Managing Application Definitions 11

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.

Adding Multiple Logins

12

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.

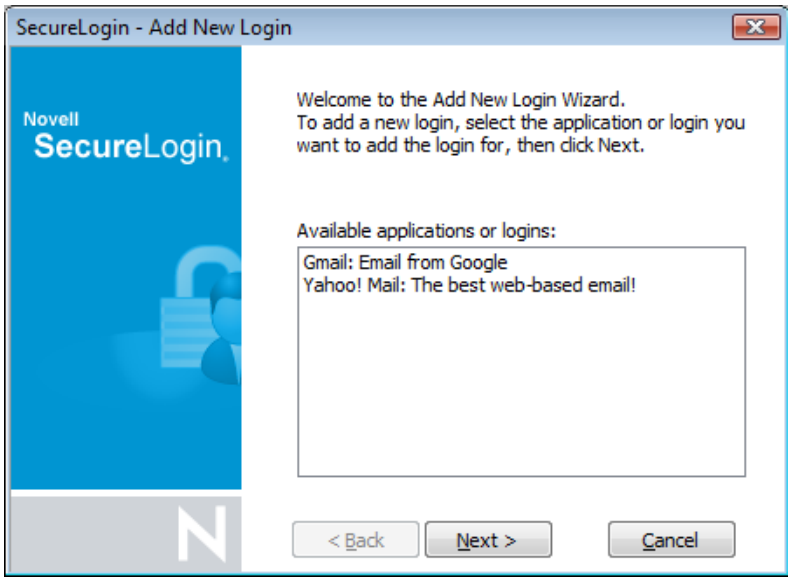
The following is an example list:

Table 12-1 *List of Additional Logins*

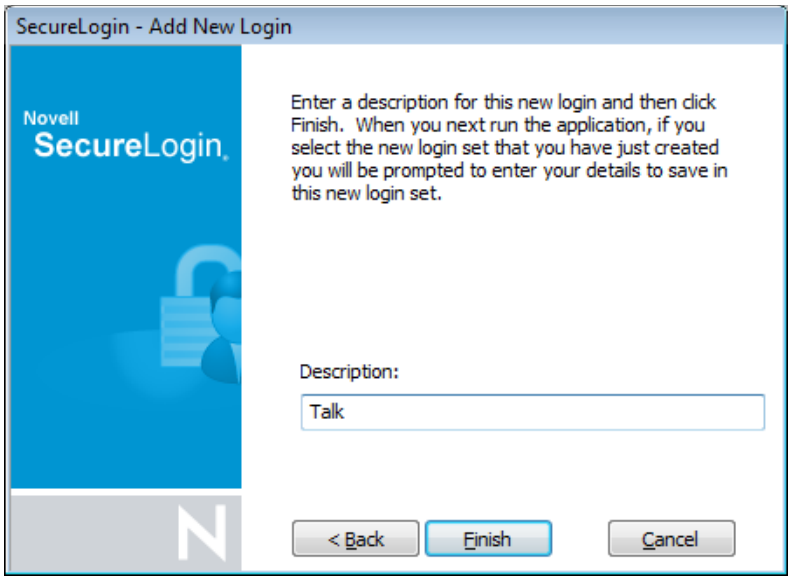
Name	User Name	Password
Administrator	admin	123456
Support	help	abcdef
User	test1	xyz123

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.



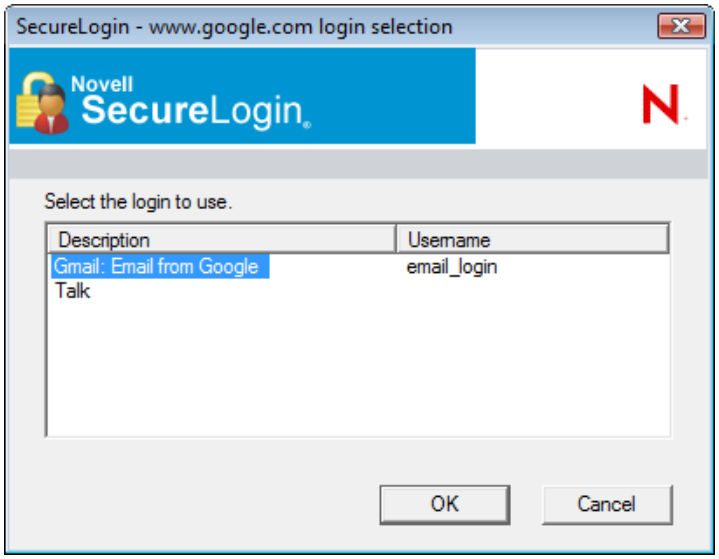
3. Select the application for which you want to add another login. Let us consider, Gmail.
4. Click *Next*.
5. In the *Description* field, specify a descriptive name for the login. For example, Talk.



6 Click *Finish*.

7 Start the application.

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



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

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

Distributing Configurations

13

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. Do not use Corporate redirection across a LAN or WAN.	Click *Corporate redirection*.
◆ 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 6.1 release, 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:

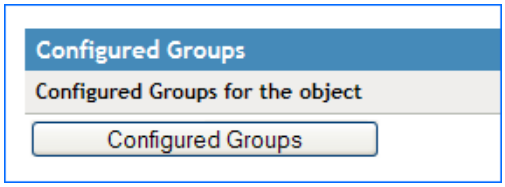
- Run the ndsschema tool to assign the necessary rights and attributes or schema assignments to the group objects.
- Manage through iManager by running the Novell SecureLogin 7.0 plug-in.

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.

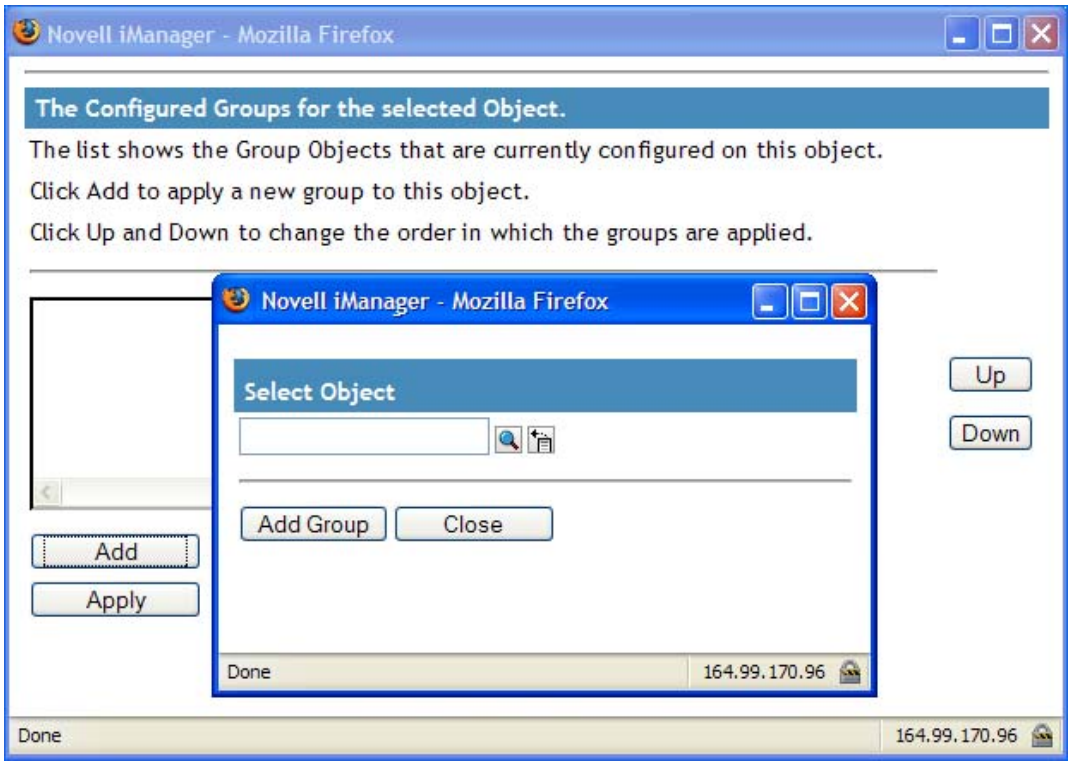
3. Select *Advanced Settings* > *Configured Groups*. The Group Configuration dialog box is displayed.



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.



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

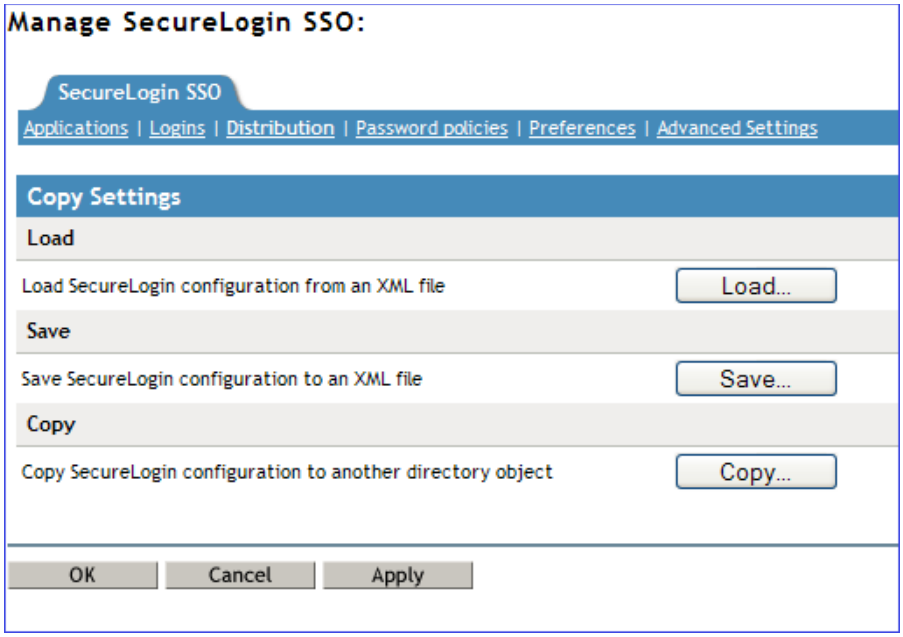
You can copy an object's SecureLogin configuration to another object from the *Distribution* pane in the Administrative Management utility. This functionality replicates the SecureLogin configuration internally in the same directory tree.

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, SLManager, or MMC snap-ins).

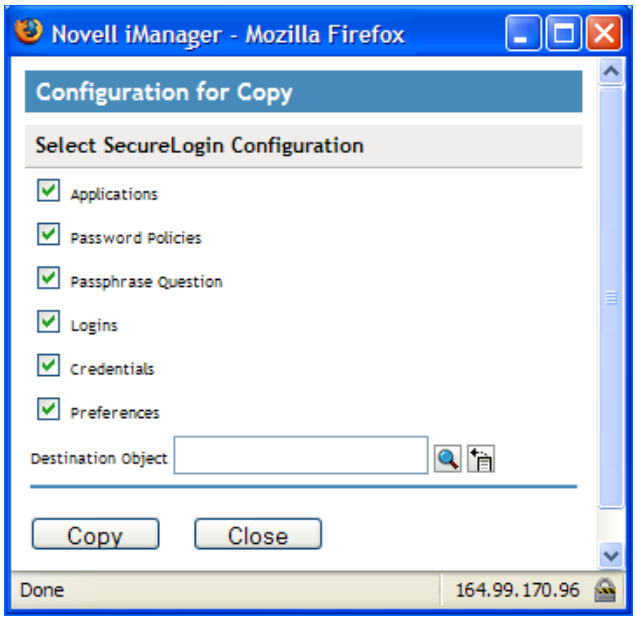
2 Click *Distribution*. The Distribution pane is displayed.



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.



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 6.1 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 6.1, 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).

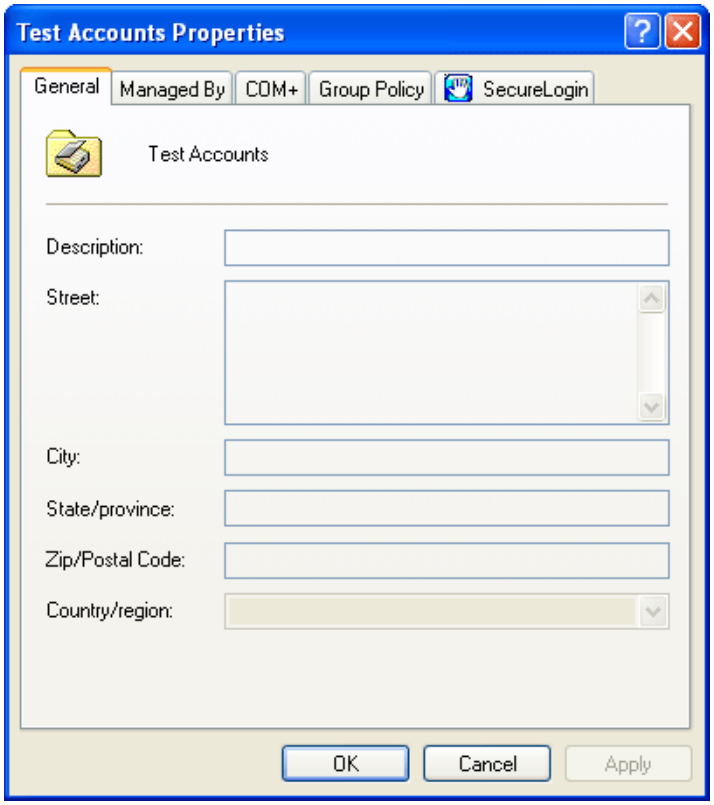
Installing the Microsoft GPMC plug-in simply involves running the gpmc.msi installer package.

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.

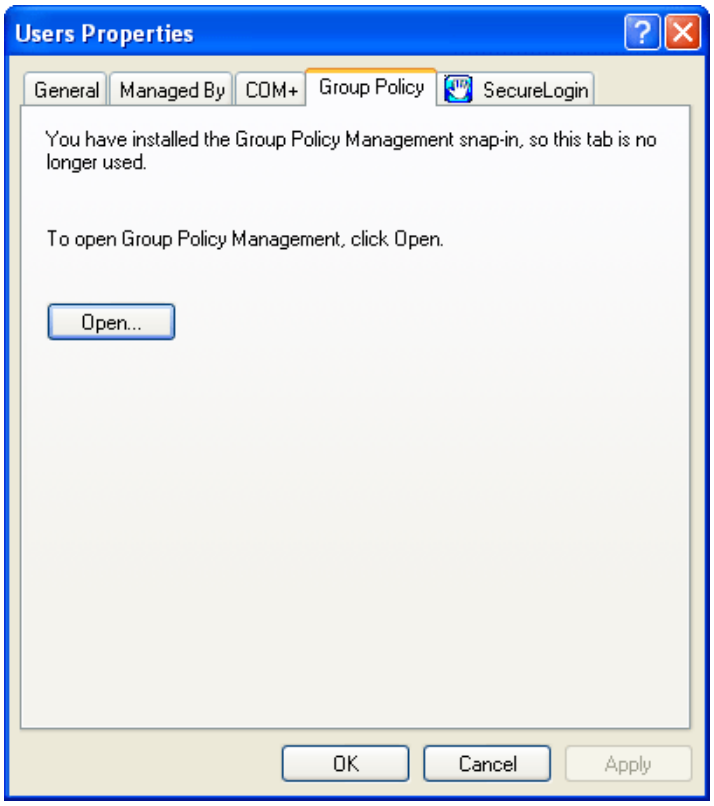
Managing Group Policy Objects through the GPMC

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.



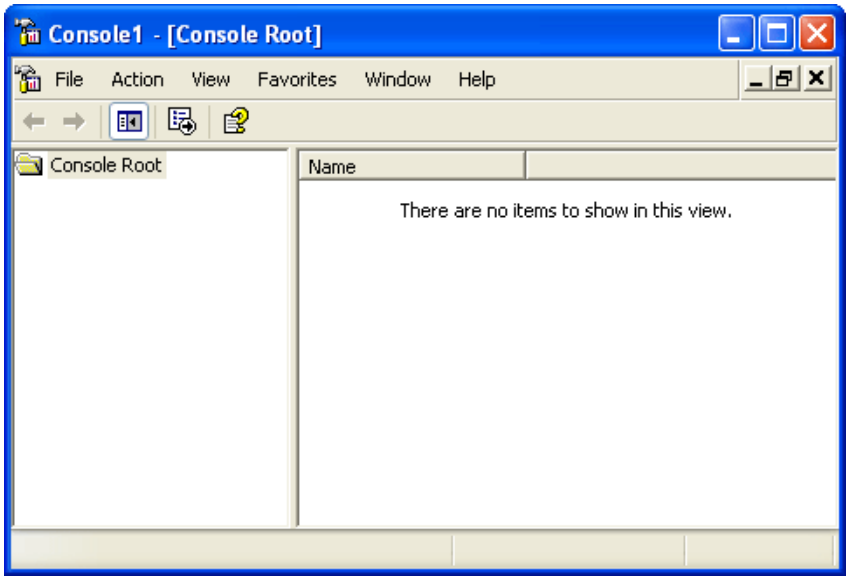
- Click *Group Policy*, then click *Open*.



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

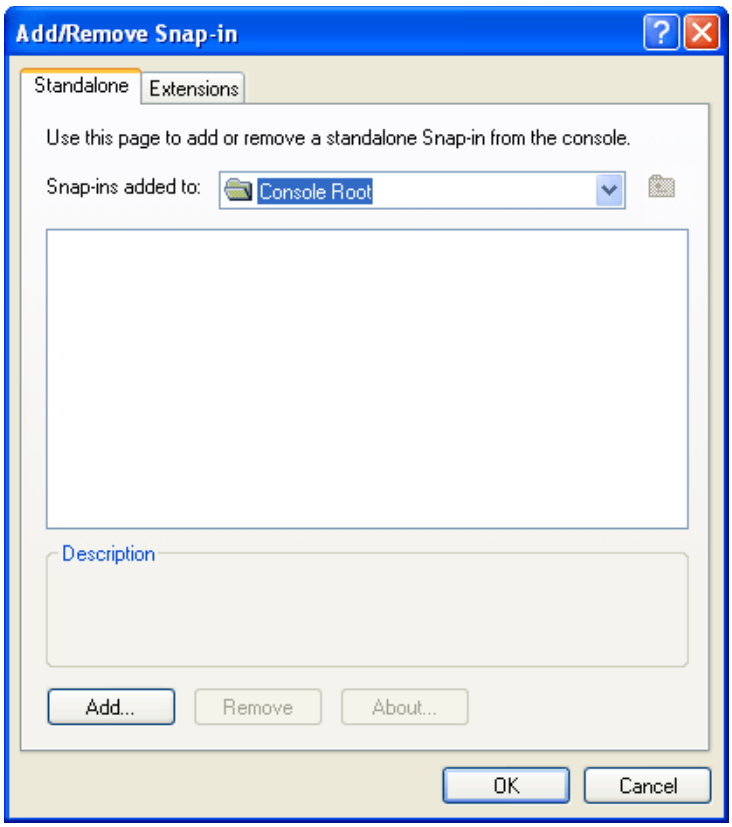
1 At *Open*, type `mmc`.

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

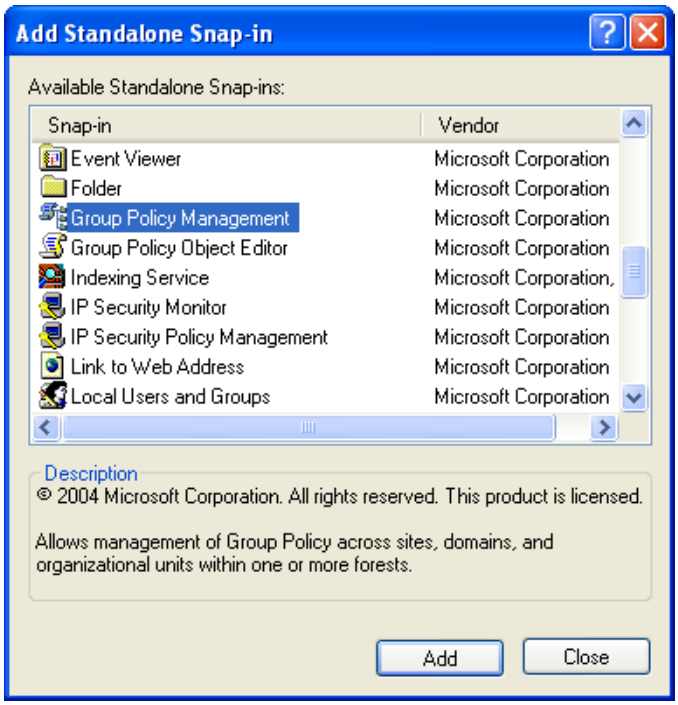


3 Click *File*.

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

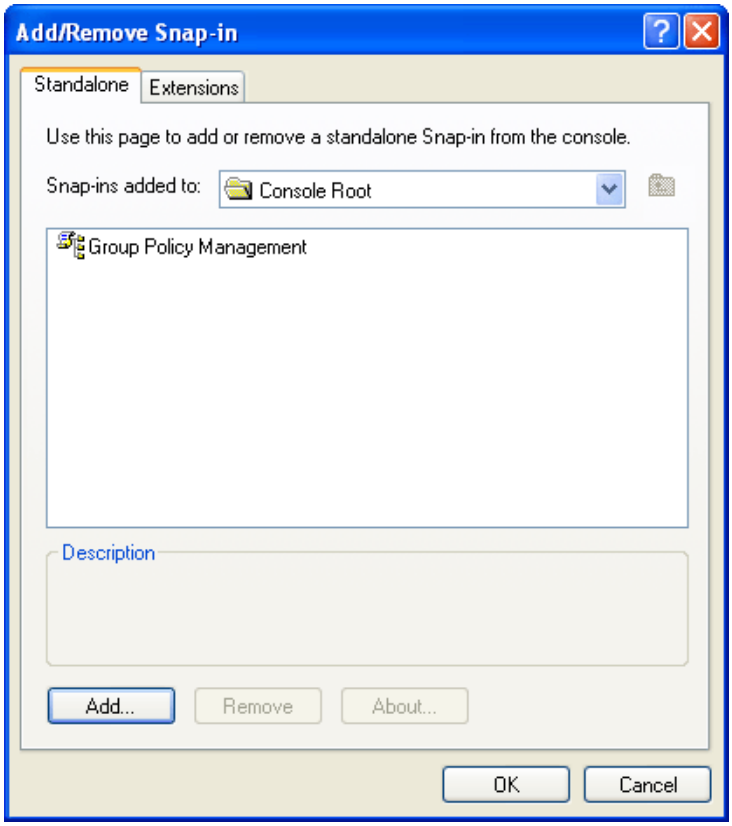


5 Click *Add*. The Add Standalone Snap-in page is displayed.



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

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



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.

Exporting and Importing Configurations

14

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.

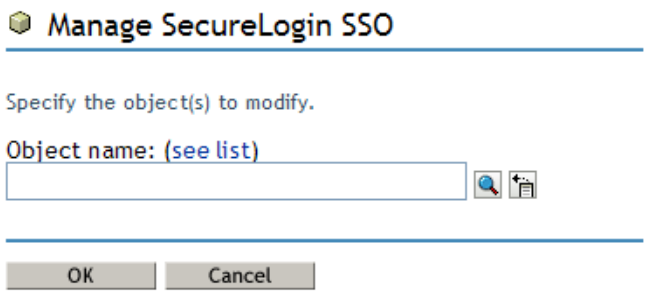
Some of the features explained in this section are available only in SLManager. Such features are explicitly indicated. Otherwise, all the features are available in both the administrative management utilities.

14.1 Exporting XML Settings

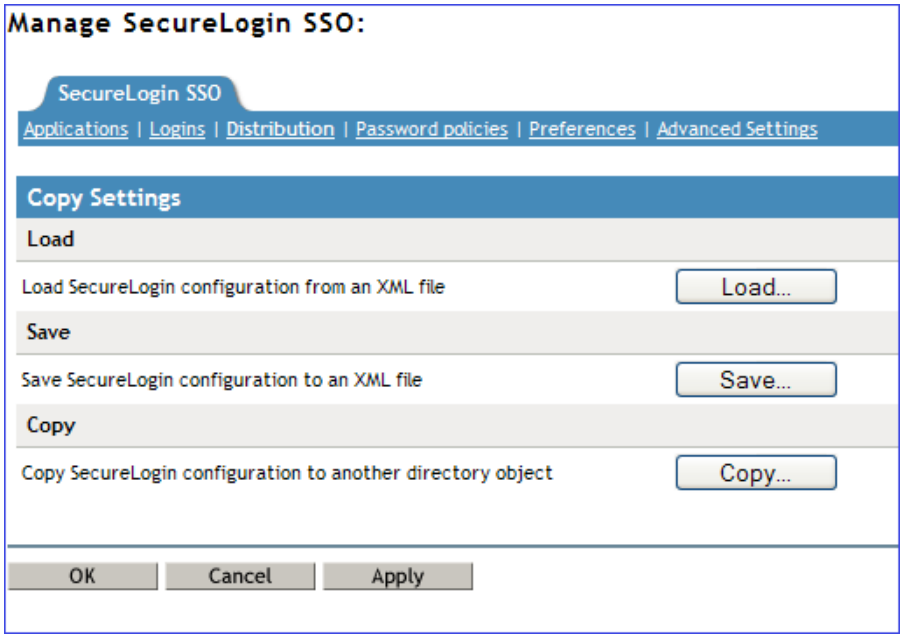
If you use iManager to export or import a configuration, you must use iManager only to either export or import. You cannot export through iManager and import using SLManager.

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*.

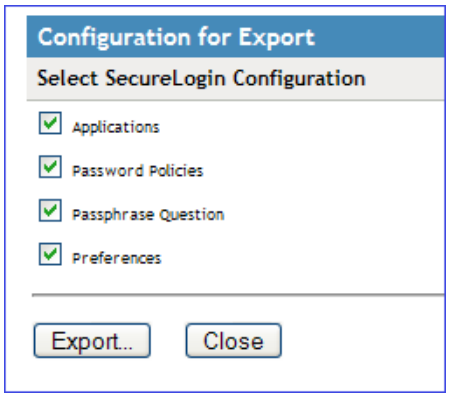


4 Click *Distribution*. The distribution details are displayed.



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

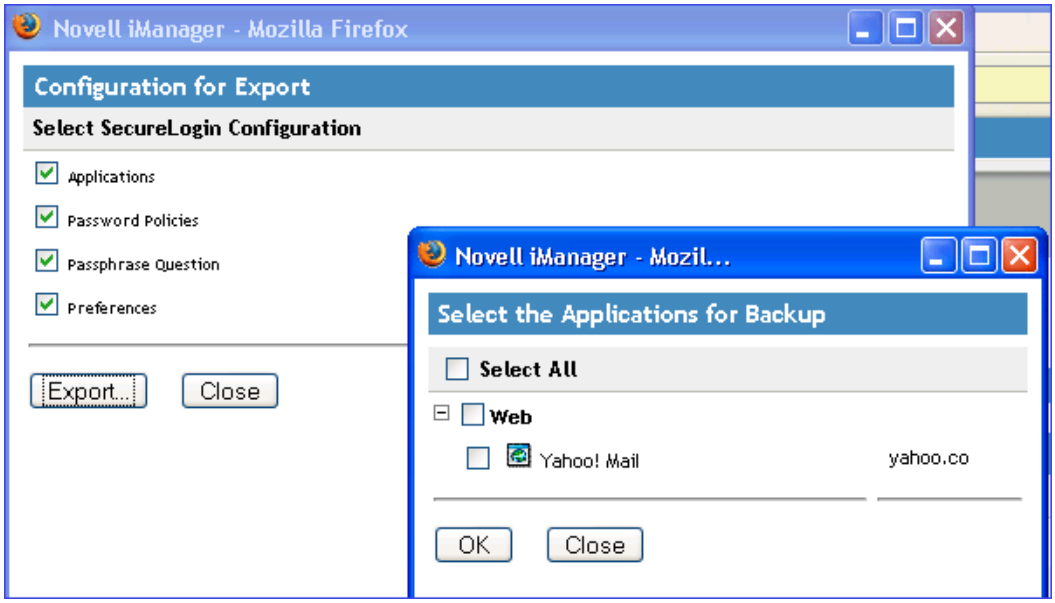
6 Under *Select SecureLogin Configuration*, select the configuration(s) you want to export.



Configuration	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.

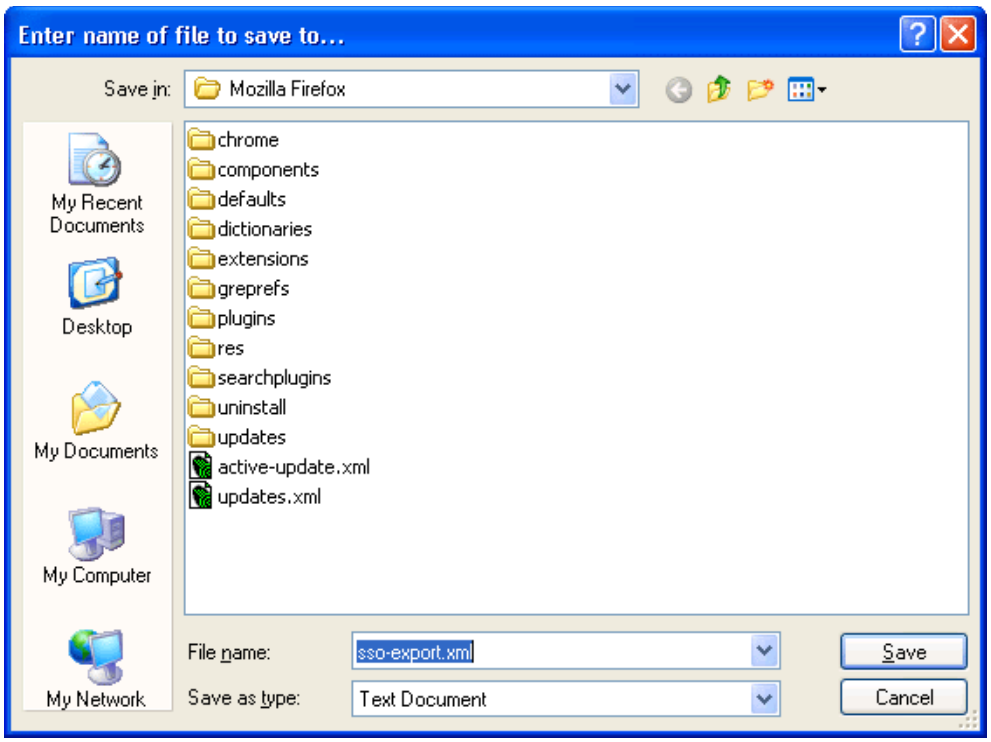
7 Click *Export*. The Select the Applications for Backup page is displayed.

8 Select the applications you want to backup.



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

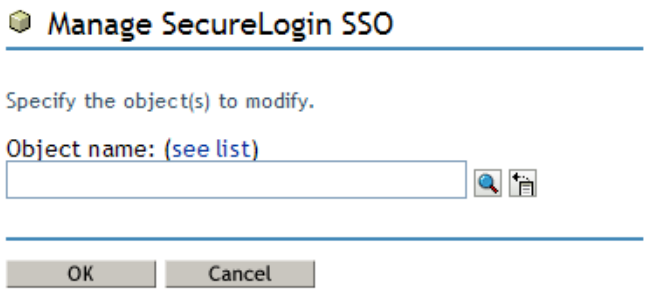
10 Provide a name to the file, select the file location, and click *Save*.



14.2 Importing XML Settings

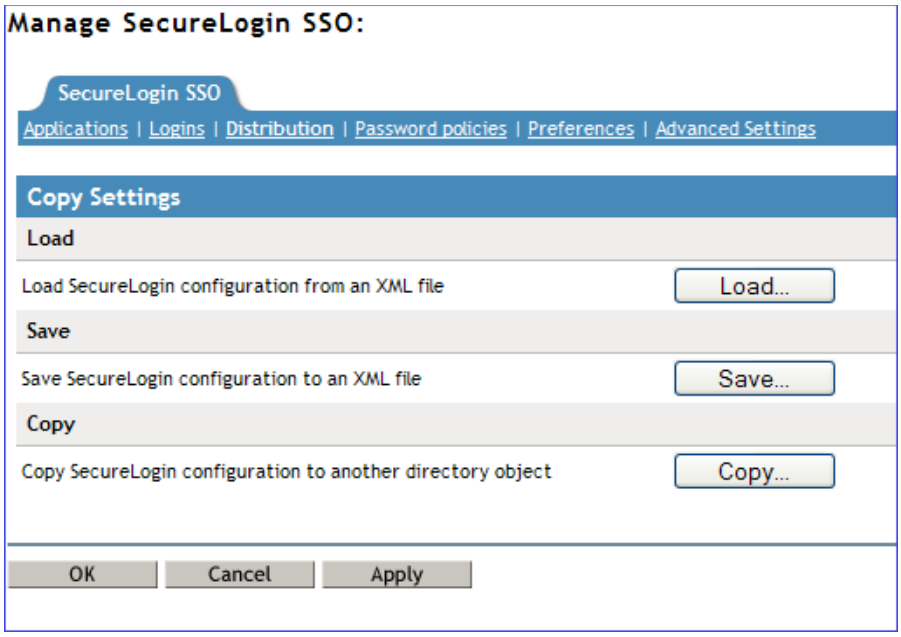
1 Log in to iManager.

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



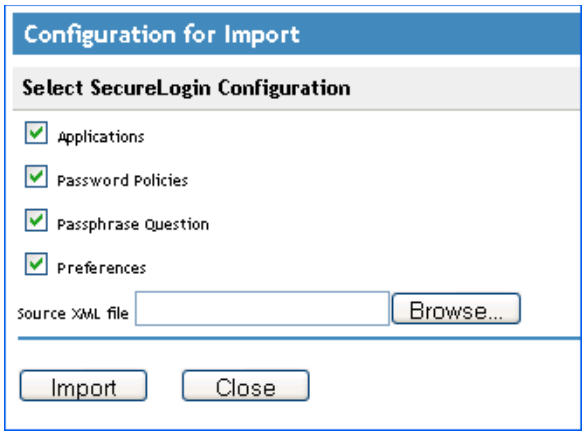
3 In the object field, specify your object name, then click *OK*.

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



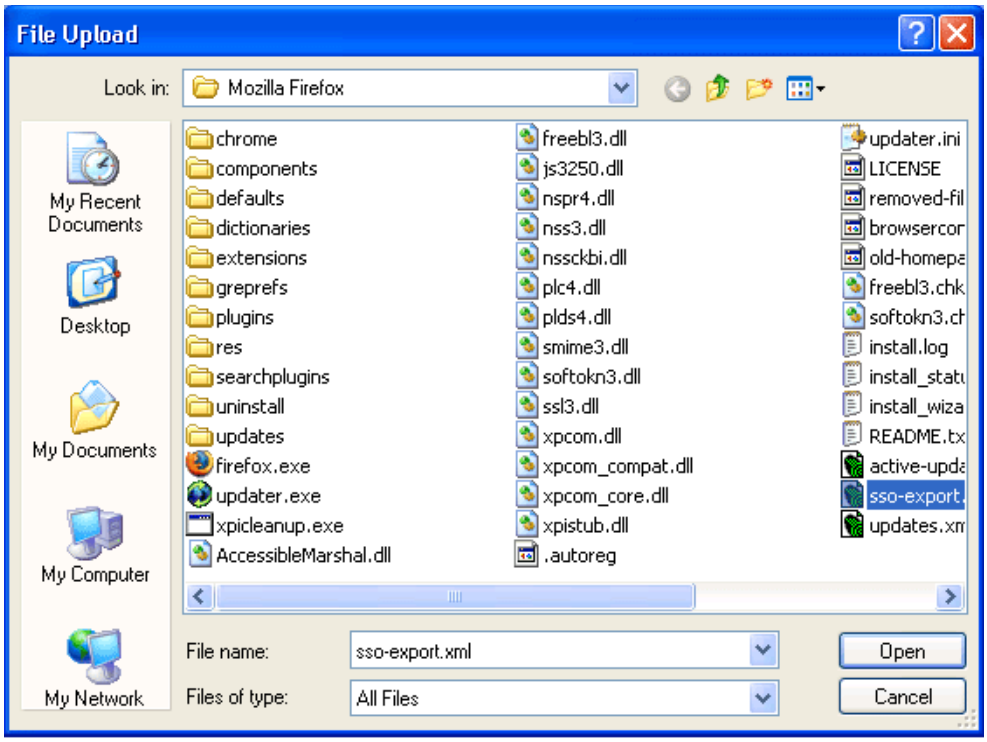
5 Click *Load*. The Select SecureLogin Configuration dialog box is displayed.

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



Configuration	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.



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.

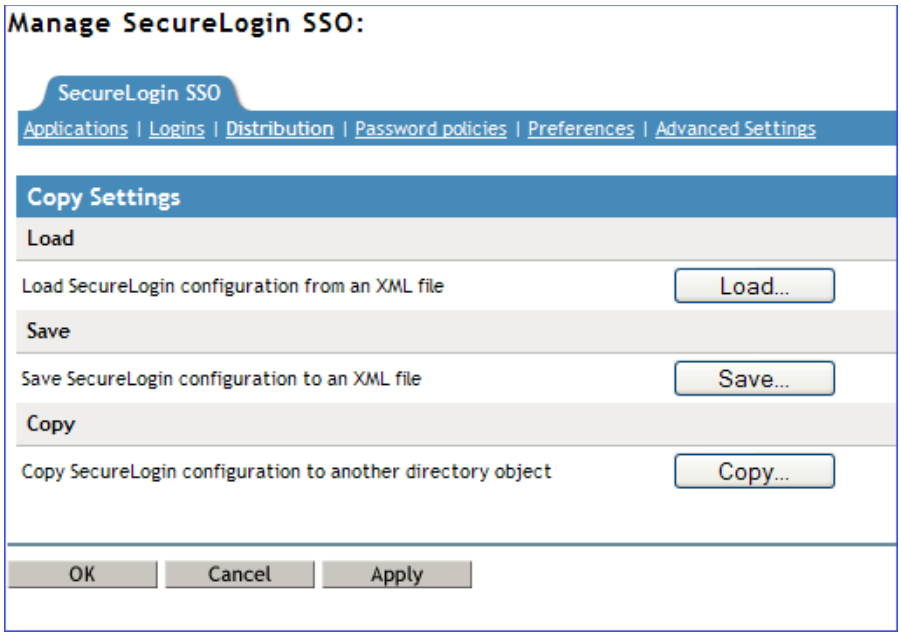
14.3 Copying Settings to the Directory

1 Log in to iManager.

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

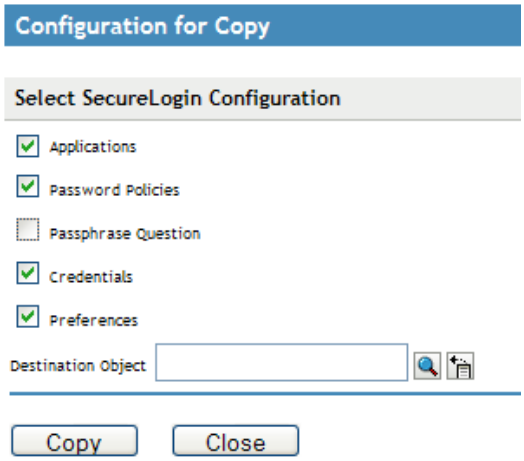
3 In the object field, specify your object name, then click *OK*.

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

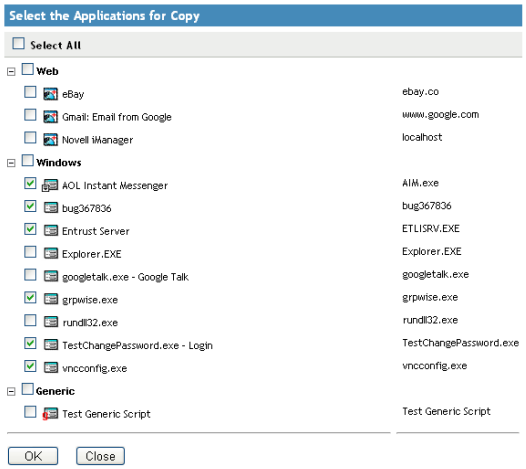


5 Click *Copy*. The Configuration for Copy dialog box is displayed.

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



6a If you select *Applications*, a list of applications is displayed.



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.

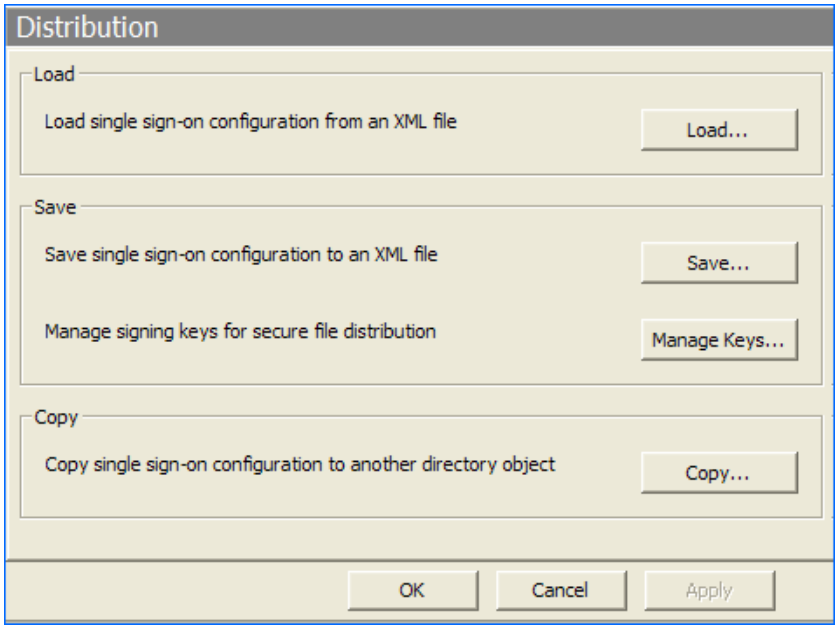
7 Browse to the container where you want to deploy the configuration. You can deploy individual configuration to different containers. You can deploy specific scripts to container after they are created at user level.

14.4 Exporting Single Sign-On Data in Encrypted XML Files

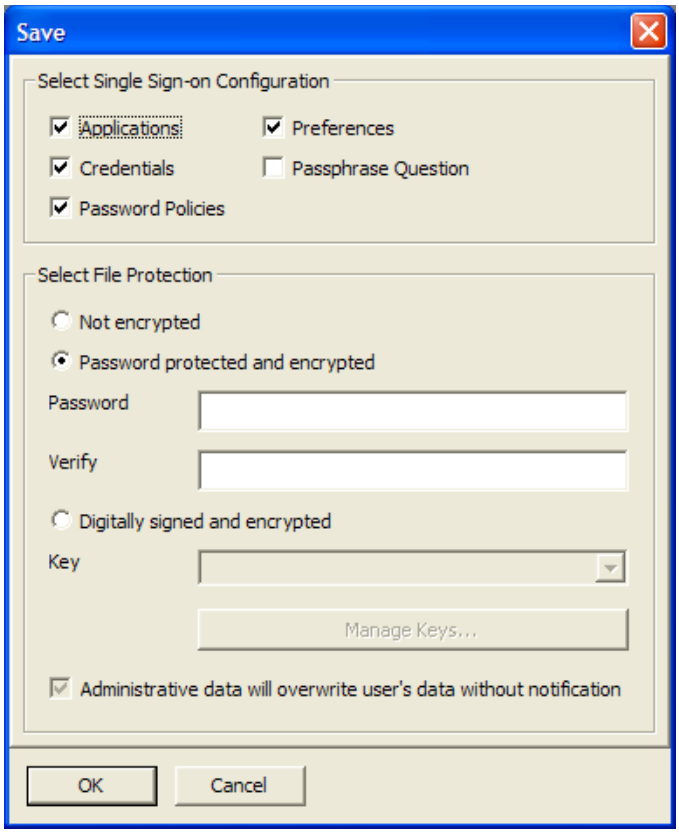
Using SecureLogin Manager (SLManager) you can encrypt and password-protect or digitally sign the exported files to ensure the information is secure. Alternatively, an unencrypted file can also be created for unrestricted distribution.

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.



4. Click Save. The save dialog box is displayed.



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.

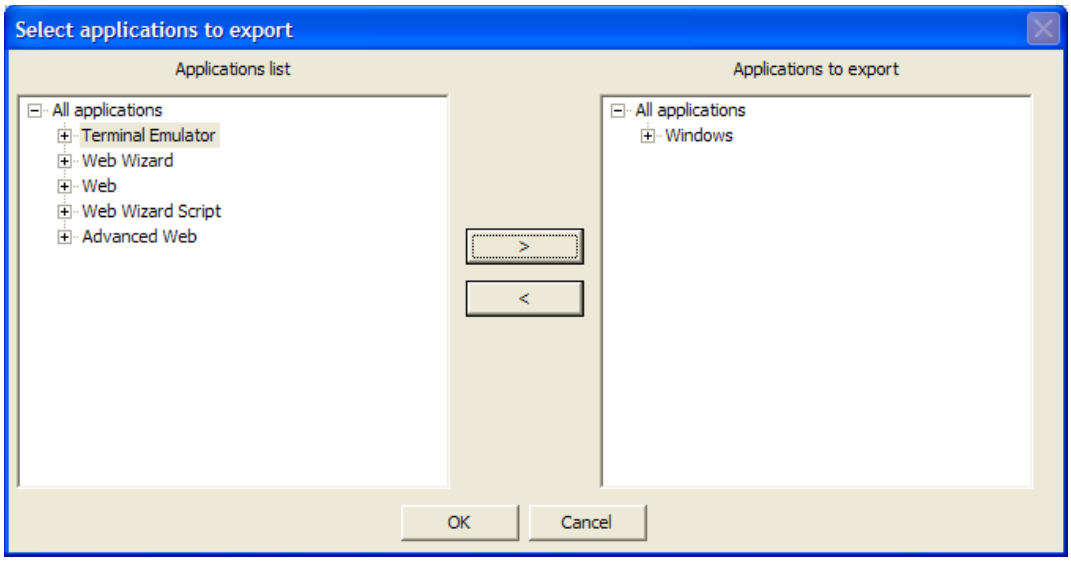
6 From *Select File Protection*, select *Password protected and encrypted*.

7 Specify the password in the *Password* field.

8 Re-specify the password in the *Verify* field.

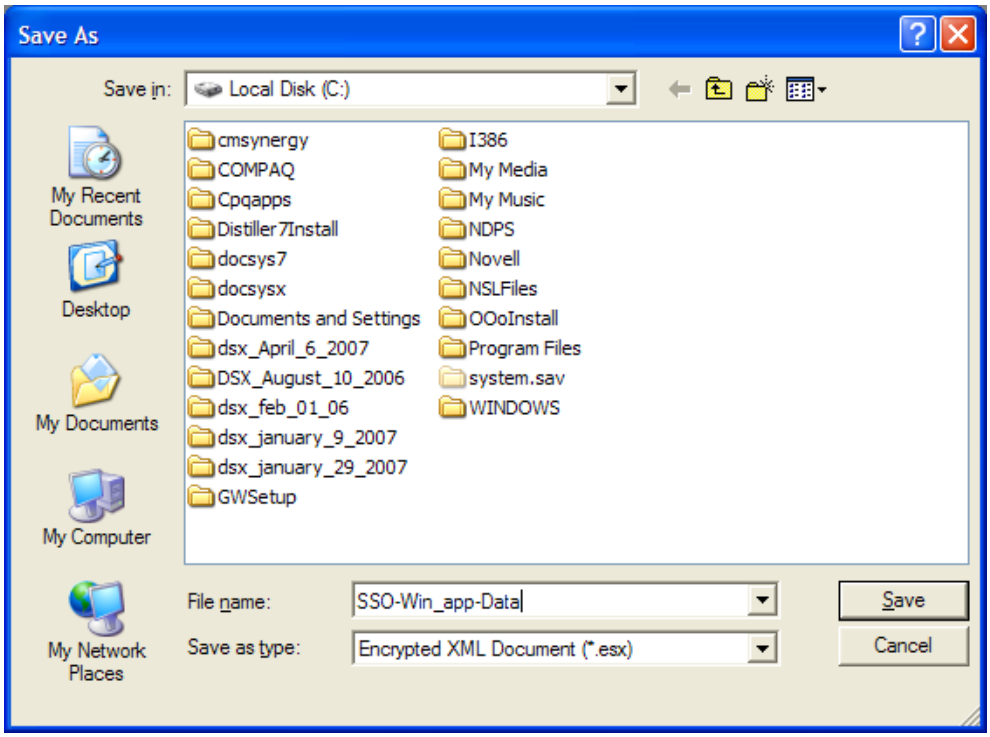
9 Click *OK*. The select application to export dialog box is displayed.

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.



13 Click *Save*. The selected SecureLogin configuration is saved and a confirmation message appears indicating the information that is saved.

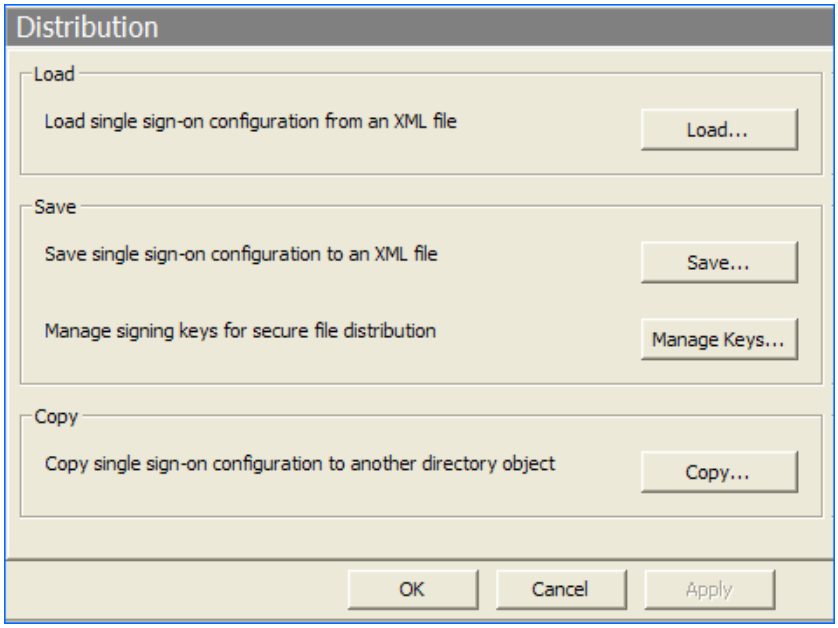
14 Click *OK*.

14.5 Importing Single Sign-On Data in Encrypted XML Files

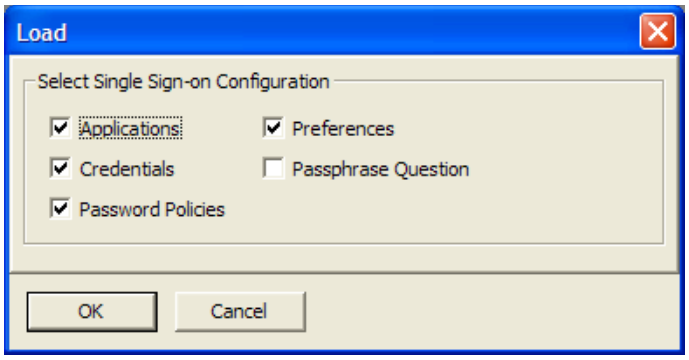
1 Launch SecureLogin Manager.

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

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



4 Click *Load*. The load dialog box appears.

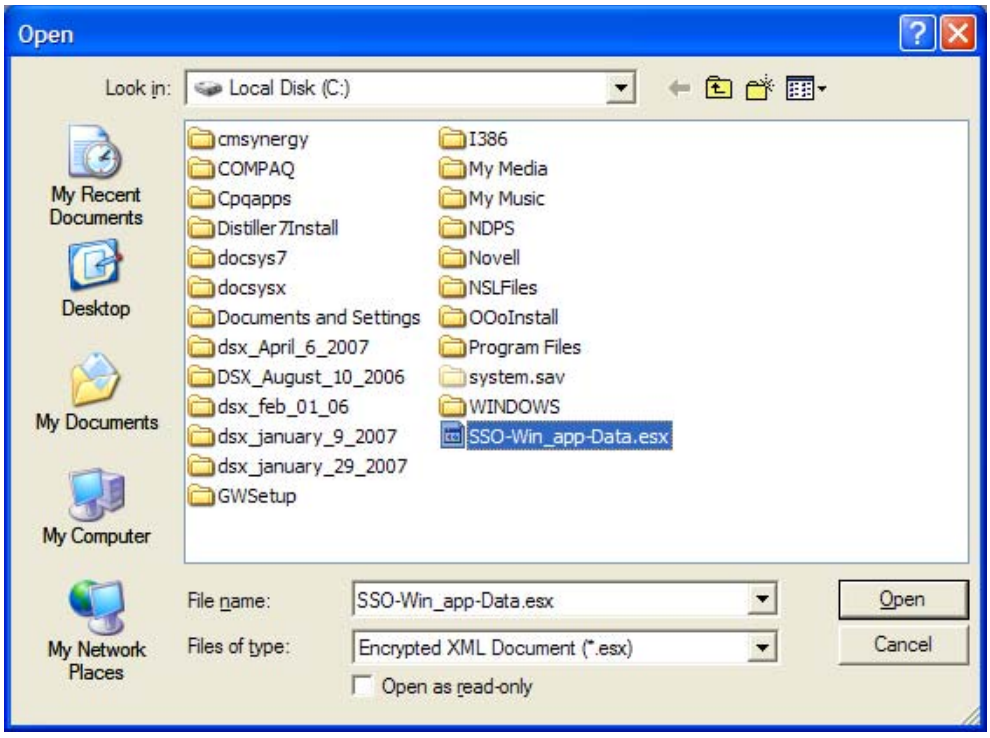


5 Select the required options. The following table helps you choose.

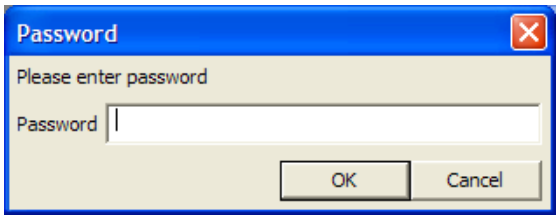
Configuration	Function
Application	Imports all configured application definitions as displayed in the *Application* pane.
Credentials	Imports all credentials as displayed in the *Logins* pane, excluding passwords for copy settings and unencrypted export or import.
Password Policies	Imports password policies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

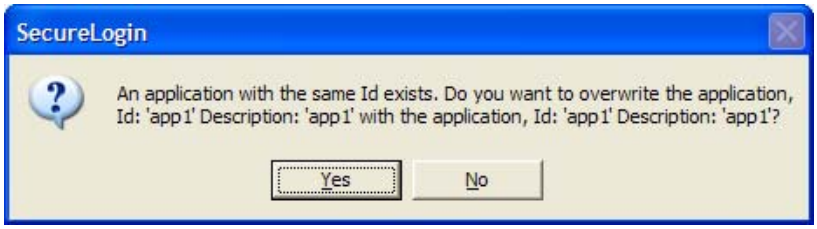


8 Click *Open*. The password dialog box is displayed.



9 Specify the password, then click *OK*.

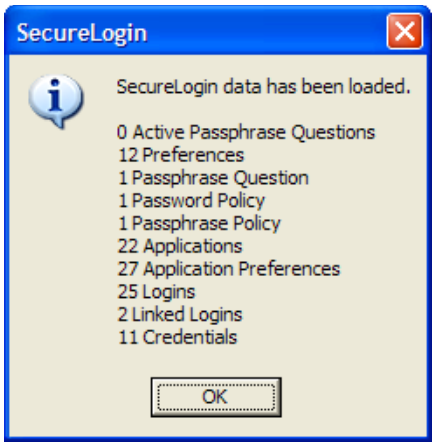
If a predefined application or an application definition currently exists in the destination object, you get a confirmation message appears for the applications.



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.



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:

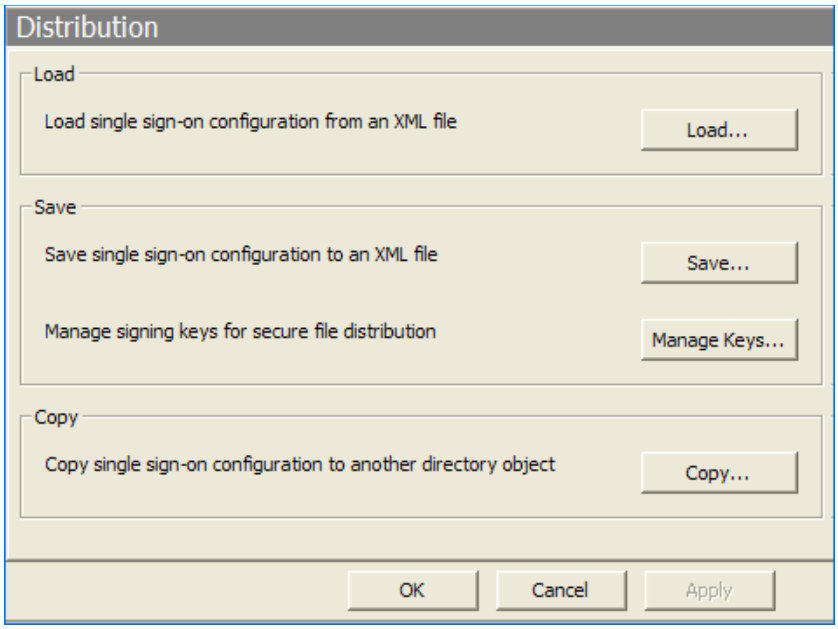
IMPORTANT: This feature is available only through SecureLogin Manager.

---

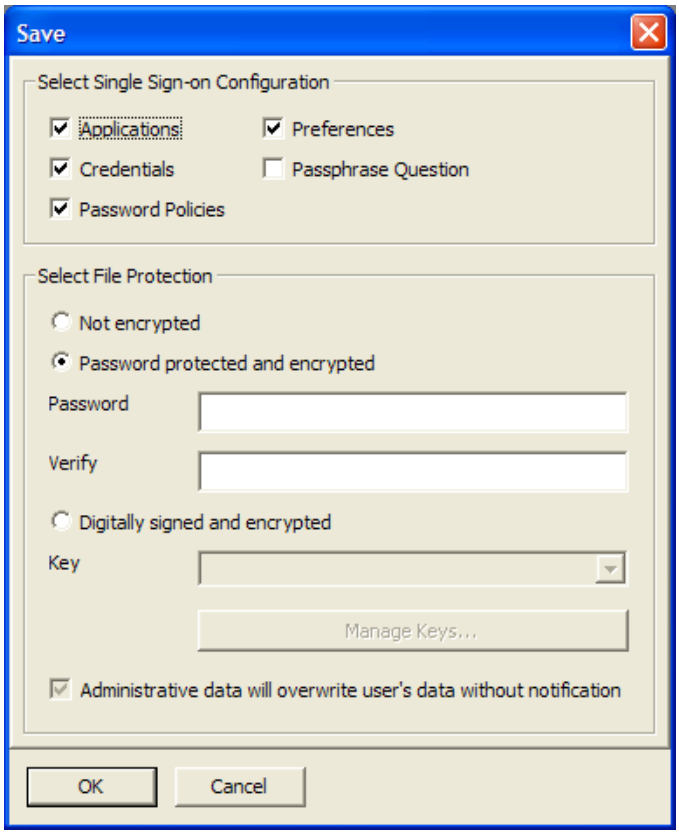
1 Launch SecureLogin Manager.

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

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



4 Click *Save*. The save dialog box is displayed.

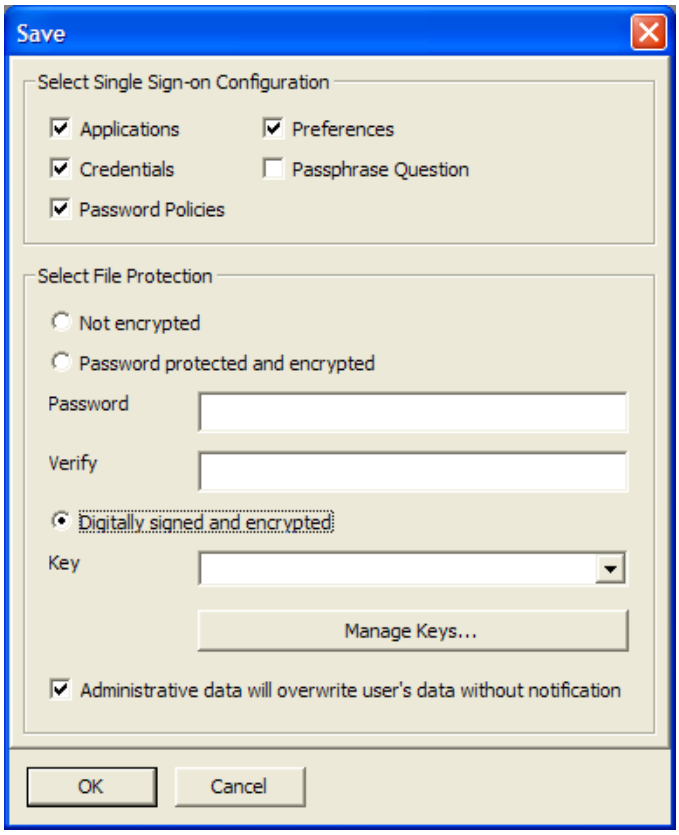


5 Select the required options.

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.



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.

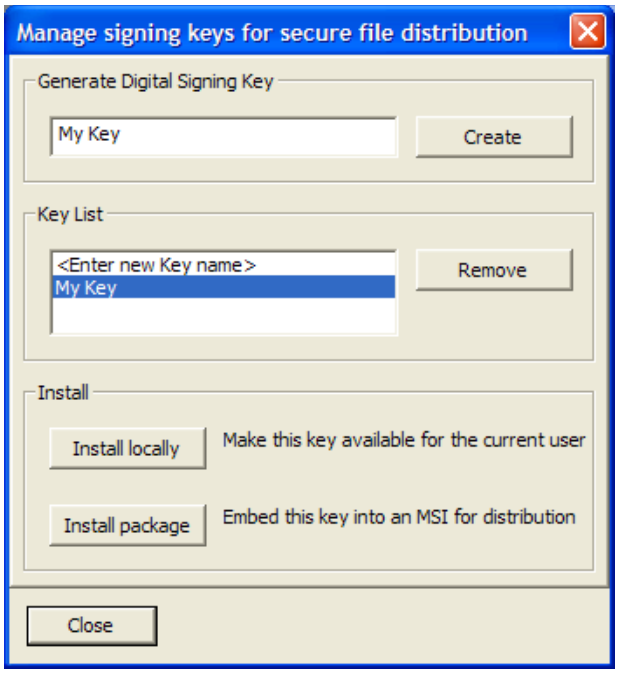
However, for example, if a user has configured a Hotmail* application definition locally, and a predefined application is not supplied in the `.msi` file, the user's Hotmail application definition is not changed.

---

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*.



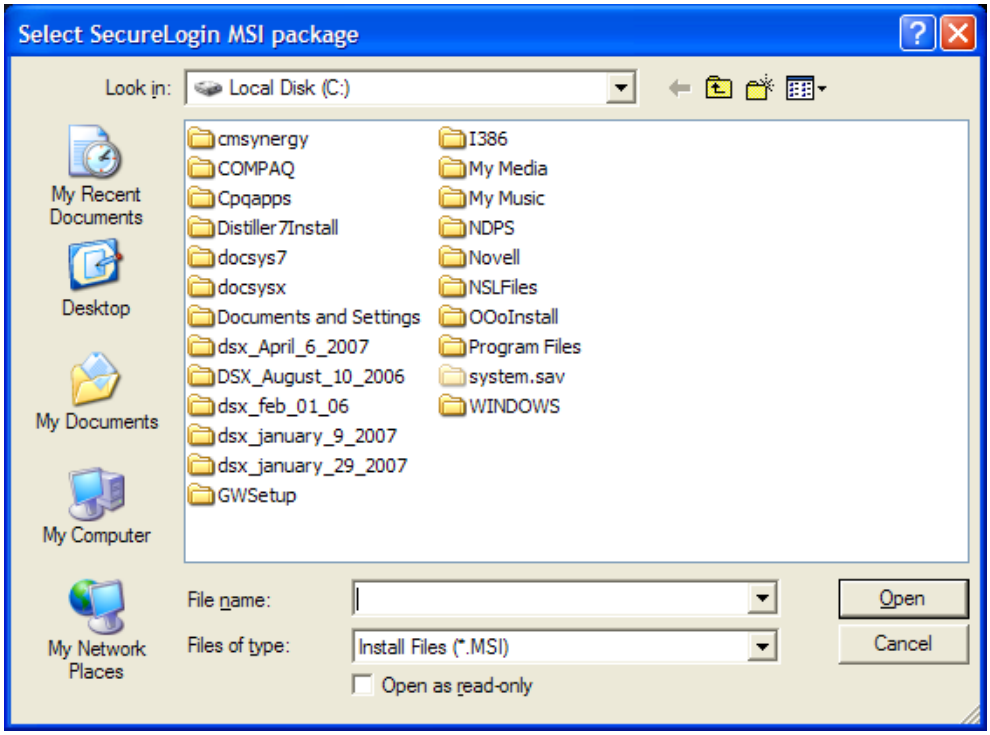
11 From the *Key List*, select the newly created key.

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*.



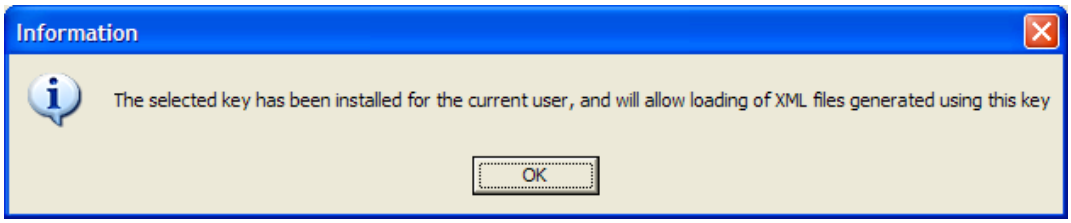
You can now distribute and install the `.msi` file on the user's machine. This allows them to import signs that are signed and encrypted.

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.



10. Click *OK*.

Using The SLAP Tool

15

This section provides information on the following:

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 (passwords will not be exported in the current version).
`-a`	Excludes applications.
`-s`	Excludes settings.
`-p`	Excludes password policies.
`-c`	Excludes credsets.
`v`	Excludes passphrases (affects an import only).
`-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.
`-f`	Uses the cache file, rather than accessing a directory. Cannot be used with `-r` or `-o`, and SecureLogin must be set to use Dummy mode. The user is selected interactively at run time).

Command	Description
[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"
-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"

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 156 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 $l (@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>
```

Managing the Workstation Cache 16

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.

Auditing

17

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.

Audit Configuration for Sentinel 18

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.

Sentinel automates log collection, analysis, and reporting processes to ensure IT controls are effective supporting threat detection and audit requirements.

This section consists of:

18.1 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/)

18.2 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.

18.3 Configuring Auditing

Configuring for auditing withe 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 168
- Section 18.3.2, “Monitoring a System in a Non-Domain Environment,” on page 170

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 168
- “Configuring Users to Collect Windows Event Log Remotely” on page 168
- “Setting up the Windows Management Instrumentation Service” on page 169
- “Configuring Domain Account User COM/DCOM” on page 169

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 170
- “Configuring Users to Collect Windows Event Log Remotely” on page 170
- “Setting up the Windows Management Instrumentation Service” on page 170
- “Configuring Domain Account User COM/DCOM” on page 170

Configuring Events Logged by Windows Event Log

Refer “Configuring Events Logged by Windows Event Log” on page 168 in Section 18.3.1, “Monitoring a System in a Domain Environment,” on page 168.

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 168 in Section 18.3.1, “Monitoring a System in a Domain Environment,” on page 168.

Setting up the Windows Management Instrumentation Service

Refer “Setting up the Windows Management Instrumentation Service” on page 169 in Section 18.3.1, “Monitoring a System in a Domain Environment,” on page 168.

Configuring Domain Account User COM/DCOM

Refer “Configuring Domain Account User COM/DCOM” on page 169 in Section 18.3.1, “Monitoring a System in a Domain Environment,” on page 168.

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
   ```

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

   Following events are logged:

   ```
   Event ID 4 Informational: Inactivity Timeout
   Event ID 5 Informational: Device Removal
   Event ID 6 Informational: Manual Lock event
   ```

Configuring Secure Workstation Events

19

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.

19.2 Understanding Secure Workstation Policies

Secure workstation has three policies:

- Section 19.2.1, “Local Policy,” on page 174
- Section 19.2.2, “Network Policy,” on page 174
- Section 19.2.3, “Effective Policy,” on page 174

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 175
- Section 19.3.2, “Configuring a Device Removal Event,” on page 176
- Section 19.3.3, “Configuring a Network Logout Event,” on page 177
- Section 19.3.4, “Configuring the Manual Lock Event,” on page 178
- Section 19.3.5, “Using the Advanced Option,” on page 178

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, both the Universal Smart Card and pcProx Methods 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 6.1, 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 175
   - Section 19.3.2, “Configuring a Device Removal Event,” on page 176
   - Section 19.3.3, “Configuring a Network Logout Event,” on page 177
   - Section 19.3.4, “Configuring the Manual Lock Event,” on page 178
   - Section 19.3.5, “Using the Advanced Option,” on page 178

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.

Administering Desktop Automation Services

20

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 212

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.

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*

Registry Setting	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"> <map-drive drive-letter="o:" remote-name="\\192.168.1.255\sys"/> </action> </application-runner-script>
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 **Example:** <action-triggers> <on-nds-login action-name="LoginInAction" tree="NCCD_TREE_1"/> </action-triggers>

Registry Setting	Description

`on-pcprox-removal`	This command element provides information to Desktop Automation Services on the action to be performed if the pcProx card is removed. After a pcProx card removal is detected, a specified action such as `Close all programs` is invoked.
	Example:
	`<action-triggers>`
	`<on-pcprox-removal action-name="logoff"/>`
	`</action-triggers>`

Registry Setting	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="20" message box="Your workstation will be locked in 5 seconds" interval2="5" action-name="WS-lock"/> </action-triggers> </application-runner-script> • interval 1 is the time of executing an action. • interval 2 is the interval after the display of the first warning message. • 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.

Registry Setting	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>

Registry Setting	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.

Registry Setting	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 removed. It specifies an ARSaction to be taken when a card is removed. 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 workstation. **Example:** <action-triggers> <on-cardmon action-name="Log out of the workstation"/> </action-triggers>

Registry Setting	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>`

Registry Setting	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>`

Registry Setting	Description

test-app-running	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>`

Registry Setting	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>`

Registry Setting	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>

Registry Setting	Description

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>`

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>`

Registry Setting	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>`

Registry Setting	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>`

Registry Setting	Description

`test-ldap-logged-in`	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.
	
	`test-ldap-logged-in` can have only one attribute:
	
	◆ **server:** The name of the server for which the logged-in state must be tested.
	
	Because `test-ldap-logged-in` 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-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>`

Registry Setting	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>`

Registry Setting	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>`

Registry Setting	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>

Registry Setting	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>`

Registry Setting	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>`

Registry Setting	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>

Registry Setting	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>

Registry Setting	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 207.
	
	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>`

Registry Setting	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 206.
	
	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.

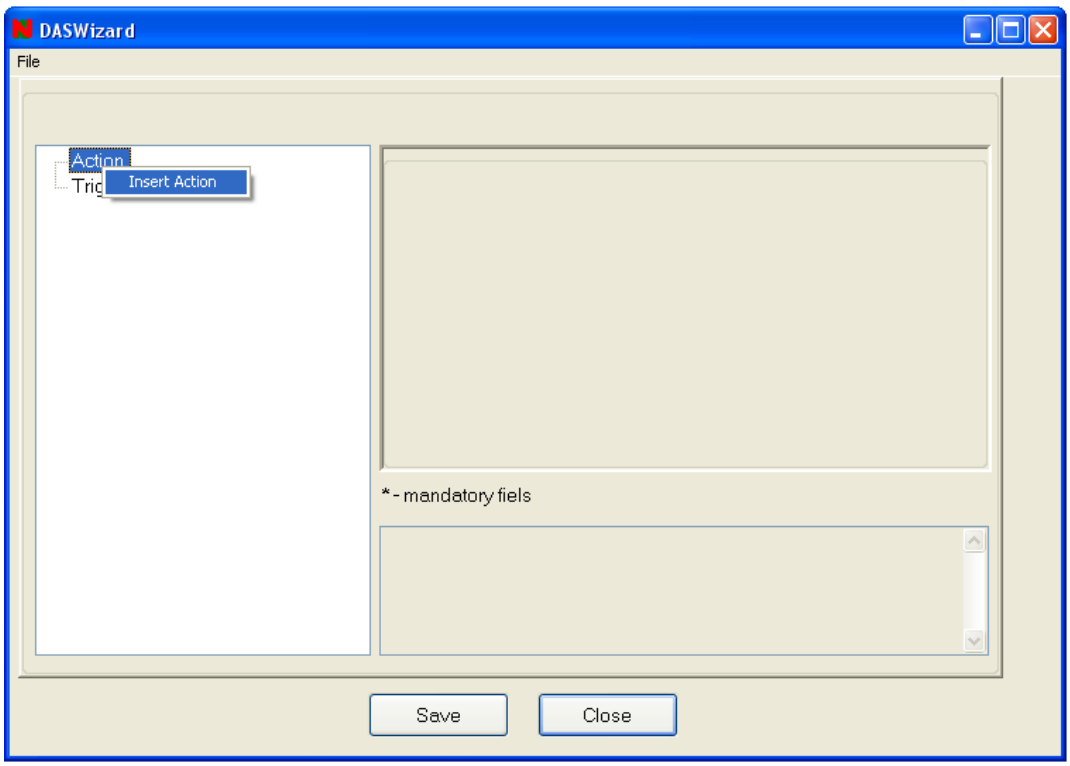
The wizardsupports actions and triggers created in DAS version 2.0.

- 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 208
- Section 20.2.2, “Deleting a Configuration,” on page 211
- Section 20.2.3, “Modifying an Existing Configuration File,” on page 211

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*.

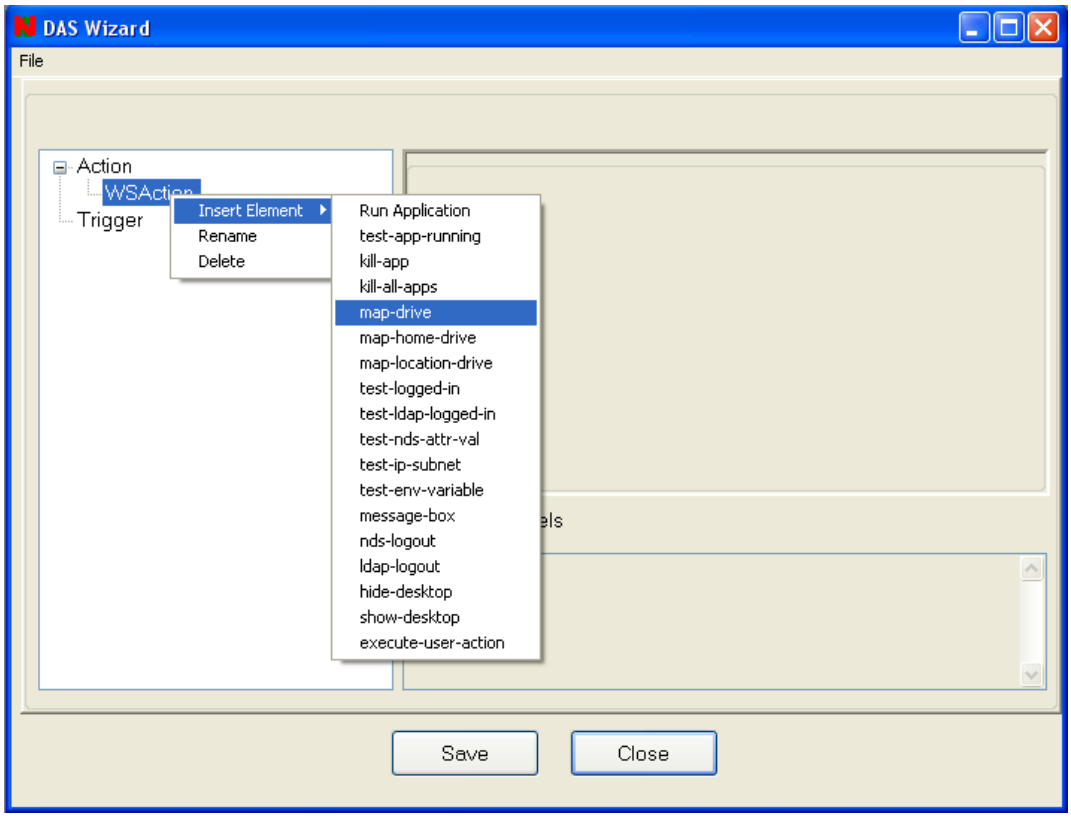


3 Specify a name for the action. For example, WSAction.

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.

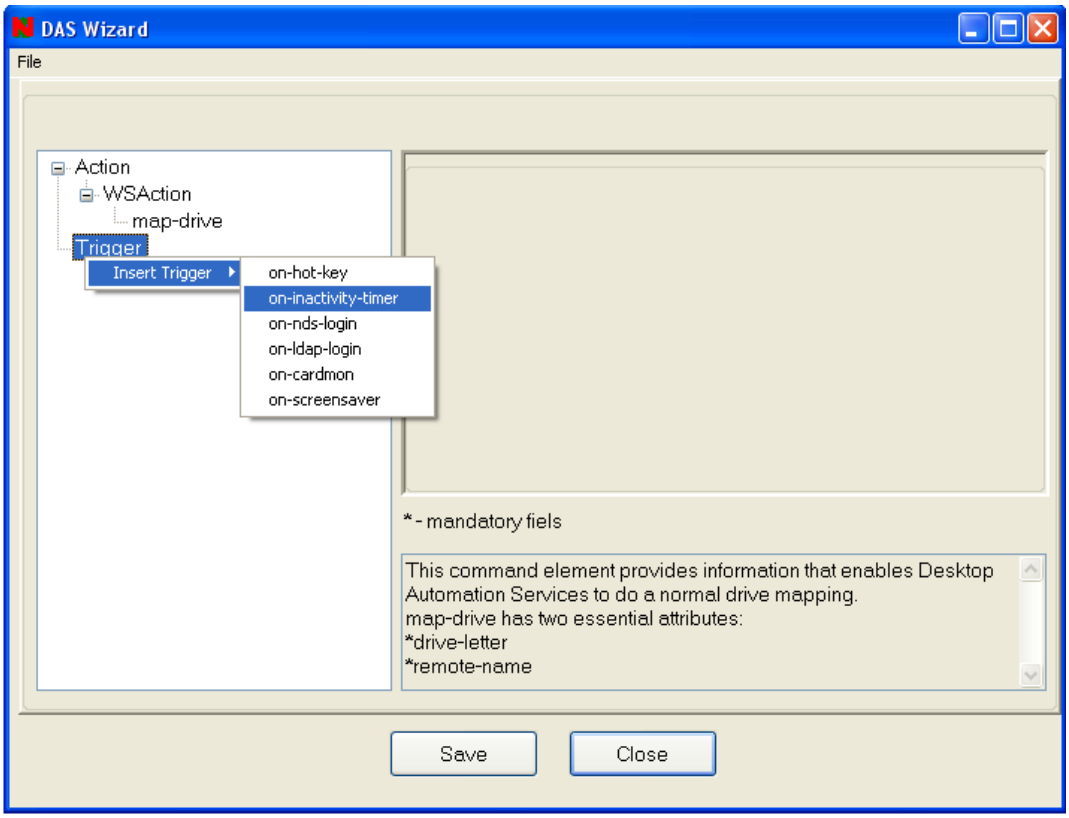


5 Specify the parameters for the child you have applied.

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.



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

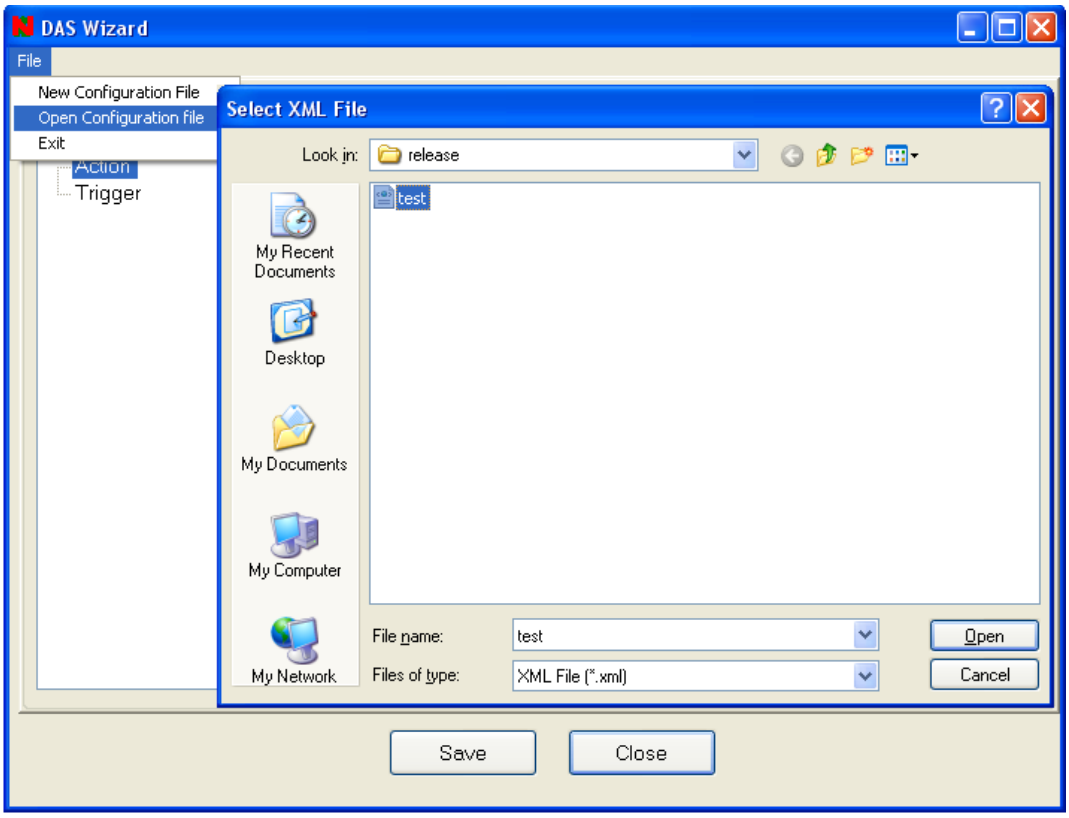
1 Right-click the action you want to delete.

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>
```

LDAP SSL Server Certificate Verification

21

This section contains the following information:

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.

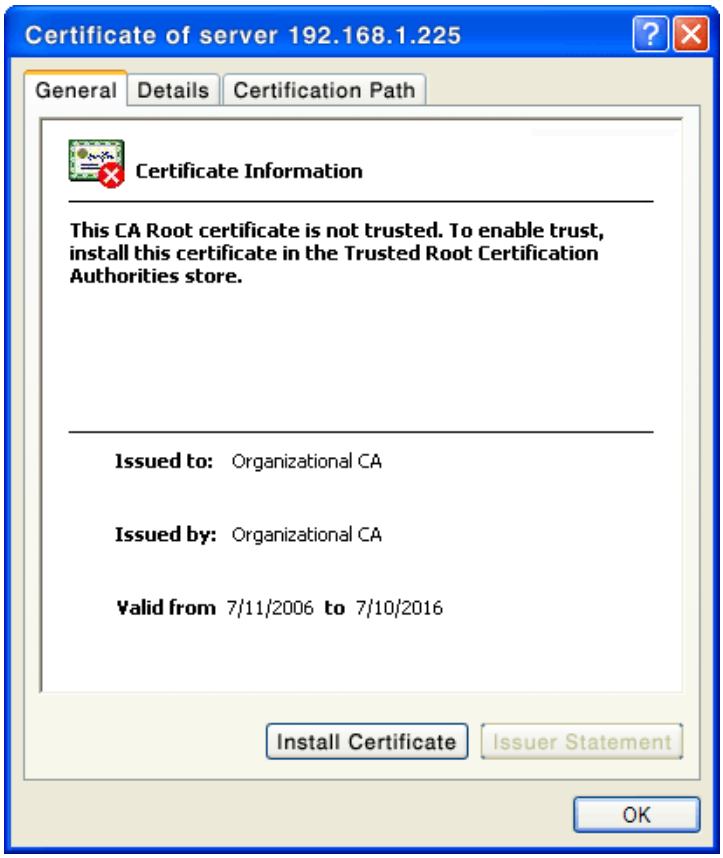
If the certificate does not pass the verification process, the application prompts you to either continue the connection or terminate the connection.

Figure 21-1 *Certificate Verification*

- 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*



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.

Security Considerations

22

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.

Novell SecureLogin Security Role Configuration for Active Directory

23

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

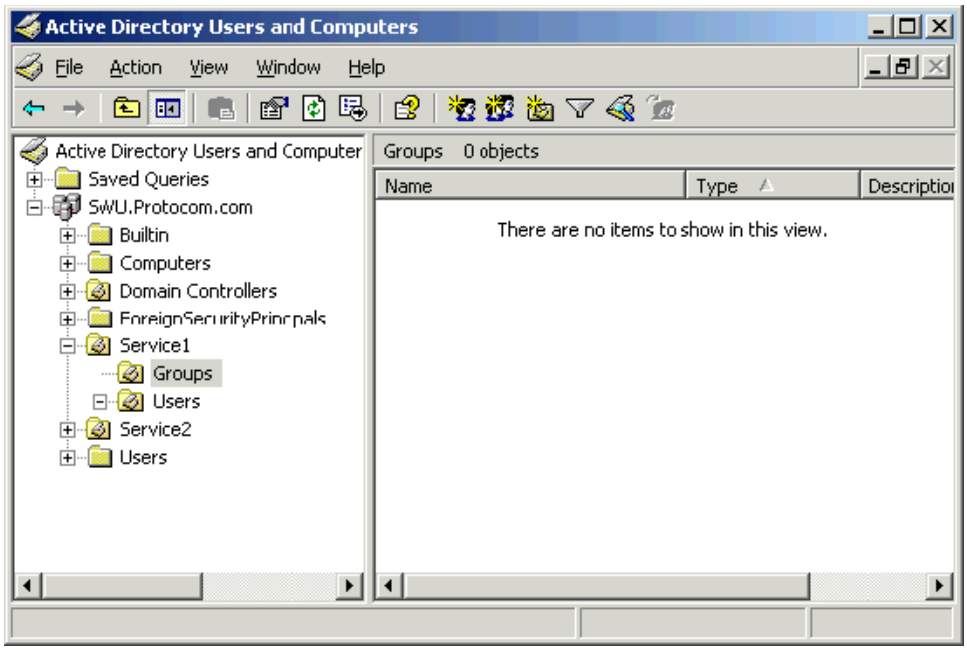
Based upon the above attribute descriptions and functions, specific roles might be granted the following permissions:

- 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

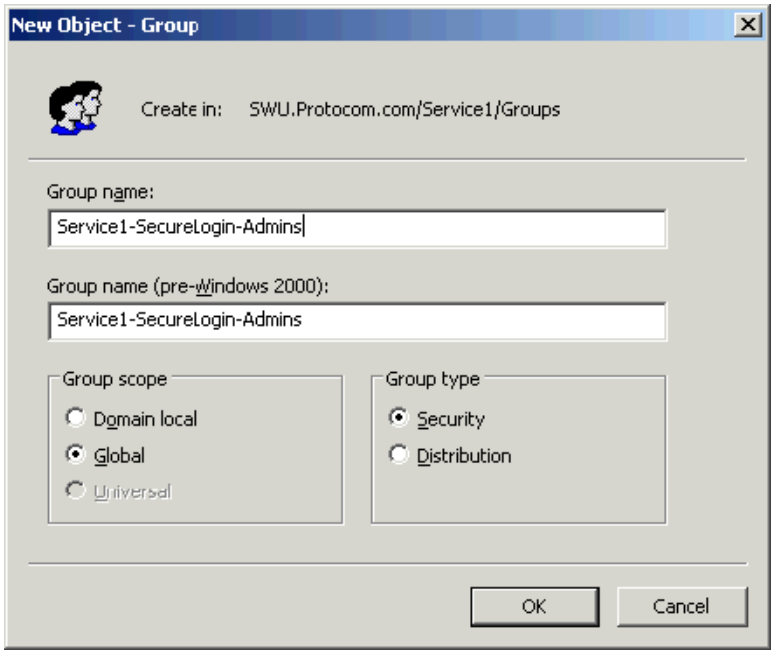
1. Login to the Active Directory domain as an administrative level user.



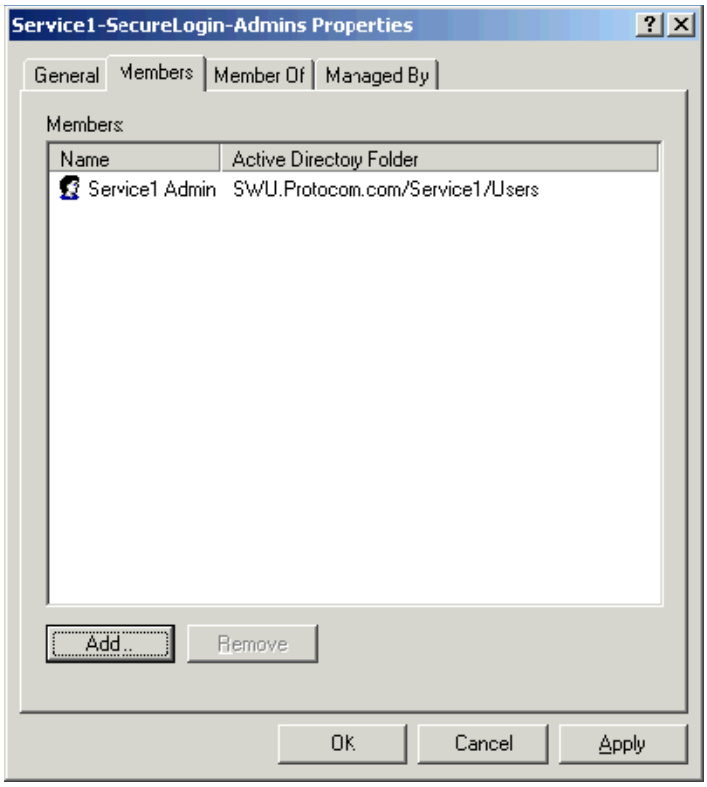
2 On a workstation or server, open *Active Directory User and Computers* (dsa.msc), and browse to the OU where you would like to create the group that will manage SecureLogin for the selected container and its children.

3 Click the create group button 

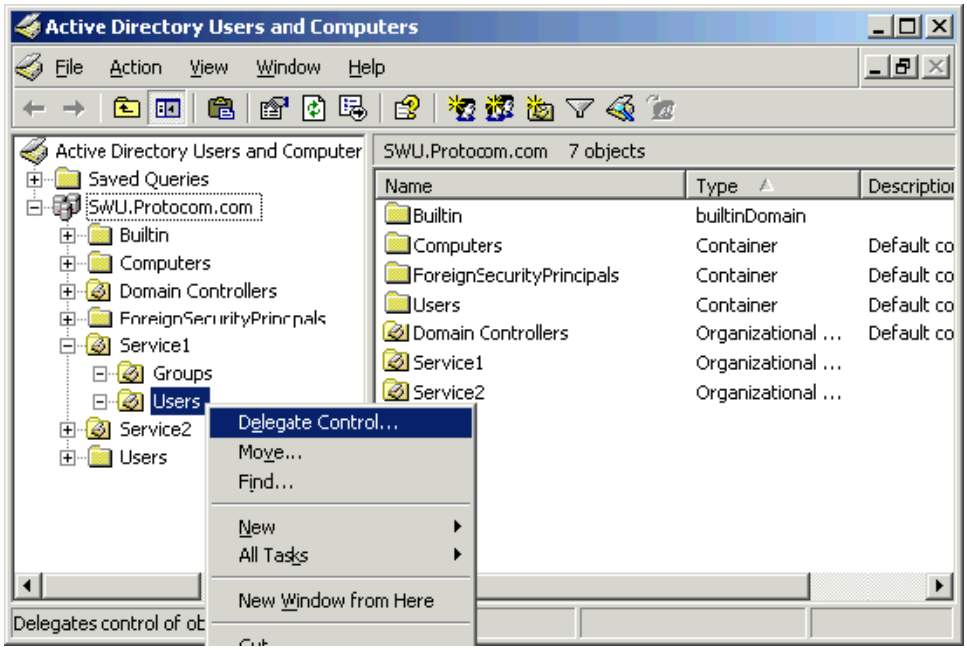
4 Give the group a descriptive name, such as Service1-SecureLogin-Admins.



5 Add the appropriate users to the group.

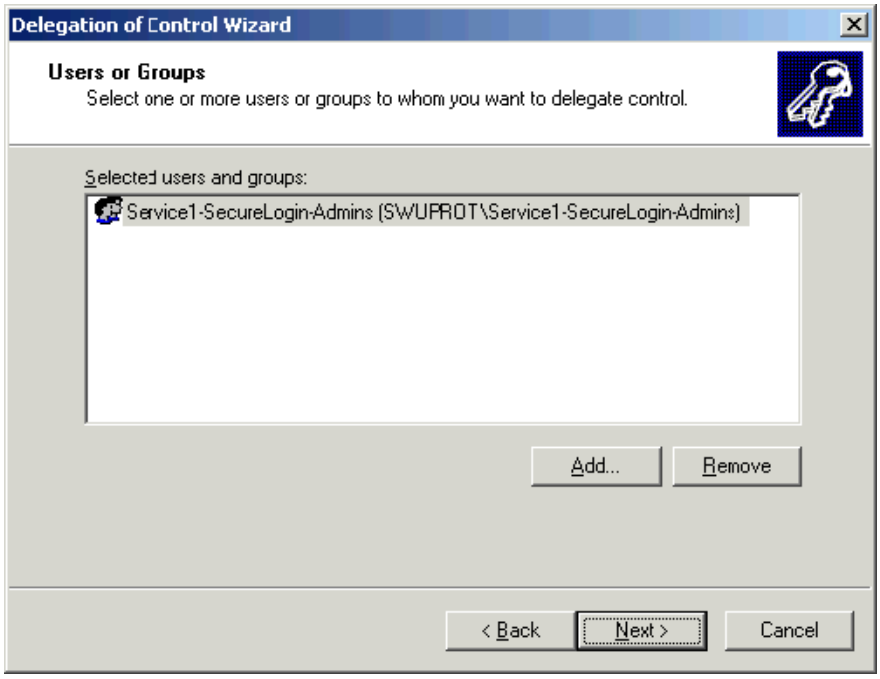


6 Delegate the permissions to the SecureLogin attributes at the container where the users are.

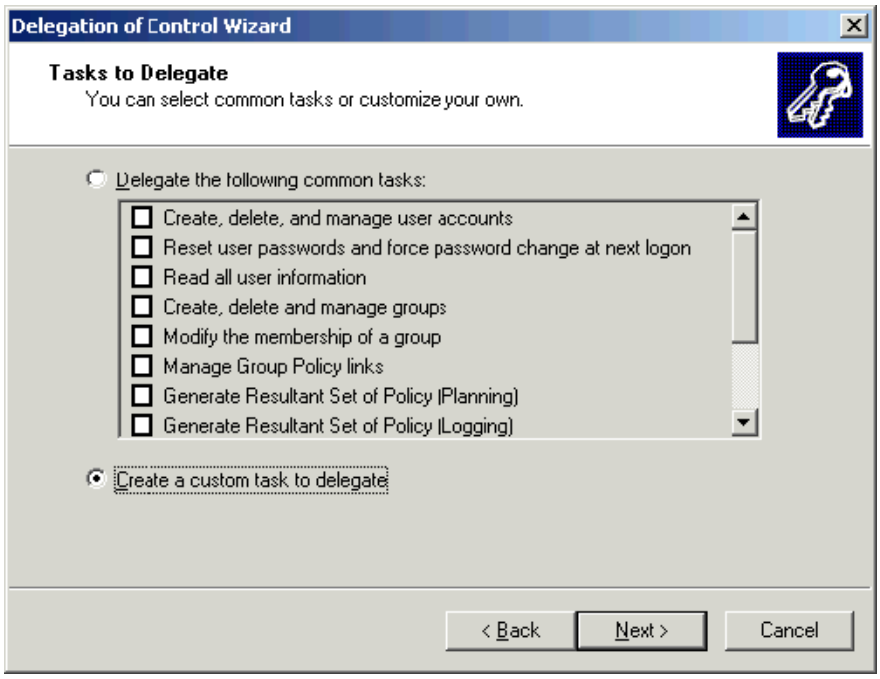


7 The Delegate Control wizard opens.

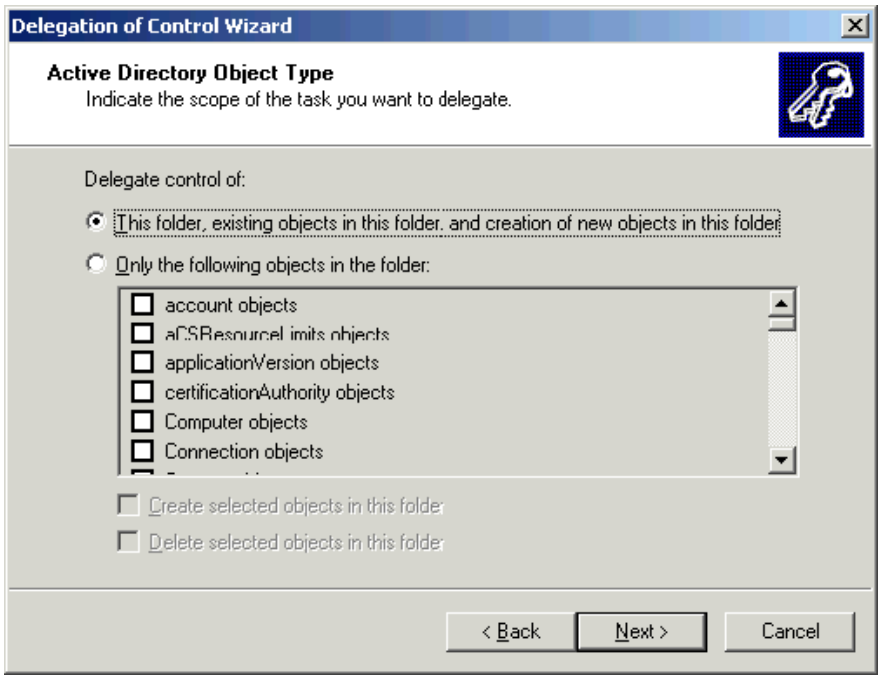
8 Add the group you want to delegate control, then click *Next*.



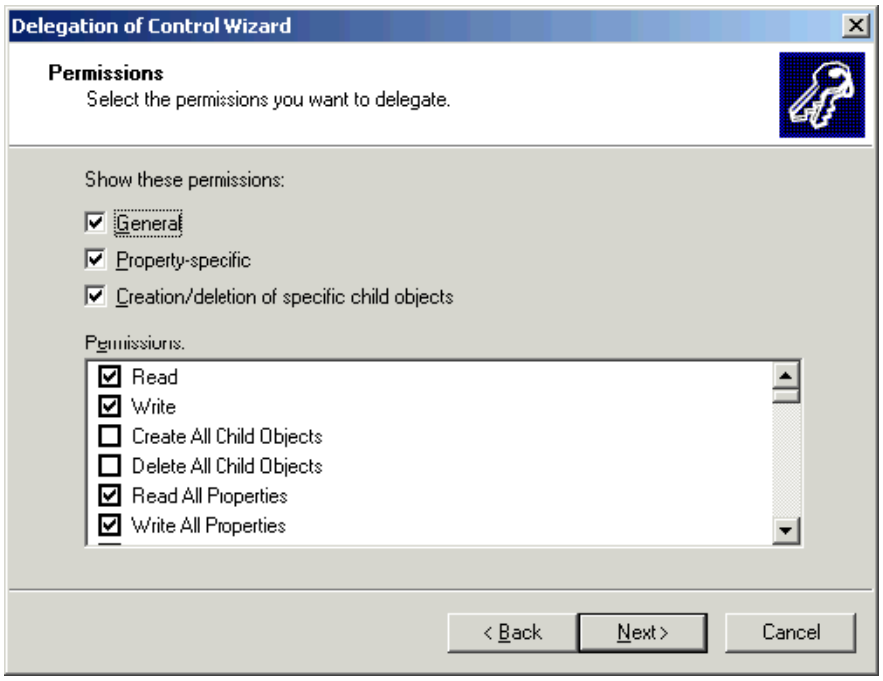
9 Select create a custom task to delegate, then click *Next*.



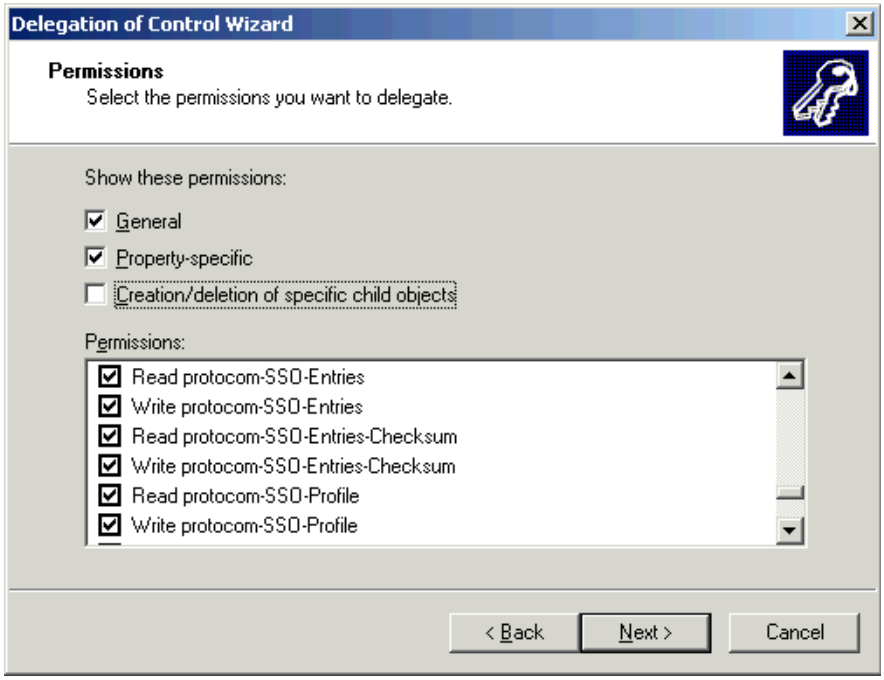
10 Select *This folder, existing objects in this folder, and creation of new objects in this folder,* then click *Next*.



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*, R*ead All Properties*, and *Write All Properties* permissions.



Verify that you have all Protocom permissions with *Read* and *Write*. Click *Next* to continue.

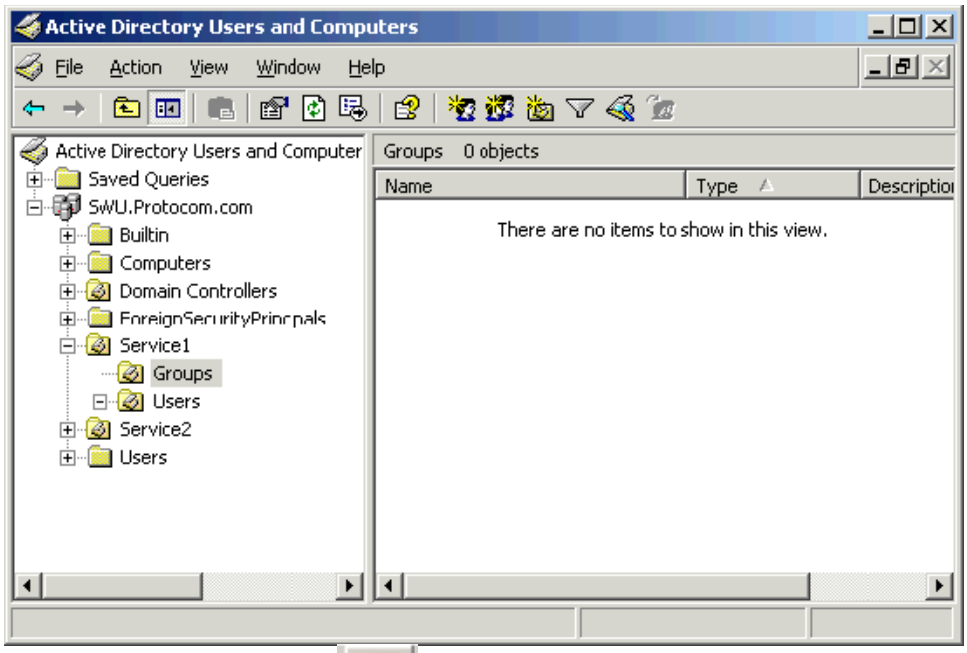


12 You are now finished with the delegate control wizard for the Service1-SecureLogin-Admins group. Click *Finish*.

23.4 Assigning Permissions for SecureLogin Help Desk

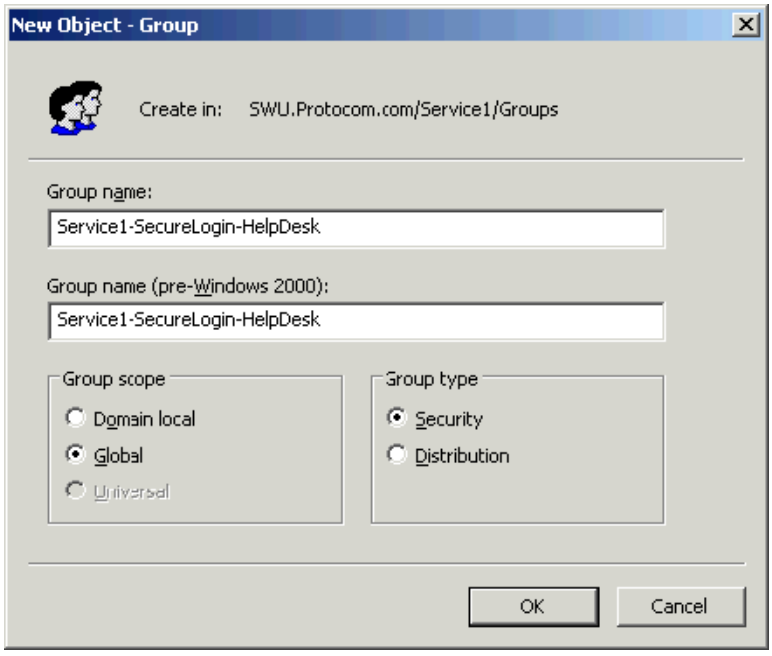
1 Login to the Active Directory domain as a administrative level user.

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.

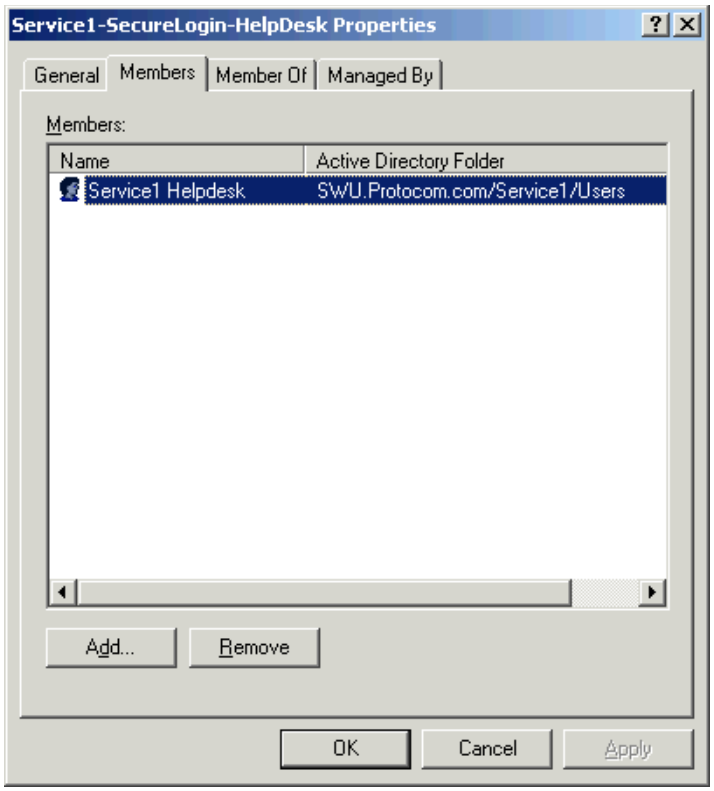


3 Click the create group button 

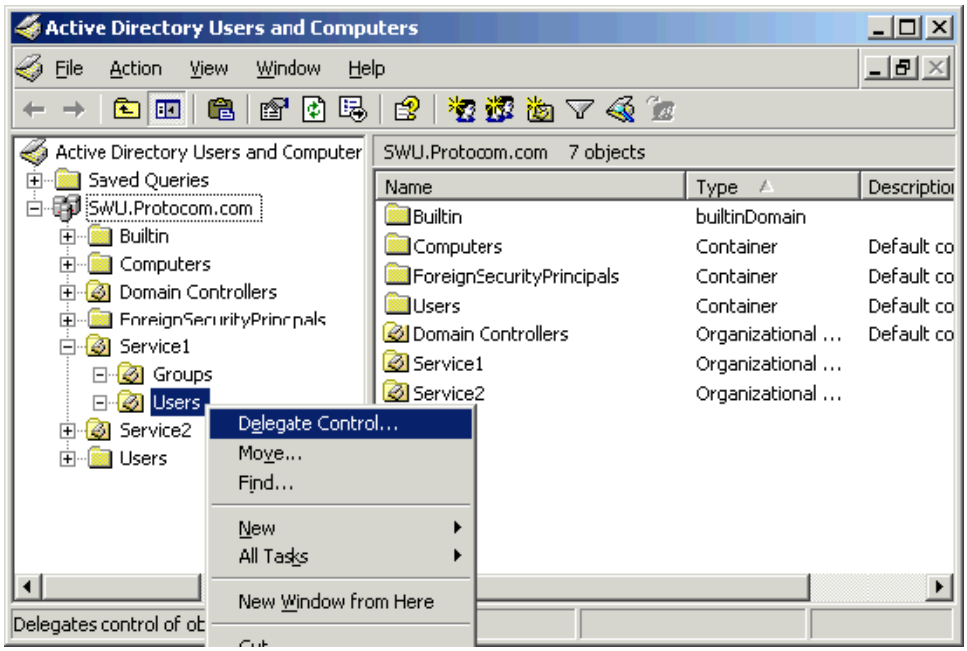
4 Give the group a descriptive name, such as Service1-SecureLogin-Help Desk.



5 Add the appropriate users to the group.

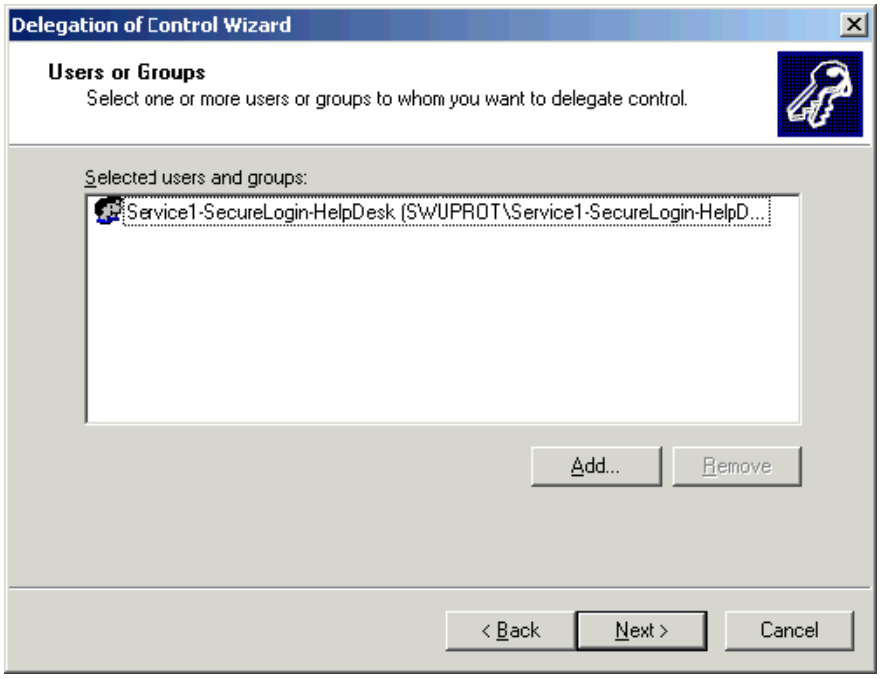


6 Delegate the permissions to the SecureLogin attributes at the container where the users are.

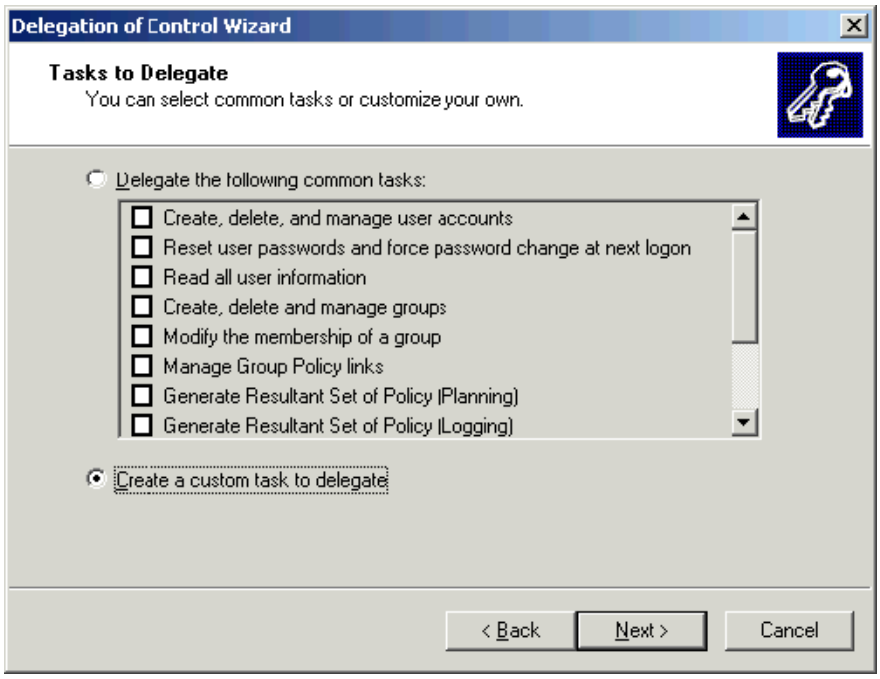


7 The Delegate Control wizard opens.

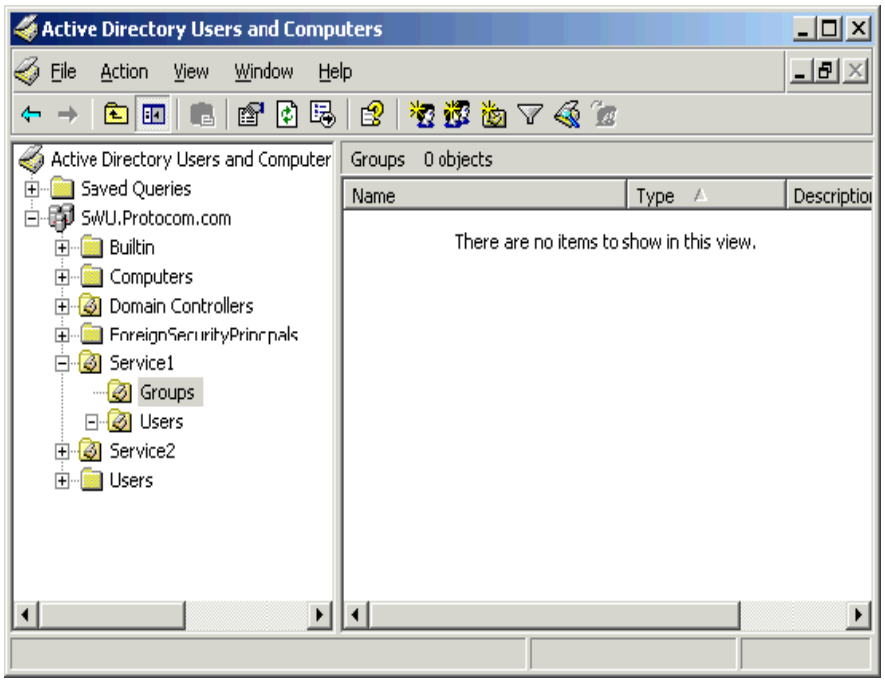
8 Add the group you want to delegate control to, then click *Next*.



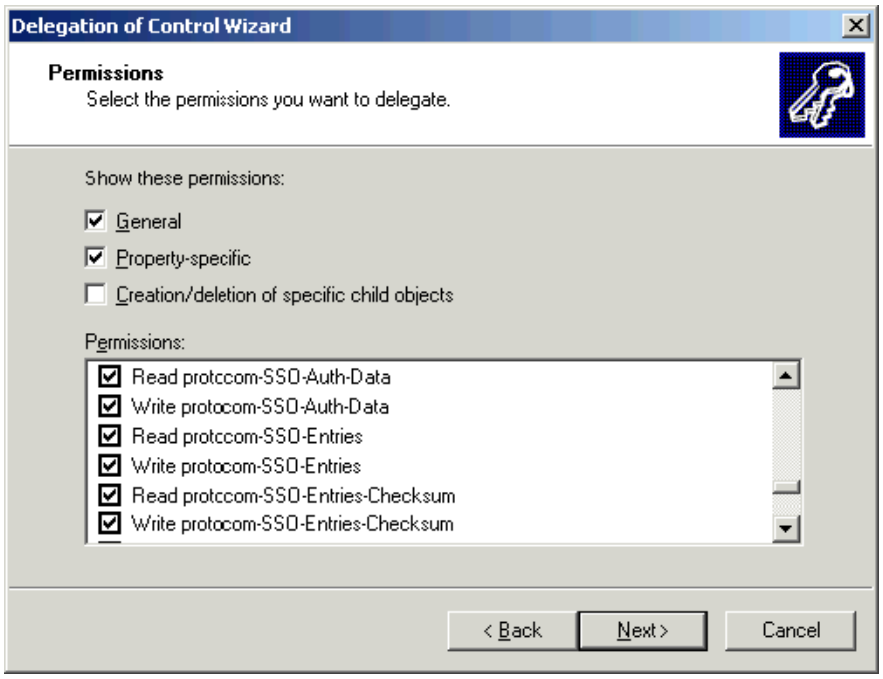
9 Select create a custom task to delegate, then click *Next*.



10 Select the *Only the following objects in the folder*, then scroll down to user objects and select it. Click *Next*.



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.



12 You are now finished with the delegate control wizard for the Service1-SecureLogin-Admins group. Click *Finish*.

23.5 Assigning SecureLogin Client Settings for Administrators and Help Desk Groups

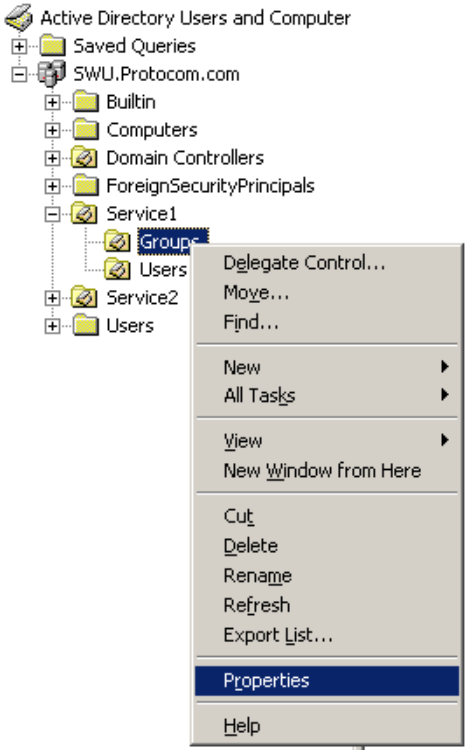
Now that you have assigned the correct Directory permissions to allow members of the administrators and help desk groups to read and write the protocom attributes, you need to assign the SecureLogin client settings (SecureLogin preferences) to allow them to see what they have permissions to access. This 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.

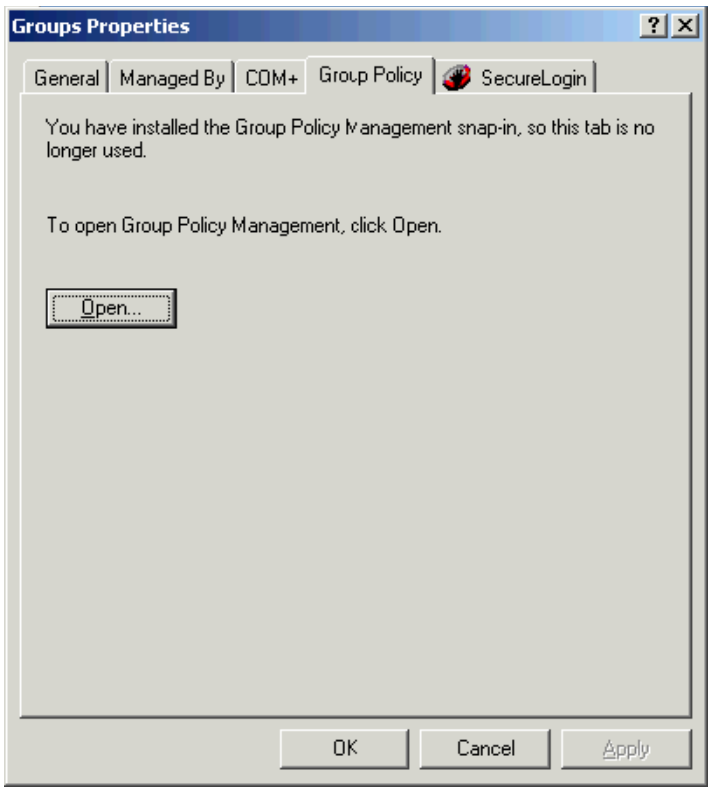
For the sake of this document, it will be assumed you know how to assign individual user's settings, and thus this document will focus on the use of group policies (assuming the feature was enabled during the product installation). As stated previously, both methods have their merits and should be evaluated 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*.



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)

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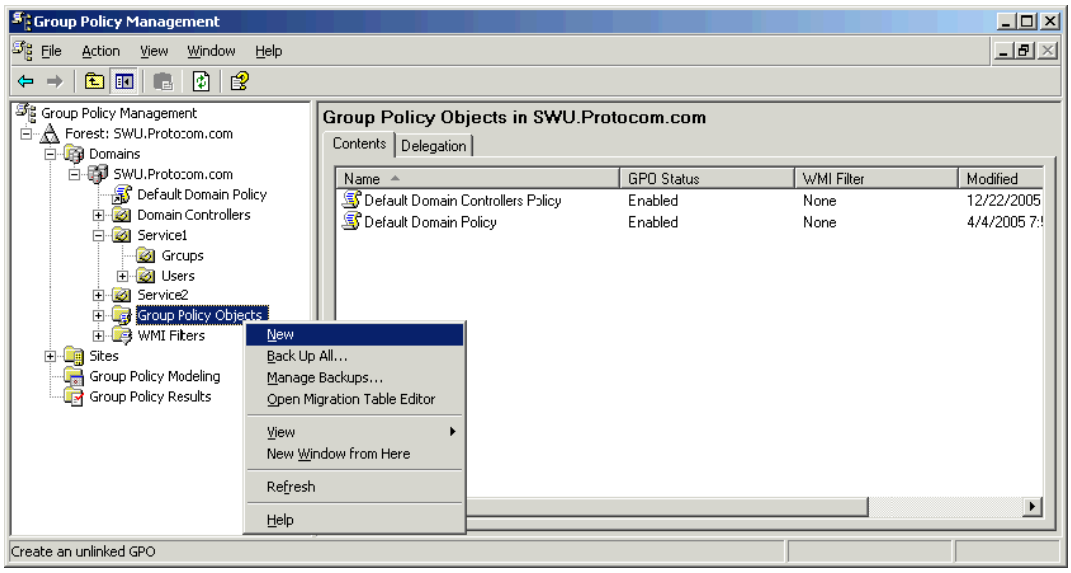
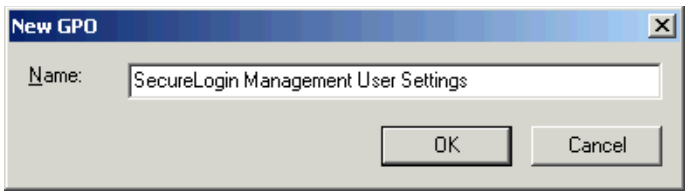
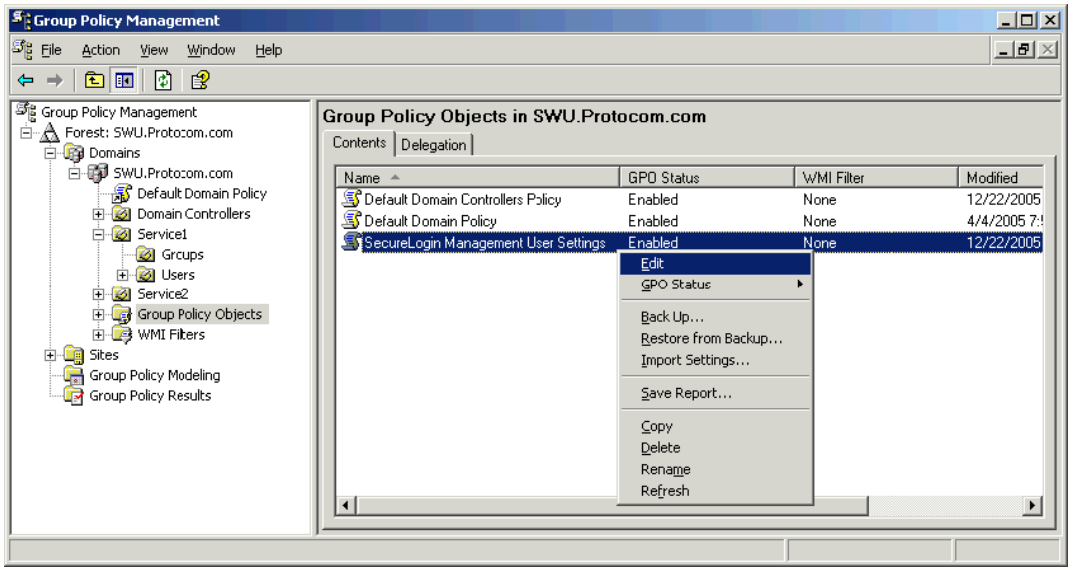
4 Click the *Open* button, the Group Policy Management (GPM) interface will open. Select the *Group Policy Objects* container and right click it. Select *New*.



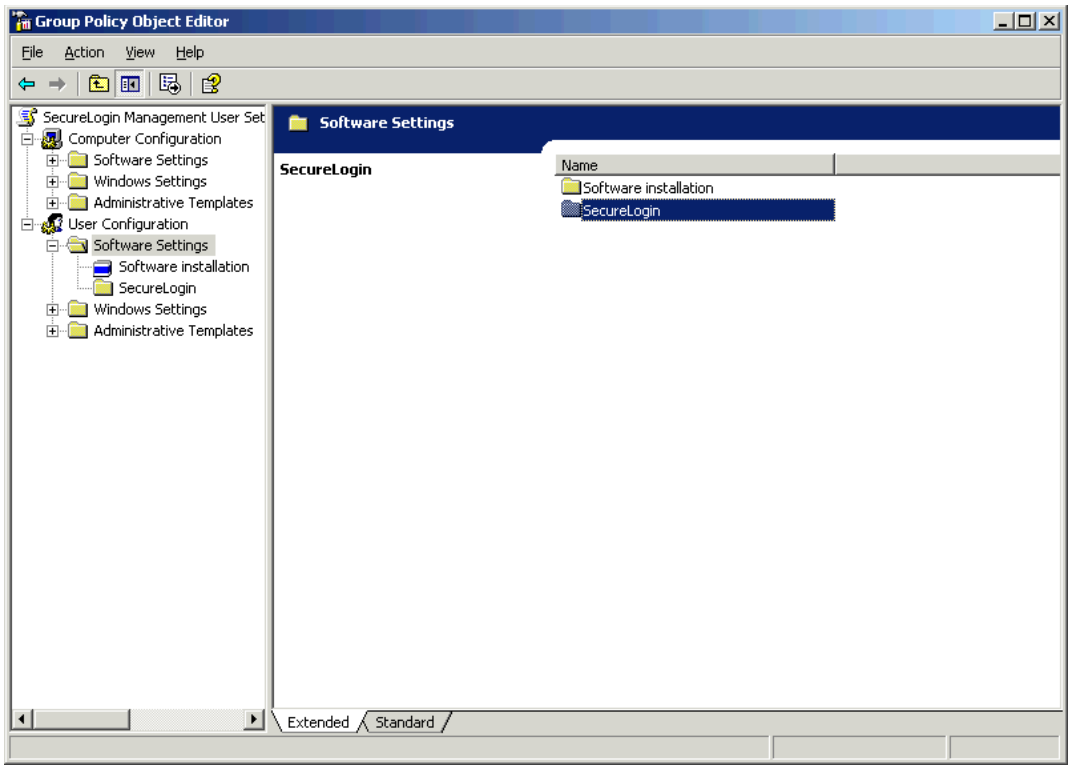
5 Enter a name for the GPO.



6 Right click the new GPO and select *Edit*.



7 Browse to the *User Configuration* > *Software Settings*. In the right hand pane, double click SecureLogin. The SecureLogin management interface will open up.



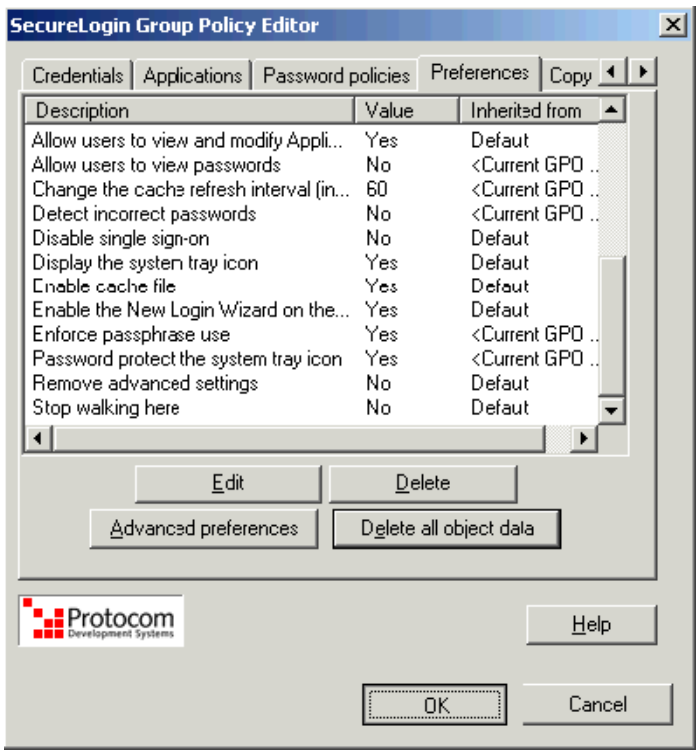
8 In the SecureLogin management interface, select the *Preferences* tab. Set each setting in accordance with what you want the users to do.

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.

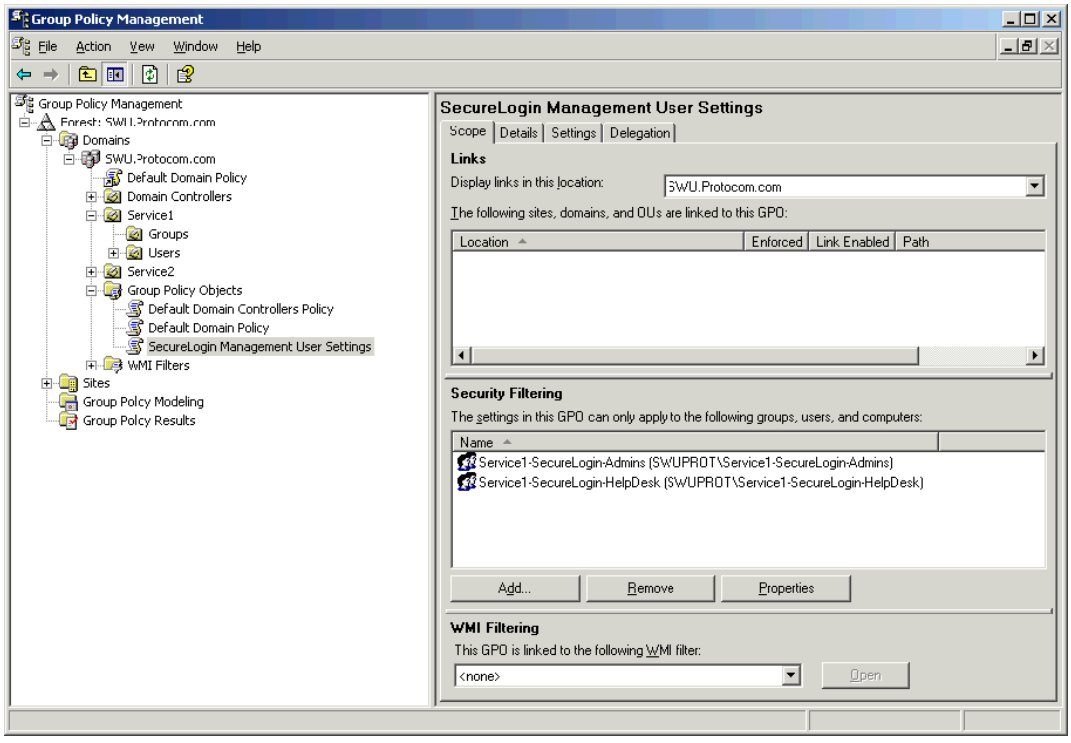
Add application prompts for Internet ...	No	<Current GPO .
Add application prompts for Java app...	No	Default
Add application prompts for Windows...	No	<Current GPO .
Allow single sign-on to Internet Explorer	Yes	Default
Allow single sign-on to Java applicati...	Yes	Default
Allow single sign-on to Netscape	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.

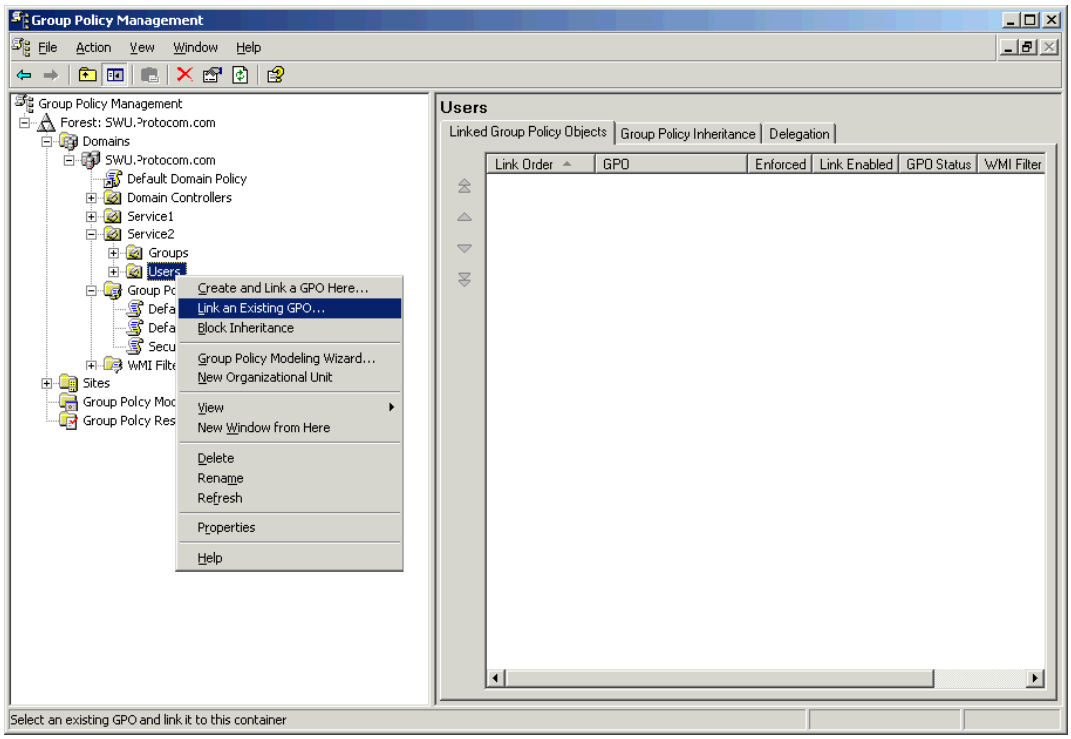


10 Close the GPO editor.

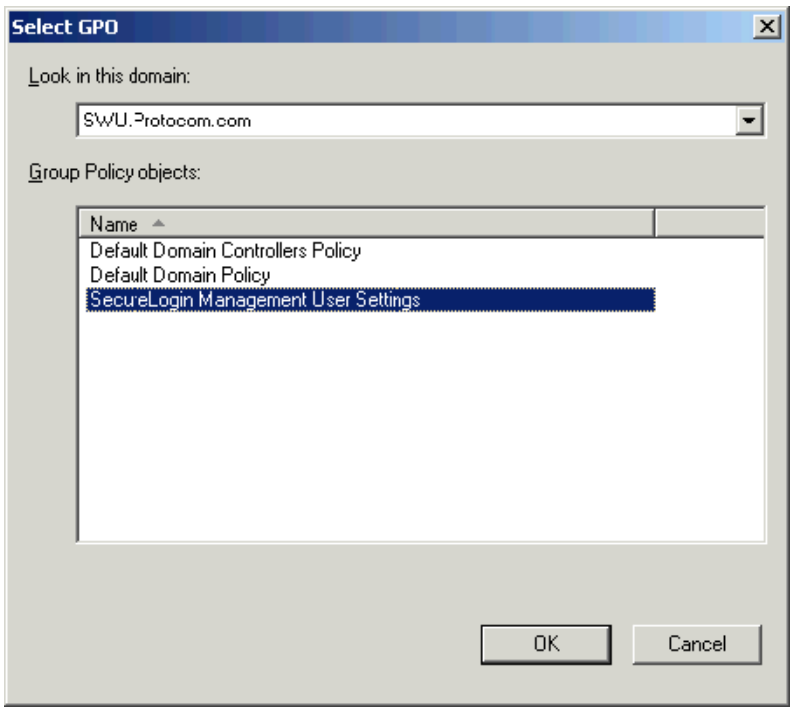
11 In the GPM, select the new GPO you created, remove the Authenticated Users group, and add the admin and help desk groups you created in the previous two sections.



12 Link this policy to the OU where the users are located. Right click and select *Link to an existing GPO*.



13 Select the GPO you created, click OK.



14 Close the GPM. Click *OK* on the group policy tab.

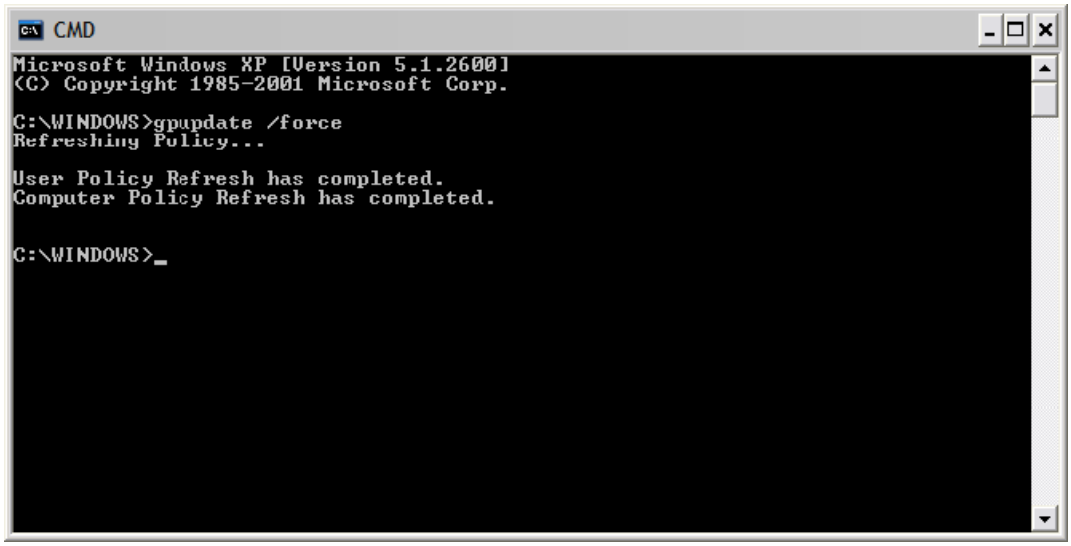
15 Close Active Directory Users and Computers.

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:



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.

Error Messages

A

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_STORAGE_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 variable name is correct.

-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.

Schema Updates

B

This section provides information on the following:

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 LDAP environments, `adsschema.exe` is used. For Novell NDS or eDirectory environments, `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.

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, `adsschema.exe` is used.

- Section B.3.1, “Protocom-SSO-Auth-Data,” on page 274
- Section B.3.2, “Protocom-SSO-Entries,” on page 274
- Section B.3.3, “Protocom-SSO-Entries-Checksum,” on page 274

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.4 Security Rights Assignments

This section contains information on the following:

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

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

Documentation Updates

C

This section lists the updates made to the *Novell® SecureLogin Administration Guide*, after the initial release in September 2009.

C.1 January, 2010

Change	Location
Included information about a new action trigger. The action was introduced in Novell SecureLogin 7.0 hotfix 1 release.	See “on-pcprox-removal” on page 185
Included information about enhancement made to grace login in hotfix 1 release.	See Section 1.4.1, “Forcing Users to Change Password Before Grace Login Expires,” on page 16.