Novell SecureLogin

6.0

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ADMINISTRATION GUIDE

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This document contains information of the following:

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 6.0 Administration Guide*, visit the Novell Documentation Web site (http://www.novell.com/documentation/securelogin60/index.html).

Additional Documentation

This *Administration Guide* is a part of documentation set for SecureLogin 6.0. Other documents include:

- *Novell SecureLogin 6.0 Overview*
- *Novell SecureLogin 6.0 User Guide*

- *Novell SecureLogin 6.0 Installation Guide*
- *Novell SecureLogin 6.0 Citrix and Terminal Services Guide*
- *Novell SecureLogin 6.0 Congifuration Guide for Terminal Emulation*
- *Novell SecureLogin 6.0 Application Definition Guide*

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

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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.

Contents

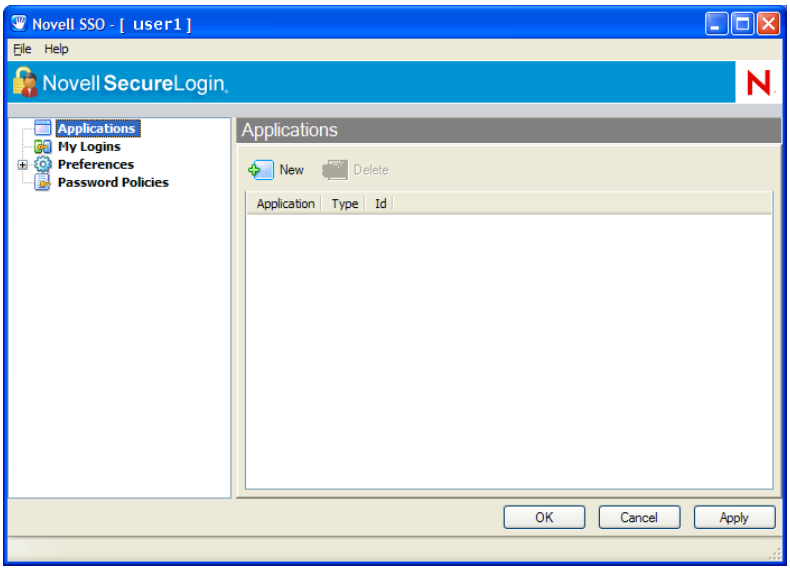
Getting Started

1

For a complete description of the Administrative Management Utility and the Personal Management Utility user interface and functions of Novell® SecureLogin 6.0, see *Novell SecureLogin 6.0 Overview*.

1.1 Personal Management Utility

To start the Personal Management Utility, double-click , on the system tray icon or select *Novell SecureLogin > Novell SecureLogin on the Windows* Start menu*. The Personal Management Utility is displayed.

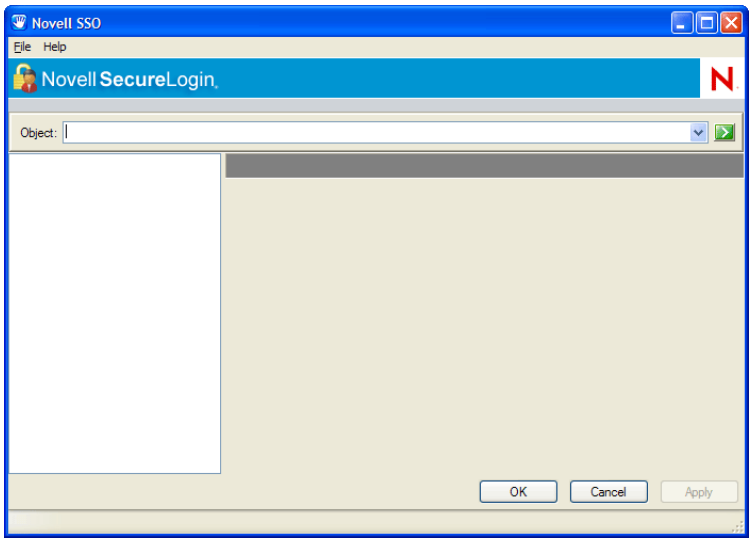


NOTE: Changes made using the Personal Management Utility on the local workstation apply only to the logged on user SSO, and they override settings made in the directory. For example, if the SecureLogin preference *Allow users to view and modify Application Definitions* is set to *No* at the OU the user object resides in, but *Yes* on the actual user object in the directory, then the user object setting applies and the user can view and modify application definitions. However, other users in the container cannot view and modify application definitions unless they have the option set on their user object.

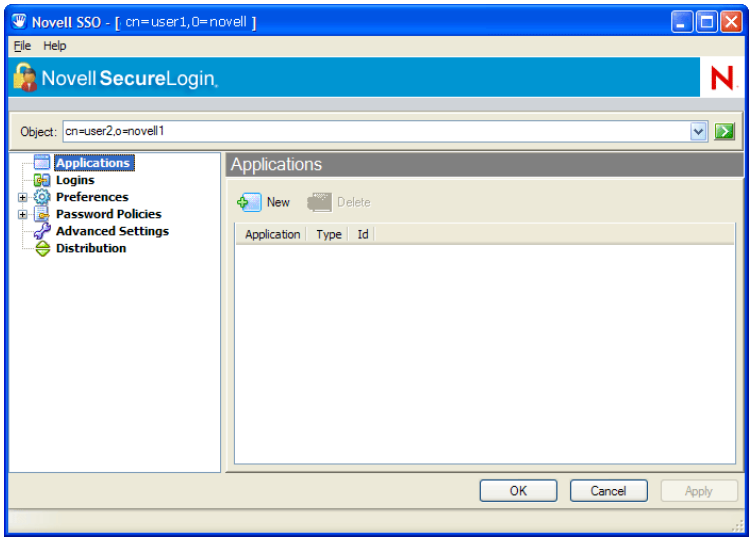
1.2 Administrative Management Utility

It contains additional functionality that is not included in the Personal Management Utility. Use the Administrative Management Utility for LDAP compliant directories.

1 Double-click `slmanager.exe` (by default, it is in the `\secureLogin\tools` directory). The Administrative Management Utility is displayed.



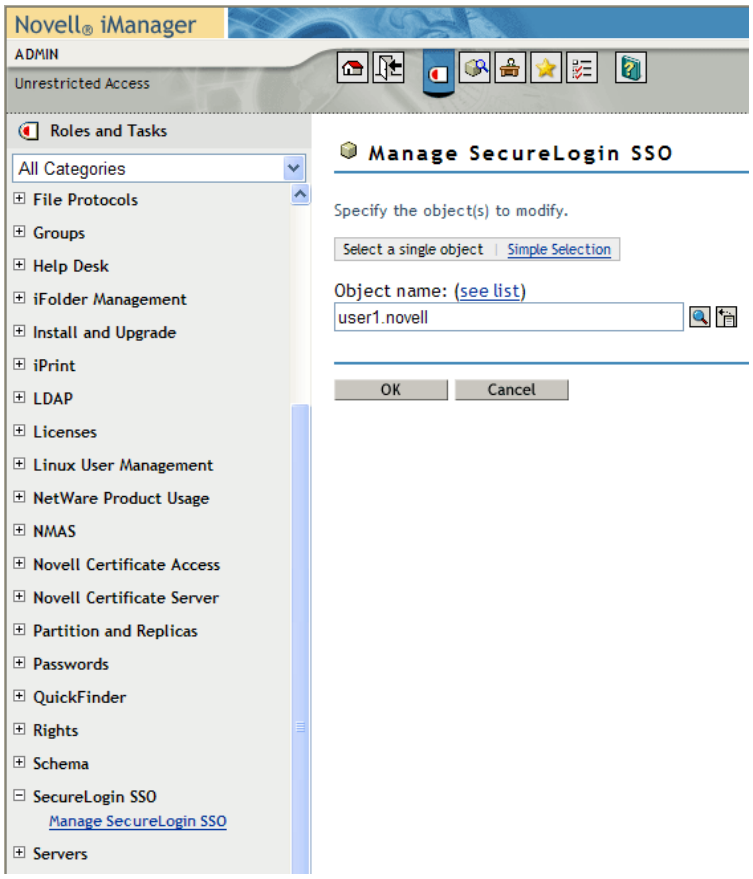
2 In the *Object* field, specify your object name, then press the Enter key.



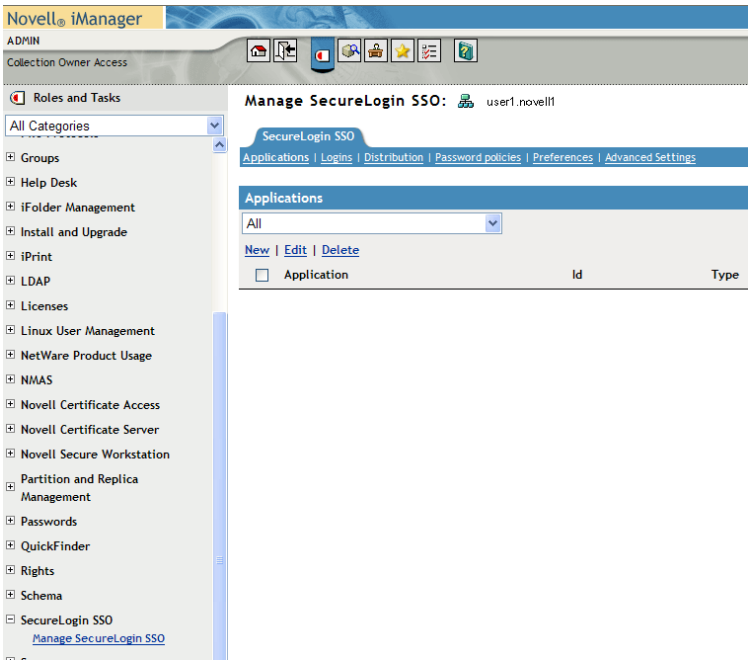
NOTE: You must press the Enter key to submit the entry typed in the *Object* field. Clicking *OK* closes the dialog box but does not accept the entry you typed. The object name should be in the LDAP convention (username,objectname), if using LDAP mode and in the eDirectory™ convention (username.objectname),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

1.3 Accessing the SSO Plug-In Through iManager

1. Log in to iManager.
2. Select *SecureLogin SSO* > *Manage SecureLogin SSO*. The Manage SecureLogin page is displayed.



3 In the *Object* field specify your object name, then click *OK*. The Administrative Management page is displayed.



Configuring SecureLogin

2

Configuring SecureLogin for deployment consists of:

- Setting user preferences
- Enabling applications and Web sites for SSO
- Creating password policies
- Creating credential sets

This section contains the following information:

2.1 Setting User Preferences

You can set the SecureLogin user preferences in the Preferences Properties Table in the Administrative Management Utility, iManager SS0 plug-in, or in the Personal Management Utility.

Each SecureLogin preference has a default value which is implemented until an alternative value is manually configured. In directory hierarchies, preferences values are inherited from higher level objects, while some lower level objects can override preferences set at higher levels. Therefore, 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 12, “Distributing Configurations,” on page 81.

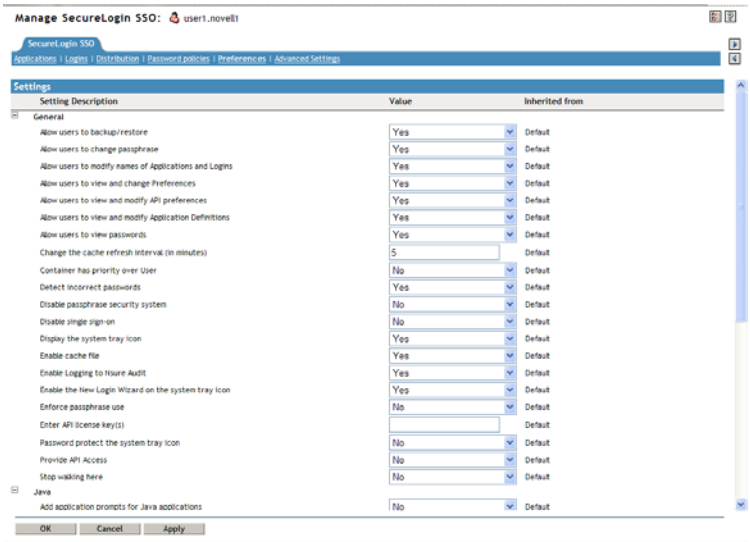
2.2 Changing a Preference Value

To change the Preference value, do the following:

1 Access the Administrative Management Utility of SecureLogin.

For more information on how to access the Administrative Management Utility see, Section 1.2, “Administrative Management Utility,” on page 12 and Section 1.3, “Accessing the SSO Plug-In Through iManager,” on page 13

2 Click *Preferences*. The Preferences Properties Table is displayed.



NOTE: For more information about the Preference Properties table see *Novell SecureLogin 6.0 Overview*.

3 In the *General* section, locate the setting you want to change and then in the Value column, select the appropriate value (for example, Yes, No, or Default) from the drop-down list.

NOTE: Some of the value settings are text fields where you type in a number and some display dialog boxes.

4 Click *OK*.

5 Click *Yes* to save the settings. The selected value is saved and the Administrative Management Utility is closed.

2.3 Restricting User Access

You can disable a user's access to the Personal Management Utility as part of configuration. By default, the user has permission to change application definitions and predefined applications, passwords, and functionality. You can restrict this use through the iManager SSO plug-in or the Administrative Management Utility.

You have several options for restricting access by setting preferences at the user, Group Policy, container or OU level including:

- Full access to all administration tools.
- Access to selected administration tools.
- Hide the SecureLogin system tray icon.
- Hide and password protect the SecureLogin system tray icon.

If the SecureLogin icon is password protected, anyone who attempts to access the Personal Management Utility through the SecureLogin icon on the system tray is prompted to enter the user's network password. This prevents anyone other thn the user from viewing SecureLogin data. You can modify SecureLogin using the administration tools.

2.4 Reset User Data

If users have forgotten their network password and SecureLogin passphrase response or if the user's data has been corrupted, you must delete all SecureLogin data (since the user does not have access to it).

You can reset the object by selecting *Delete single sign-on configuration for this datastore object* in the *Advanced Settings* pane of the Administrative Management Utility. This deletes all user data, including all object specific:

- Credentials (including user names and passwords)
- Application definitions
- Predefined applications
- Password policies
- Preferences
- Passphrase questions/answers

WARNING: Deleted data cannot be retrieved.

Before you delete the object data, ensure the following:

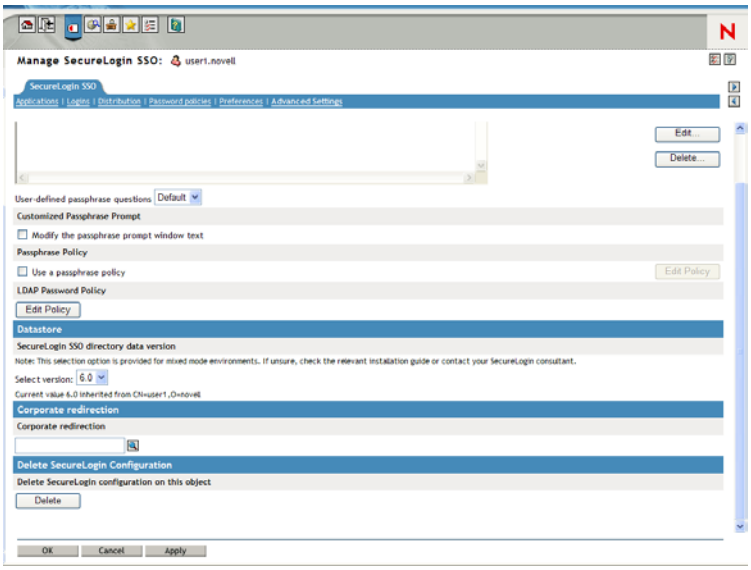
- **Select the required directory object only:** The Delete single sign-on configuration for this datastore object option is available at the container, Group Policy, OU, and user object level.
- **Record (external to SecureLogin) all user names, passwords, and additional required credential information:** For example, if you delete a SSO-enabled application at the OU level, you may 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, you must first delete the local cache on the workstation to ensure it does not synchronize with the directory cache and recreate the configuration in the directory.

To reset the user data do the following:

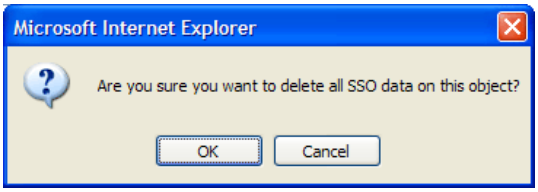
1. Access the Administrative Management Utility of SecureLogin.

   For more information on how to access the Administrative Management Utility see, Section 1.1, “Personal Management Utility,” on page 11 and Section 1.3, “Accessing the SSO Plug-In Through iManager,” on page 13.

2 Click *Advanced Settings* in the Manage SecureLogin SSO page.The Advanced Settings page is displayed.

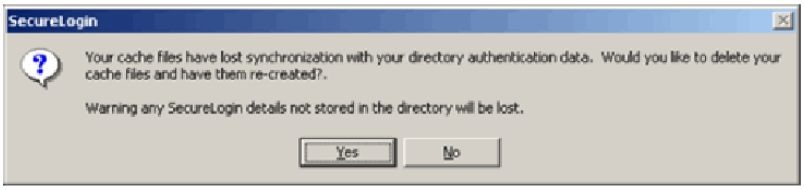


3 Click Delete in the *Datastore* section. A Warning message appears.



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

If you did not delete the SecureLogin cache from the local workstation before you deleted the Datastore object data, the following message appears:



For more information on deleting local workstation cache see, Section 15.3, “Delete the Local Workstation Cache,” on page 101.

5 Click *Yes*.

NOTE: The next time the user logs on, the user will be asked to set up the passphrase question and response you configured and re-enter the credentials for each SSO-enabled application.

Managing Passphrases

3

This section contains the following information:

3.1 About Passphrases

Passphrases are an important security component in a SecureLogin implementation. Passphrases are a unique question and response combination created to verify and authenticate the individual. In a directory environment, you can create passphrase questions for users to select and answer. You can also permit users to create their own question and response combination.

Passphrases protect user credentials from unauthorized use. For example, in a Microsoft* Active Directory environment, administrators can potentially log onto the network as the user by resetting the user’s network password. With SecureLogin, if someone other than the user resets this network password, SecureLogin triggers the passphrase question. An administrator cannot access the user’s SecureLogin SSO-enabled applications without knowing the user’s passphrase response.

When SecureLogin starts for the first time on the user workstation, the Passphrase setup dialog box is displayed.

Passphrases are used to authenticate when:

- The user is working remotely or offline in an eDirectory™ or non-Microsoft Active Directory LDAP environment.
- Someone other than the user has reset the user’s network password.

Passphrase benefits include:

- Prohibiting administrators from accessing user credentials via network password reset.
- Disabling access to user credentials if the computer is stolen.

NOTE: You can remove the passphrase security system but this removes the features listed above.

3.2 Creating Passphrase Questions

As an administrator you can:

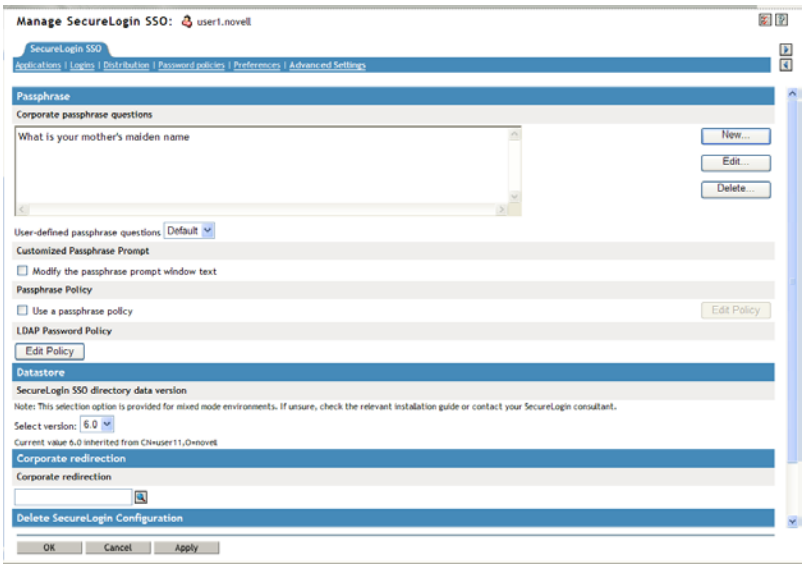
- Create one or more passphrase questions for users to select from.
- Enable users to create their own passphrase question and response combination.
- Set up a combination of both.

To create a passphrase question:

1. Access the Administrative Management Utility of SecureLogin.

   For more information on how to access the Administrative Management Utility see, Section 1.2, “Administrative Management Utility,” on page 12 and Section 1.3, “Accessing the SSO Plug-In Through iManager,” on page 13.

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



   NOTE: The *user-defined passphrase questions* check box is selected by default. Deselect the check box if you do not want users to create their own passphrase questions.

3. Click *New*.
4. In the *Corporate passphrase questions* field, specify a question.
5. Press the Enter key. The question is displayed in the *Corporate passphrase questions* field.
6. Repeat the above steps to create additional passphrases as required.

IMPORTANT: By default passphrase responses are required to contain a minimum of six characters. You can change the passphrase policy. For more information see, Section 5.2, “Changing a Passphrase Policy,” on page 29. Applying strict policies to passphrase responses is not recommended, as it can make them harder to remember. We recommend that you use a multi-value question such as "What is your favorite color plus your driver’s license number?" and set a passphrase policy based on that.

3.3 Reset a Passphrase Response

If a user forgets the passphrase response, to ensure that the user's data is secure, you must reset the user’s SecureLogin configuration. This deletes all user-specific information, including user names and passwords. For more information, see Section 2.4, “Reset User Data,” on page 17.

IMPORTANT: When you set up the user's passphrase question and response policies, we recommend you keep them simple so that the users can easily remember them, thus having access to their data.

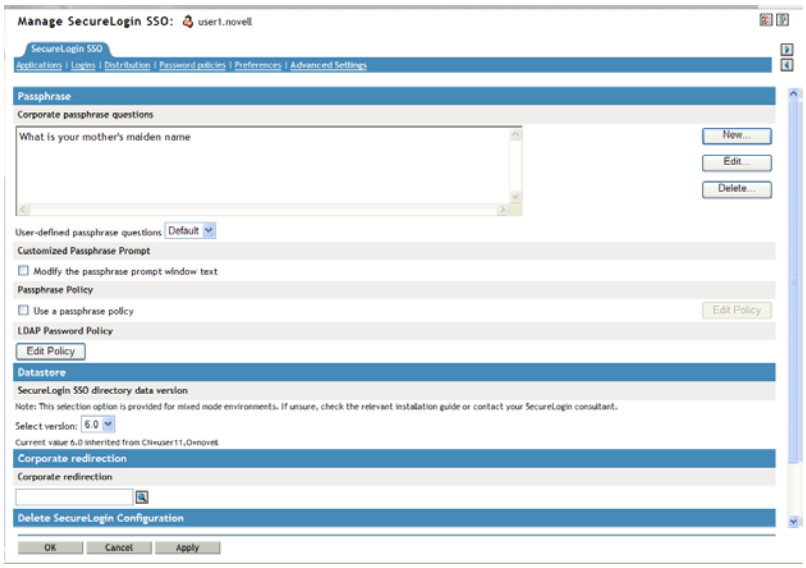
3.4 Editing Passphrase Questions

To edit a passphrase question:

1. Access the Administrative Management Utility of SecureLogin.

   For more information on how to access the Administrative Management Utility see, Section 1.2, "Administrative Management Utility," on page 12 and Section 1.3, "Accessing the SSO Plug-In Through iManager," on page 13.

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



3. In the *Corporate passphrase questions* box, right-click the required passphrase you want to edit, then click *Edit* and make the required changes.

4. Press the Enter key. The passphrase question is updated with the changes.

NOTE: You can create, edit and delete SecureLogin passphrase questions at any time.

3.5 Changing the Passphrase Prompt

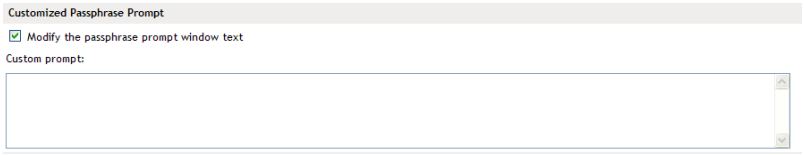
You can change the passphrase prompt that users see in the Passphrase Setup Dialog box the first time they log on.

Figure 3-1 *Passphrase Setup*

To change the passphrase prompt:

1. Access the Administrative Management Utility of SecureLogin.

   For more information on how to access the Administrative Management Utility see, Section 1.2, “Administrative Management Utility,” on page 12 and Section 1.3, “Accessing the SSO Plug-In Through iManager,” on page 13.
2. Click *Advanced Settings*. The Advanced Settings options are displayed.
3. Select the *Modify the passphrase prompt window text* check box.
4. Specify the new prompt in the *Custom Prompt* field.

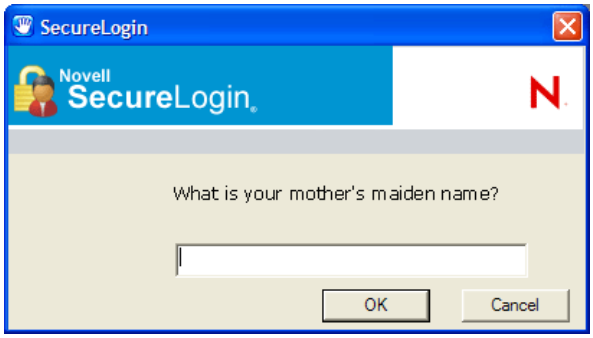


5. Click *OK* to save the changes and close the Administrative Management Utility.
6. Log in as a new test user to view the customized prompt.

3.6 Change a Passphrase

Depending on how you configure SecureLogin, users can change their passphrase response.

1. Right-click on the system tray, then select *Advanced* > *Change Passphrase*. The Passphrase dialog box is displayed.



2. Specify the passphrase response 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 response.
6. In the *Confirm the answer* field, retype the new passphrase.
7. Click *OK*.

NOTE: Users who do not have access to the SecureLogin icon cannot change their passphrases. You can enable access to the icon temporarily to allow the user to change the passphrase.

Managing Credentials

4

This section contains the following information:

4.1 About Credentials

After you have created an Application Definition and activated it for single sign-on, the first time you log on, the user is prompted to enter credentials in a SecureLogin dialog box. SecureLogin stores and associates these credentials with the Application Definition and uses it in subsequent logins.

You can display and manage these credentials in the Logins page of the Administrative Management Utility and the My Logins pane of the Personal Management Utility.

Since 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 check boxes selected on web pages, and SecureLogin can handle all of these on the user’s behalf.

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 type of the domain address, then you can configure the domain as a credential in the Logins pane at the organizational unit level. This removes the requirement for users to manually enter the domain location when they log in. You can then change the domain at any time without notifying users.

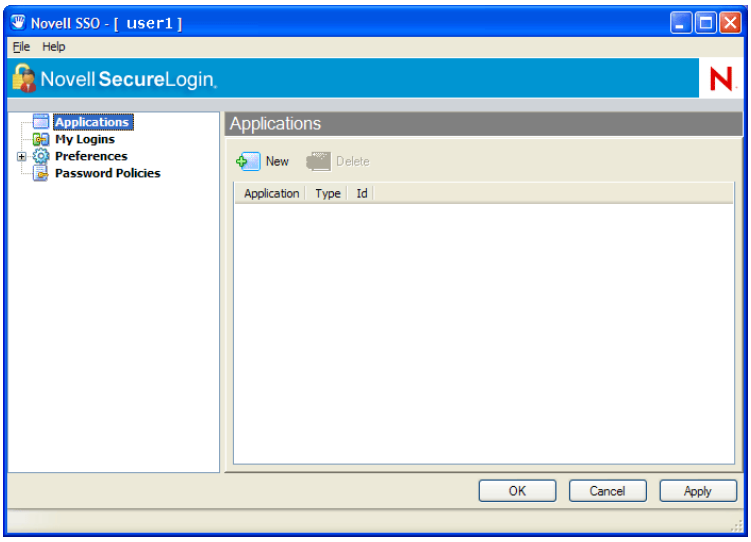
Application credentials such as e-mail, finance system, HR system, and the travel system are typically stored for user objects and only apply to (and can be used by) the particular user. For example, John’s application credentials are encrypted and stored against John’s user object and only available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

4.2 Creating Logins and Credentials

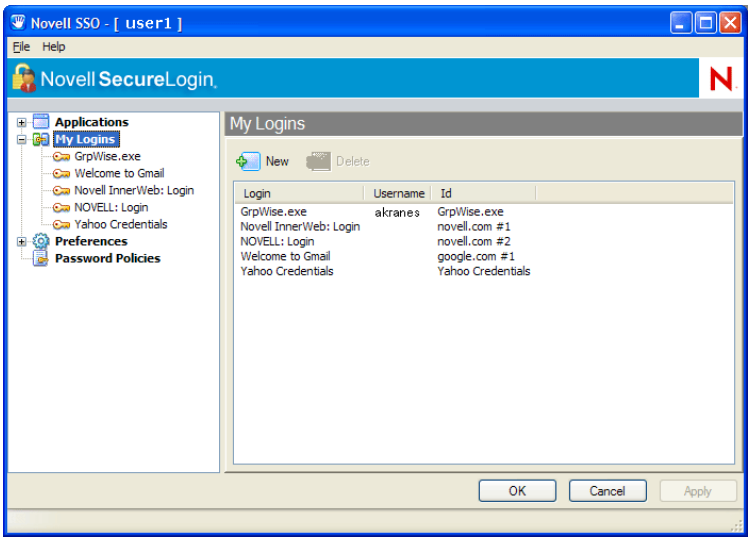
Logins and credentials are typically created automatically as part of the Application Definition, but you can manually create and edit them if required.

To display the Personal Management Utility My Logins pane:

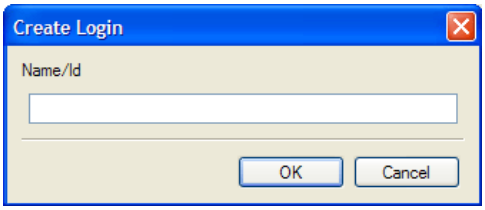
1. On the system tray, double-click  . The Personal Management Utility is displayed.



2. Click *My Logins*. The existing Logins are displayed.



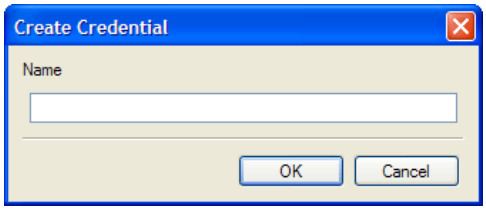
3. Click *New*. The Create Login dialog box is displayed.



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 Click the new credential set.

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

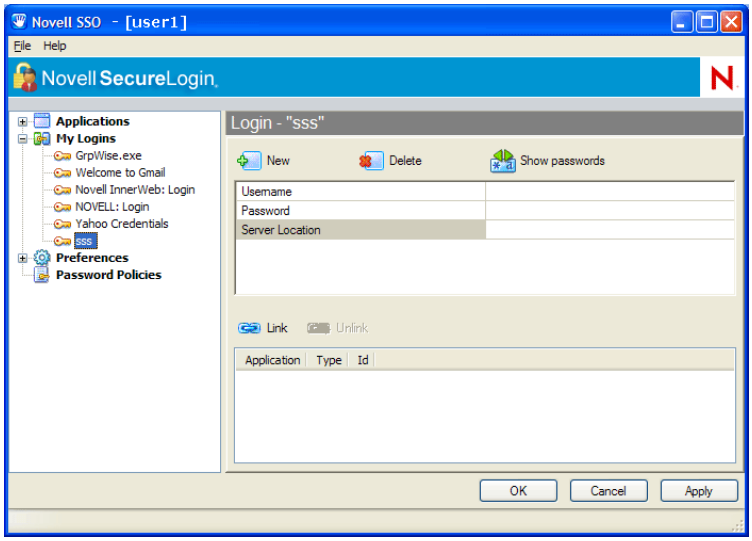


8 In the *Name* field, specify a name for the new credential.

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 is displayed.

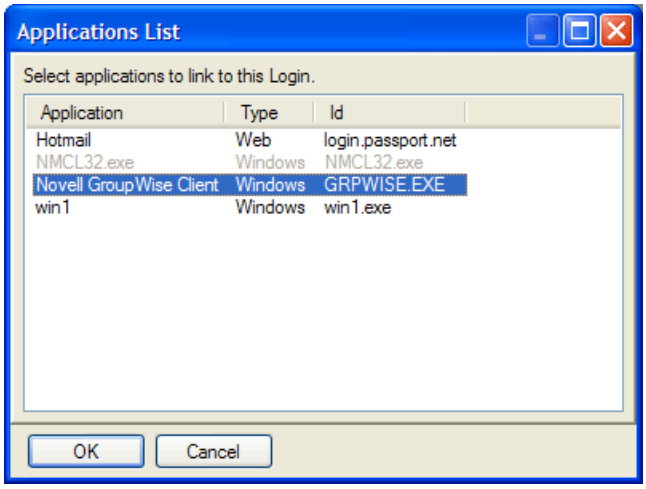


4.3 Linking a Login to an Application

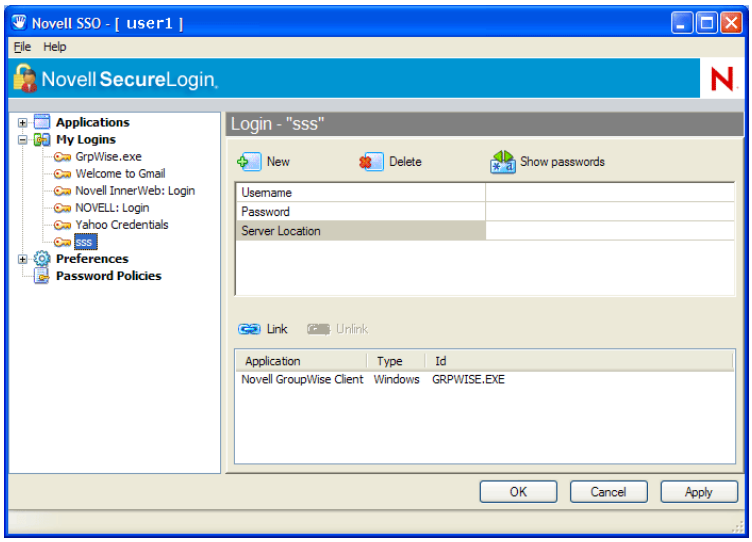
You can link a login to an application in the appropriate Login pane. For example, if users are logging on to Outlook using a set of credentials and they are also logging on to Outlook Web Access, then they can share or link the credentials to the Web login application definition.

To link a login to an application:

1. Click *Link*. The Applications List dialog box displays the list of enabled Predefined Applications and Application Definitions.



2. Select the application you want to link.
3. Click *OK*. The linked Application is added.



4. Click *OK* to save changes and close the Personal Management Utility.

Managing Passphrase Policies

5

This section contains the following information:

5.1 About Passphrase Policies

You can set passphrase policies in the Passphrase Policy Properties Tables of the Administrative Management Utility, the iManager SSO Pug-in, or Group Policy snap-ins. You can set a policy to restrict the format and content of passphrase responses. 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.

As passphrase responses are case sensitive, setting the passphrase policy to required responses in all uppercase or lowercase may help users to accurately recall the case of the passphrase response. For example, by setting Begin with an uppercase character to Yes and Maximum uppercase characters to 1, you can be sure all passphrase answers start with an uppercase character and all other characters are lower-case. Your Help Desk can remind users of this fact if they forget their passphrase answer or enter it incorrectly.

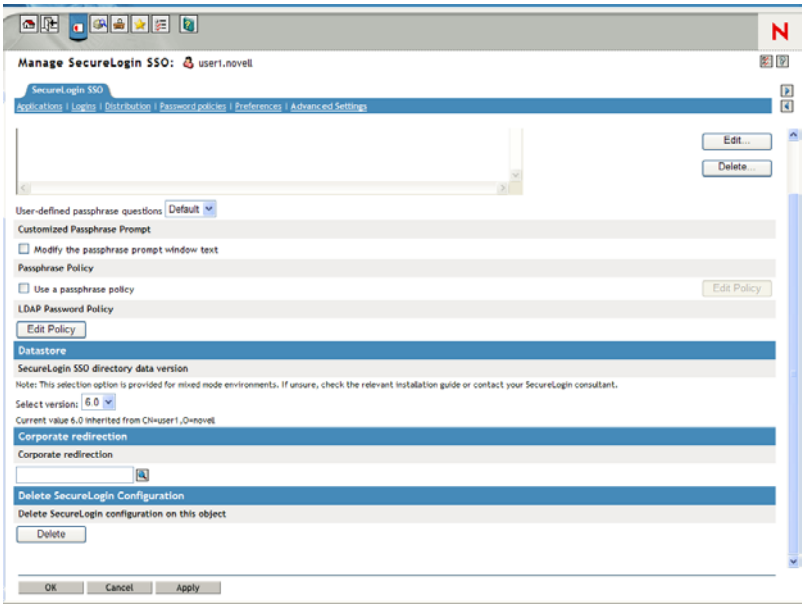
5.2 Changing a Passphrase Policy

To change passphrase policies:

1 Access the Administrative Management Utility of SecureLogin.

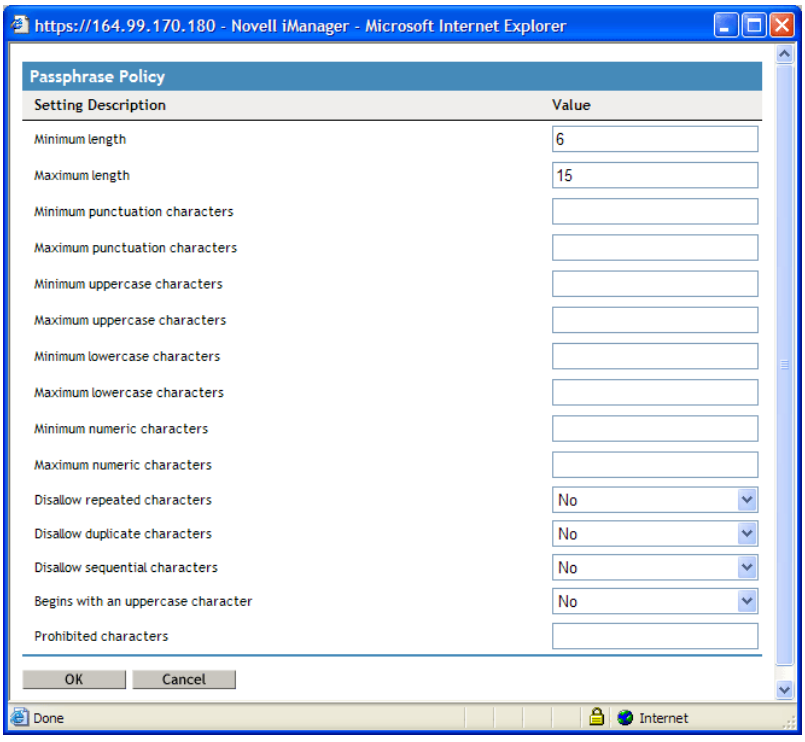
For more information on how to access the Administrative Management Utility see, Section 1.2, “Administrative Management Utility,” on page 12 and Section 1.3, “Accessing the SSO Plug-In Through iManager,” on page 13.

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 Properties Table is displayed.



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

6 Click *OK*. The new or selected value is added to the Value column.

7 Click *OK*.

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

5.3 Disable the Passphrase Security System

IMPORTANT: You can disable the passphrase security system, but this removes the passphrase security benefits. To view three scenarios of what the user experience will be in environments where the passphrase security system has been enabled and disabled, see Section 5.5, "Passphrase Security System Scenarios," on page 32.

If a user has disabled the passphrase security system, administrators can access the user's credential through network password reset.

Supported directory modes for disabling the passphrase security system are:

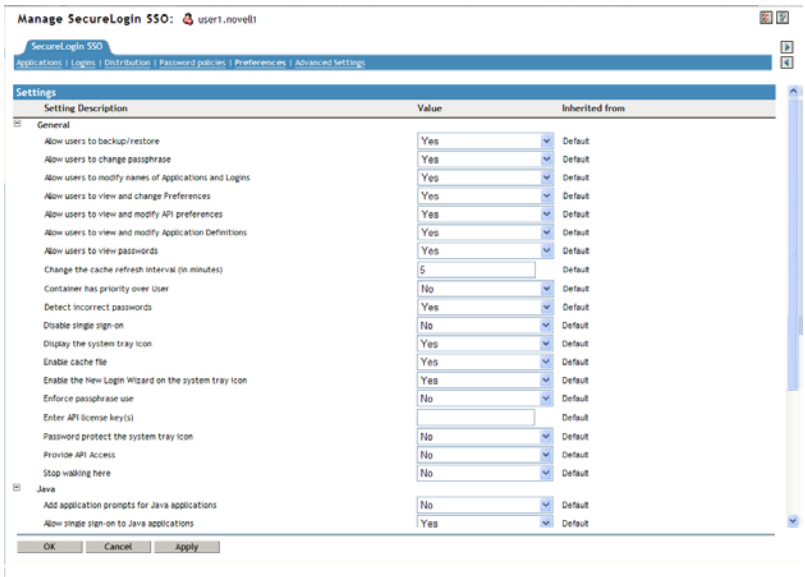
- eDirectory™ (if SecretStore is used)
- LDAP-compatible
- Active Directory

To disable the passphrase security system:

1 Access the Administrative Management Utility of SecureLogin.

For more information on how to access the Administrative Management Utility see, Section 1.2, "Administrative Management Utility," on page 12 and Section 1.3, "Accessing the SSO Plug-In Through iManager," on page 13.

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



3 Change the value for *the Enable passphrase security system option* under Securities option to *No*.

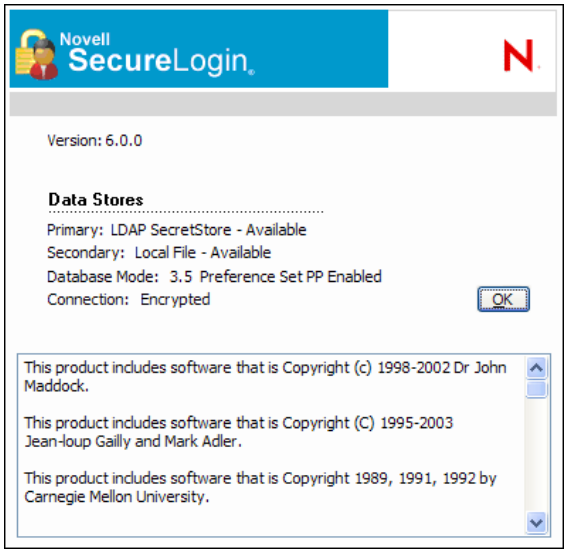
4 Click *Apply*.

5 Click *OK*.

5.4 Check Passphrase Security System Status

To check the Passphrase security system status, on the system tray, right-click  , then select *About*. The About box is displayed.

Figure 5-1 *About box*



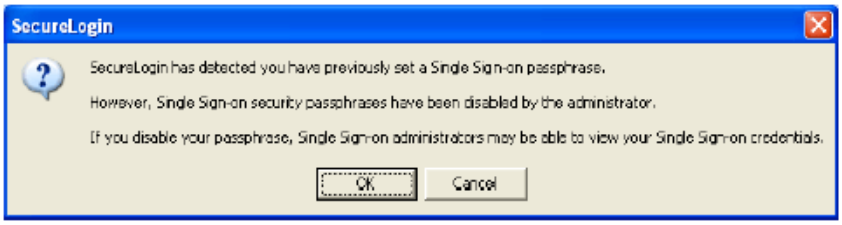
The status appears next to *Database Mode* and is listed as either *PP Enabled* or *PP Disabled*.

5.5 Passphrase Security System Scenarios

The information below describes what the user experience will be in environments where the passphrase security system has been enabled and disabled.

Scenario 1: Passphrase Security System 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 first time they log on after the change.



If the user clicks:

- **OK:** This approves the removal of passphrase security system and the user is prompted for the current passphrase answer which, when provided, completes the approval.

- **Cancel:** This delays the approval and the user is then prompted at each subsequent log on until the user clicks *OK* to approve the change.

Scenario 2: Passphrase Security System Re-enabled in a Previously Disabled Environment

If the passphrase security system is re-enabled, the Passphrase Setup dialog box is displayed.

If the user clicks:

- **OK:** After entering a passphrase question and answer, this enables user's workstation.
- **Cancel:** This delays enabling passphrases for user's workstation. The user is prompted at each subsequent log on until he/she enters a passphrase question and answer and clicks *OK*.

Scenario 3: Passphrase Security System Disabled And User Has Changed Password Restrictions for Moving User Objects

If you have disabled the passphrase security system and reset the user's password:

1. In the LDAP-compatible and eDirectory (with SecretStore) modes, you cannot move users object to another organization Unit until the users have logged on to SecureLogin on their workstation. If the user object is moved, the user cannot run SecureLogin. You must move the user object back to its previous location to enable the user to run SecureLogin.
2. In the Active Directory mode, you can move the user object within the directory, but copying is limited, and if the user object is moved, the result is the same as noted above.

Managing Passwords

6

This section contains the following information:

6.1 About Password Policies

SecureLogin provides password policy functionality to enable you to efficiently and effectively manage user passwords, in order to comply with your organization's security policies. You can create password policies at the 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 comprise one or more password rules applicable to one or more SSO-enabled applications and to specific directory objects. You can configure password policies in the Password Policy Properties Tables of the Administrative Management Utility, the iManager SSO plug-in, or Group Policy snap-ins. For more information, see the *Novell SecureLogin 6.0 Overview*.

SecureLogin remembers passwords and can also handle password changes after they expire on the back end application (every 30 days, for example) or when users decide to change their passwords. SecureLogin password management functionality includes the capability to set password expiration periods and generate random passwords that comply with specified password policies. For more information, see the *Novell SecureLogin 6.0 Application Definition Guide*.

NOTE: You can configure password change events using SecureLogin’s wizards or through the application definition editor.

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, we recommend that you test complex policies on a test user account to ensure they are viable.

6.2 Creating a New Password Policy

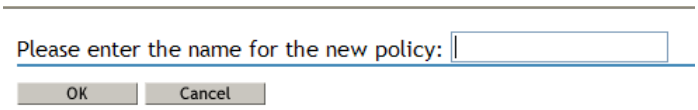
To create a password policy:

1 Access the Administrative Management Utility of SecureLogin.

For more information on how to access the Administrative Management Utility see, Section 1.2, “Administrative Management Utility,” on page 12 and Section 1.3, “Accessing the SSO Plug-In Through iManager,” on page 13.

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

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



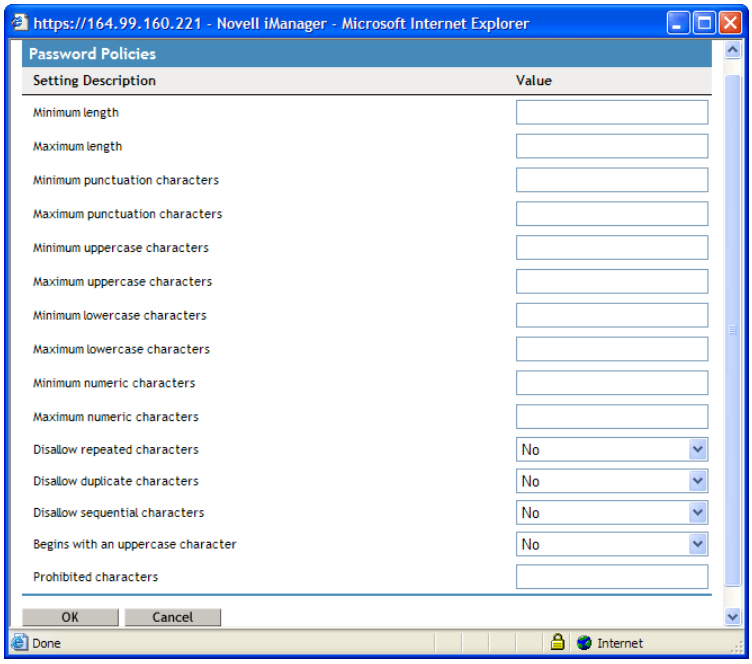
NOTE: It is important to use a unique name for all logins, applications and password policies. Password policies cannot have the same name as any other SecureLogin attribute. Organizations typically employ the naming convention ApplicationNamePwdPolicy, for example, LotusNotesPwdPolicy.

4 In the *Enter a name for the new password policy* field, specify a name for 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.

NOTE: 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 and then in the Value column, click the appropriate value from the drop-down list.

8 Click *Apply* to save changes.

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

IMPORTANT: Password policies are linked to applications using the SecureLogin Application Definition command `RestrictVariable`. Using the `RestrictVariable` command password policies can be applied to one or more applications. For more information see, *Novell SecureLogin 6.0 Application Definition Guide*.

6.2.1 Example: Windows Application Definition

This Application Definition restricts the `$Password` variable to the Finance password policy. The user's password must match the policy when they first save their credentials. When the password requires changing, the Application Definition generates a new password based on that policy randomly (no user intervention required).

```
# 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
```

6.3 Changing a Password Policy

To change a Password Policy:

1. Access the Administrative Management Utility of SecureLogin.

   For more information on how to access the Administrative Management Utility see, Section 1.2, "Administrative Management Utility," on page 12 and Section 1.3, "Accessing the SSO Plug-In Through iManager," on page 13.
2. Click *Password Policies*. The Password Policies page is displayed.
3. Click the password policy 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.

5 Click *Apply* to save changes.

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

6.4 Deleting a Password Policy

To delete a Password Policy:

1 Access the Administrative Management Utility of SecureLogin.

For more information on how to access the Administrative Management Utility see, Section 1.2, “Administrative Management Utility,” on page 12 and Section 1.3, “Accessing the SSO Plug-In Through iManager,” on page 13.

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.

NOTE: 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*.

Managing Smartcard Integration 7

This section contains the following information:

7.1 Prerequisites

- ❑ Install smartcard middleware. (Please make a note of the cryptographic provider and PKCS#11 DLL required to work with the device. See the manufacturer’s documentation or contact them). If you are planning to use ActivClient 5.4 PKI, install the Cumulative Hot fix FIX0602012.
- ❑ Issue smartcard readers and cards to users.
- ❑ Issue PKI-based credentials to users if you need to encrypt the SSO datastore using these credentials.
- ❑ Set a generic container in the Card Management System to have PIN-protected access through PKCS#11.
- ❑ Set the SSO datastore version to 6.0. For more information see, Section 7.2, “Set the Datastore Version,” on page 39. This allows you to use the above features as well as the AES encryption mechanism. If your users must use the product in a mixed mode (using older clients as well as the new client during migration), see “Running SecureLogin 6.0 in Mixed Environments” in the *Novell SecureLogin 6.0 Installation Guide*.
- ❑ Enable local caching to store the application definitions, policies, and settings if Store SSO data on card is selected.
- ❑ Administrative Management Utility is open through one of the following options:
  - iManager. For more information see,Section 1.3, “Accessing the SSO Plug-In Through iManager,” on page 13.
  - SLManager. For more information see, Section 1.2, “Administrative Management Utility,” on page 12.

7.2 Set the Datastore Version

IMPORTANT: Please read the migration section of the *Novell SecureLogin 6.0 Installation Guide*. This will help you plan for the migration and the consequences that might affect your users.

1. Access the Administrative Management Utility of SecureLogin.

   For more information on how to access the Administrative Management Utility see, Section 1.2, “Administrative Management Utility,” on page 12 and Section 1.3, “Accessing the SSO Plug-In Through iManager,” on page 13.
2. Click *Advanced Setting*.The Advanced Setting page is displayed.
3. Select 6.0 as the Datastore version from the *Select Version* drop-down list.

7.3 Smartcard Support

SecureLogin can store application credentials on a smartcard and encrypt the SSO data store using PKI-based credentials from a smartcard. The stored credentials are PIN-protected in a generic container on the card. Application credentials such as user name, password, and domain are stored on the card. Application definitions, policies, and setting are stored in the user's encrypted cache file on the user's workstation.

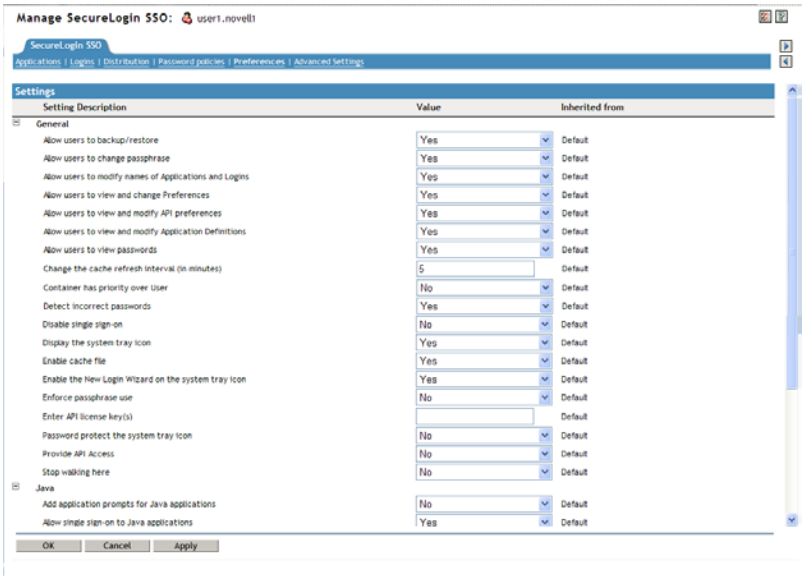
Table 7-1 *Smartcard scenarios*

If ...	Then...
You install the client for users who want to use the features listed above.	You must install the product with smartcard support. For more information see, Section 7.1, “Prerequisites,” on page 39.
You are using ActivClient Version 5.4 (with hotfixes)	The default choices of a cryptographic service provider and PKCS#11 file are already selected.
You are not using ActivClient Version 5.4 (with hotfixes).	You must select a smartcard and middleware vendor from the *Cryptographic Service Provider* drop-down list.

After SecureLogin is installed for the smartcard you can set the user’s preferences in the *Preferences Security Properties* Table to enable the above features.

1. Access the Administrative Management Utility of SecureLogin.

   For more information on how to access the Administrative Management Utility see, Section 1.2, “Administrative Management Utility,” on page 12 and Section 1.3, “Accessing the SSO Plug-In Through iManager,” on page 13.
2. Click *Preferences*. The Preferences Properties Table is displayed.



The following table describes the security preferences:

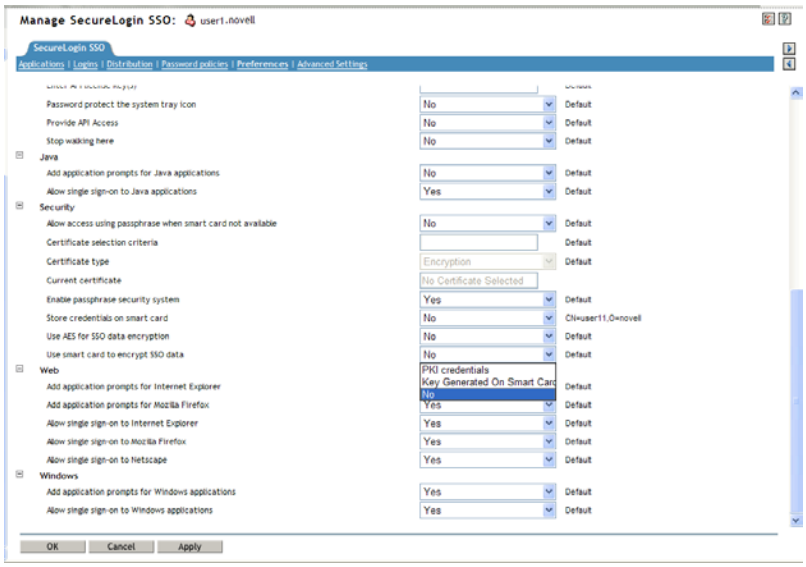
Table 7-2 *Security Preferences Description*

Option	Values	Description
Use smartcard to encrypt SSO data	No/PKI credentials/Key generated on smartcard	If selected, this preference allows PKI credentials, or a self generated key, to be used as the encryption source to encrypt the SSO data in the directory. When deployed with PKI credentials, ensure that key escrow/archiving/ backup is used via the Card Management System (CMS) so that the user encryption key can be recovered in a lost card scenario. If no escrow is used, then the "Enable passphrase security system" preference should be set to “Yes”. This will prevent the loss of the user's SSO credentials should they lose their card. **NOTE:** It is essential that the customer designs and implements their smartcard data recovery strategy before deployment of SecureLogin with smartcards because failure to do so will result in the loss of user credentials where a card is lost. If the organization does not want to use passphrases, there is a *Hidden* option in the *Enable passphrase security system* preference which maintains the passphrase system but does not prompt the user for their passphrase answer. The *Key generated on smartcard* option allows for the use of the card as the cryptographic key where a PKI is not implemented.
Use AES for SSO data encryption	Yes/No	This setting allows the default encryption algorithm used to encrypt the user's directory datastore to be set to use the AES algorithm instead of the default Triple DES algorithm. Mixtures of AES and Triple DES can be used in the same deployment.
Store credentials on smartcard	Yes/No/Default	This option allows the user's SSO credentials to be stored on the smartcard. **NOTE:** Scripts, Settings and Policies will still be stored in the user's local cache which is a mandatory preference for the use of smartcards.
Allow access using passphrase when smartcard not available	Yes/No/Default	A passphrase can be provided by a user to access their SSO credentials should they loose their smartcard. This is a manual configuration that can be switched on by an administrator when the user loses their smartcard.

Option	Values	Description
Enable passphrase security system	Yes/No/Hidden	Setting this to *Yes* protects the user from a rogue administrator gaining access to their SSO credentials as they will be prompted for the user's passphrase answer if they attempt to reset the user's network password and start SSO. The current certificate dialogue box shows the certificate that is selected to encrypt SSO data in the directory.
Certificate Type	Encryption/Signing	Allows different usage types to be selected. We would recommend using the encryption certificate as this is generally associated with a private key that has been backed up for lost card recovery.
Certificate Selection Criteria	Free text field	This field allows the specification of search criteria to identify the certificate that is to be used for the system. This involves typing the attribute that will be used to identify the certificate. **NOTE:** The searchable strings are the "Certificate Subject" and "Certificate Issuer" strings.

3 Under *Security* preferences, in the *Use smartcard to encrypt SSO data* drop-down list select one of the following options:

If ...	Then ...
You want to use the PKI-based credentials that the user has stored on the smartcard.	Click PKI credentials.
You want to generate a self-signed key and certificate to store the SSO data.	Click Key generated on smartcard.
You don't want to use this feature.	Click No.



There are further options when using PKI credential-based encryption. If using multiple key and certificate pairs, then you can select the certificate using:

- Current certificate (allows users to change their certificate if they are issued a new smartcard)
- Encryption
- Signing certificates

The *Certificate selection criteria* field allows you to enter text that appears in any of the issuer, subject or friendly name fields within a certificate. The benefit of this is that, in conjunction with the certificate type preference, it allows you to be more specific when specifying which certificate should be used for SSO encryption.

7.4 Lost and Forgotten Cards

IMPORTANT: When users encrypt their data using PKI-based credentials, it is critical that you have a plan to recover data in case the users lose their smartcard.

Table 7-3 *Lost Card scenarios*

If ...	Then...
Encryption key escrow/backup is used.	You must restore the encryption key to the card to continue to use the credentials when a user loses the card.

If ...	Then...
If key escrow/backup is not used.	You must select *Use passphrase for recovery of SSO data* in the Preferences Properties Table. If you do not select this option, then the user must restore each application's credentials (which they might be unaware of) when reissuing a card. **NOTE:** If you selected No for Enable passphrase security system in the Preferences General Properties Table, then you can select Hidden, when using Use passphrase for recovery of SSO credentials. This is dependent on PKI encryption being enabled.
Card contains the SSO credentials	No real impact because SSO will copy the credentials from the directory to the replacement card. The only situation where the user may be effected is if the user had changed an application password while offline and if the card was lost before it was synchronized with the directory.

Whenever the *Store credentials on smartcard* preference is *On* in non PKI mode, and the user's smartcard is not available, you will need to set the store on card preference to *No* temporarily.

7.4.1 Scenarios for Users Who Temporarily Do Not Have Their Smartcards

If users have forgotten their cards and they need to access to SSO-enabled applications then you can allow them to temporarily access their SSO data without a card and with their passphrase (if used).

PKI only

When key recovery is used an administrator can turn the *Enable Passphrase security system* to *No*. A replacement card would need to be re-issued with the private encryption key restored to continue operation. For all cases where passphrases are enabled, either *Yes* or *Hidden*, then lost card scenario can be changed to allow passphrases for the user's temporary authentication to SSO.

PKI + Store Credentials on Smartcard

Same as for PKI only, outlined above, but for store on card simply use card if recovering card or if using passphrase access then turn the *Store credentials on smartcard* preference to *Off*.

Store Credentials on Smartcard Only

Turn off store on card if no replacement card or simply provide new card Scenarios for users that have lost cards and key recovery in place.

PKI only

Recover private escrowed key to the new card.

PKI + Store Credentials on Smartcard

Recover the escrowed key.

Enabling Applications and Web Sites

8

This section contains the following information:

8.1 About Enabling Applications and Web Sites for SSO

SecureLogin:

- Has predefined applications for SSO access to a wide range of commercially available applications. For more information, see *Novell SecureLogin 6.0 Overview*.
- Detects applications for which a predefined application exists. For example, if SecureLogin detects an SAP logon dialog box, then SecureLogin displays a prompt providing the user with the option to allow SecureLogin to automatically SSO the application.

  NOTE: 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.

- Provides wizards and application definitions to facilitate SSO to almost any new or proprietary application if a predefined application is not available. This helps you or Novell Technical Services to build an application definition for almost any proprietary application or upgrade.
- Supports SSO-enabling of most standard terminal emulator applications.
- Has additional SSO tools, such as the Window Finder and LoginWatch, which help you SSO-enable even the most difficult applications. For more information, see *Novell SecureLogin 6.0 Application Definition Guide*.

  NOTE: You can SSO-enable Terminal Emulators using the Terminal Launcher tool.

- Stores the login information requirements for applications including:

Table 8-1 *Login information stored by SecureLogin*

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

Before SecureLogin can enable an application for SSO for a particular user, it must "learn" a user's application credentials so it can encrypt and store them for future logons (unless it is used in conjunction with Identity Management solutions such as IBM Tivoli).

When a user starts an application for the first time after it was enabled for SSO, 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 logons.

Automated SSO is achieved using proprietary application definitions. Application definitions are managed in directory environments through SecureLogin management utilities, including the Administrative Management Utility, iManager plug-ins, and Active Directory MMC snap-ins. Locally and in stand-alone deployments, application definitions are managed in the Personal Management Utility or distributed using the advanced offline signed and encrypted method.

SSO-enabled applications are created, modified and deleted in the Applications pane. You can also create application definitions with SecureLogin wizards. There are a wide range of options in SecureLogin to enable applications. Regardless of the origin of the application definition, when an application is SSO-enabled, it is added and maintained in the Applications Properties Table.

8.2 Enable a Windows Application Using the Add Application Wizard

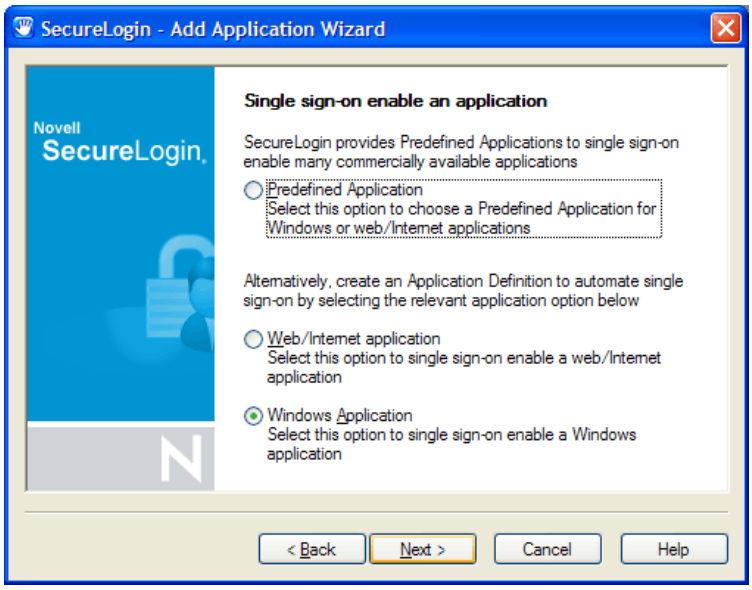
The Add Application Wizard helps you build application definitions and SSO-enable applications for Windows application logins.

The Add Application Wizard and the Administrative Management Utility cannot be active simultaneously. Exit the Administrative Management Utility before using the Wizard.

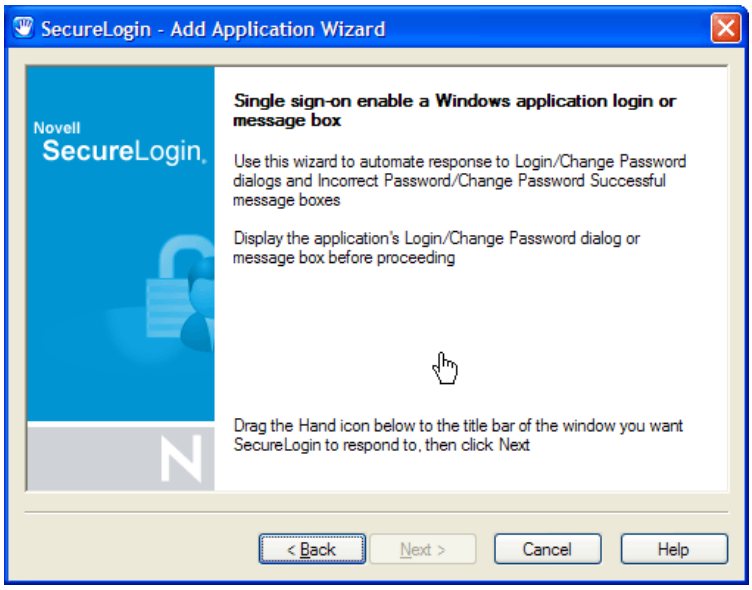
To add an application through the wizard:

1. Start the required application to display the login.
2. On the system tray, right-click , and then click *Add Application*.The Welcome to SecureLogin page is displayed.

3 Click *Next*. The Single sign-on enable an application page is displayed.

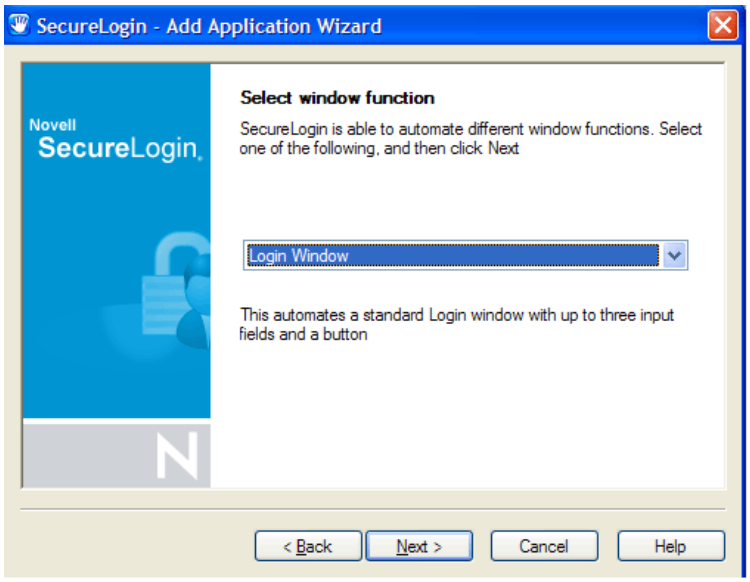


4 Select the appropriate option, then click *Next*. The Single sign-on enable a Windows application login or message box page is displayed.



5 Specify your credentials such as user name, password and any other required information in the login dialog box.

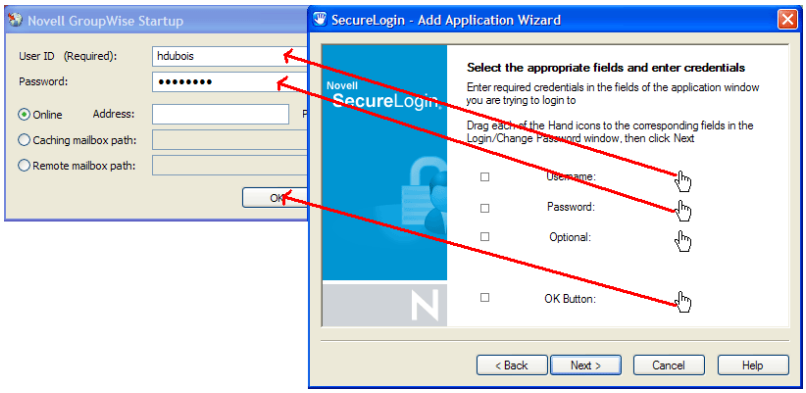
6 Click and drag the hand icon onto the application's login title bar. The Select window function page is displayed.



7 In the drop-down list, click the appropriate option.

8 Click *Next*.The Select the appropriate fields and enter credentials page is displayed.

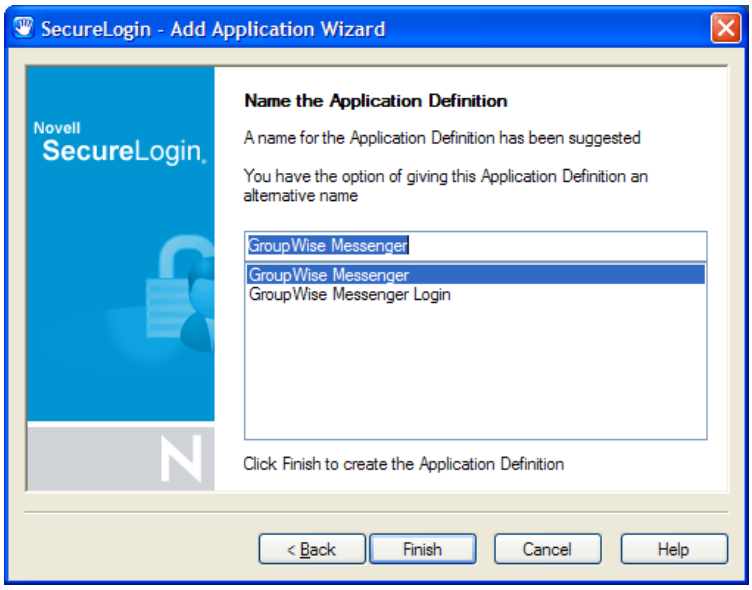
9 Click and drag each to the relevant box and release the mouse button to confirm selection (check the correct corresponding fields).



NOTE: The check box to the left of the description changes to blue when a box or button is selected.

10 Click the *OK* Button to the left of the and drag across to *OK* in the application's login window.

11 Click *Next*. The Name the Application Definition page is displayed.



12 Specify a name for your application definition or select one of the suggestions.

NOTE: The suggested names provided are based on the type of window function that the Wizard detected in the earlier steps, such as Login, Change Password, etc.

13 Click *Finish*.The Wizard closes and the application definition is created.

14 Close your application login window without logging on. SecureLogin enters your credentials and logs on to the application.

The new application definition is now available to customize in the Applications pane of the Personal Management Utility or Administrative Management Utility.

8.3 Enable a Java Application

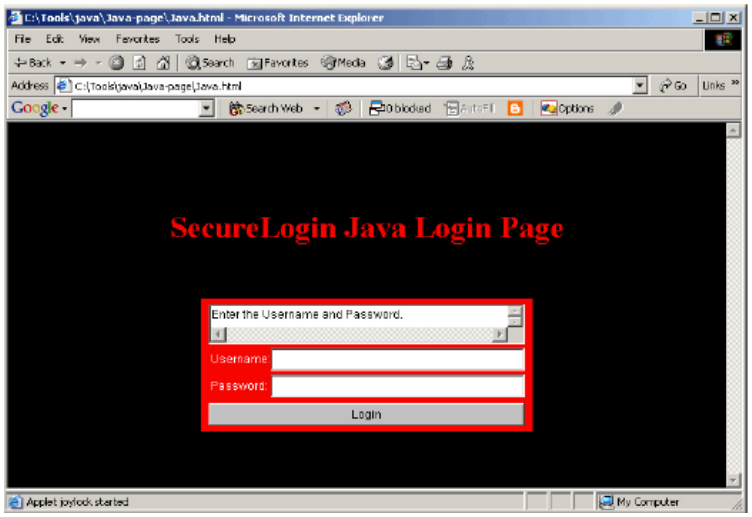
SecureLogin enables Java* applets and applications implementing AWT and SWING Java GUI components, as well as JavaScript. Both Java and JavaScript are included in the functionality labeled Java throughout the SecureLogin user interface. When a Java logon dialog box is recognized by SecureLogin, a confirmation message appears.

8.3.1 Prerequisites

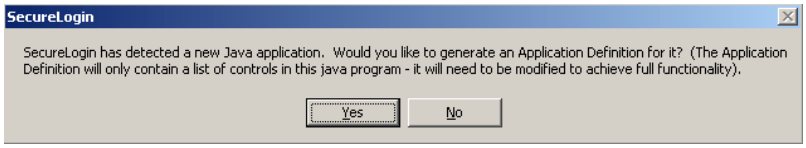
- ❑ Install a Sun Java Runtime Environment Version 1.4 or later. (Microsoft* Java Virtual Machine is not supported.)
- ❑ Select the option for enabling Java applications during SecureLogin installation.
- ❑ Ensure that in the Preference Properties Table the value for Add application prompts for Java applications is set to Yes.
- ❑ Ensure that in the Preference Properties Table that the value for Allow single sign-on to Java applications is set to Yes.

The following JavaScript example is provided in the Tools folder on the SecureLogin distribution CD.

1. Start your Web browser (in this example, Microsoft Internet Explorer).
2. On the File menu, click *Open*.
3. On the SecureLogin distribution CD, in <drive> *Tools* > *java* > *java-page*, click `java.html`. The Open dialog box is displayed.
4. Click *OK*. The test Java page is displayed.



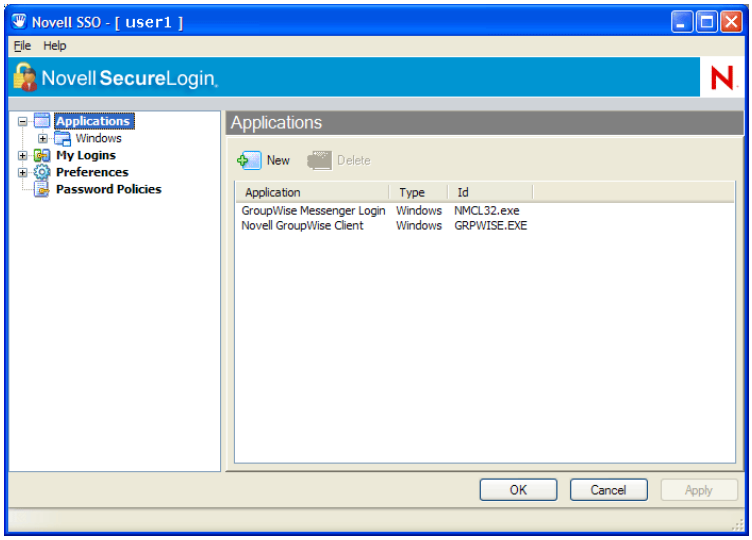
5. Then a message box appears. Click *Yes*.



SecureLogin extracts and saves the Java control information identifying the login fields required to create the SSO definition.

6. Open the Personal Management Utility either by double-clicking  , on the system tray or by selecting *Start* > *Programs* > *Novell SecureLogin* > *Novell SecureLogin*.

7 Click *Applications*.The Applications pane is displayed.

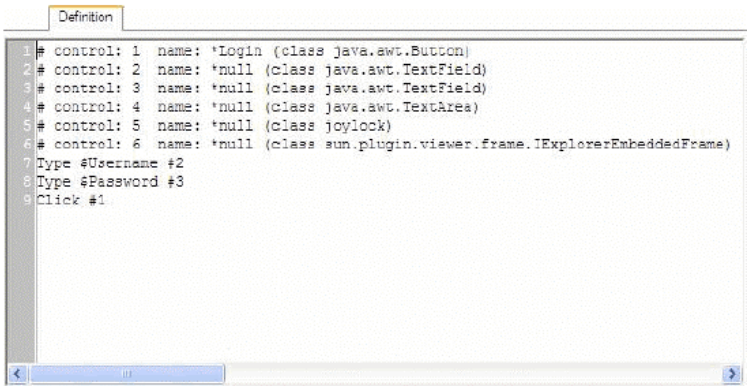


NOTE: SecureLogin identifies the Java Web page by the URL or internet address of the application. You can change the application description, however, it is important not to change the application name, as this uniquely identifies the Web page.

8 In the navigation tree, under Java, double-click the application definition name.

9 The *Details* tab is displayed.

10 Click the *Definition* tab. The Application Definition Editor is displayed.



The Java control information extracted from the Java login is displayed on the Definition tab. With this information, the SecureLogin application definition is built. The `#` symbol in the application definition denotes the text is a comment, therefore, the content of the application definition is currently information only. In this example `#control: 1` is the Login button, `#control: 2` is the Username box, and `#control: 3` is the Password box.

NOTE: Determining the right control number in a Java application may be a case of trial and error when configuring your application definition. Java SSO-enabled applications must be configured centrally and tested before distribution by the administrator.

11 On the *Definition* tab, specify the SecureLogin commands to build an application definition for the application.

In this example, the application definition to enter the username and password, and then click the Login button is:

```
Type $Username #2
Type $Password #3
Click #1
```

12 Click *OK* to save changes and close the Personal Management Utility.

13 Return to Microsoft Internet Explorer and press the `Ctrl + r` keys to reload the test Java logon. The Enter your credentials dialog box is displayed.

14 In the *Username* field, specify the user name.

15 In the *Password* field, specify the password.

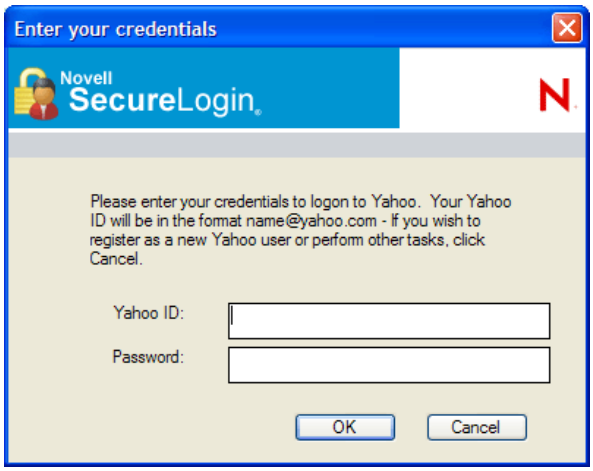
16 Click *Login*. The user name and password credentials are now saved for the application in SecureLogin, and you are logged on to the application.

You can configure additional Java logon functionality in the application definition. For more information, see *Novell SecureLogin 6.0 Application Definition Guide*.

8.4 Enable a Web Application Using a Predefined Application

To enable a Web application using a predefined application:

1 Start your Web browser and open the Web page that you want to SSO enable. The Enter your credentials dialog box is displayed.



2 In the User ID field, specify user name.

3 In the Password field, specify your password.

4 Click *OK*.

SecureLogin saves your credentials and uses them to log in to your account.

5 To check if the application is successfully enabled for single sign-on, sign out from the Web page. A confirmation message appears.

6 Click *Yes*. SecureLogin enters your credentials to log you back on to your account.

NOTE: •If the login was not successful, delete the application definition and repeat the enabling steps.

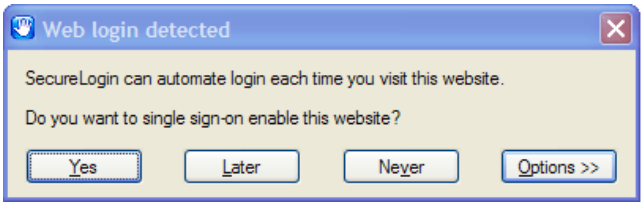
•You may need to review the application definition for completeness of event response and errors.

You can modify application definitions to respond to a wide range of Windows events in addition to logons. For more information, see *Novell SecureLogin 6.0 Application Definition Guide*.

8.5 Enable a Web Site Using the Web Wizard

1 Start your Web browser and navigate to the Web site containing the logon fields.

2 Enter your logon details. The Web login detected dialog box is displayed.



3 Click one of the following options:

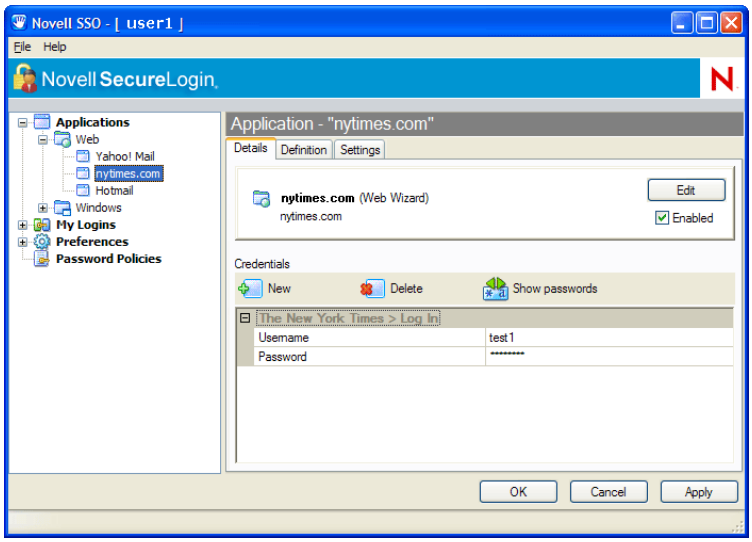
- **Yes:** To SSO-enable the Web site.
- **Later:** To stop the enabling process for this session. You will be prompted to enable the Web site the next time you logon.
- **Never:** To stop the enabling process for this Web site and never receive future prompts.
- **Options:** To customize the description for this application.

SecureLogin captures your login details and adds them to your Web application definitions.

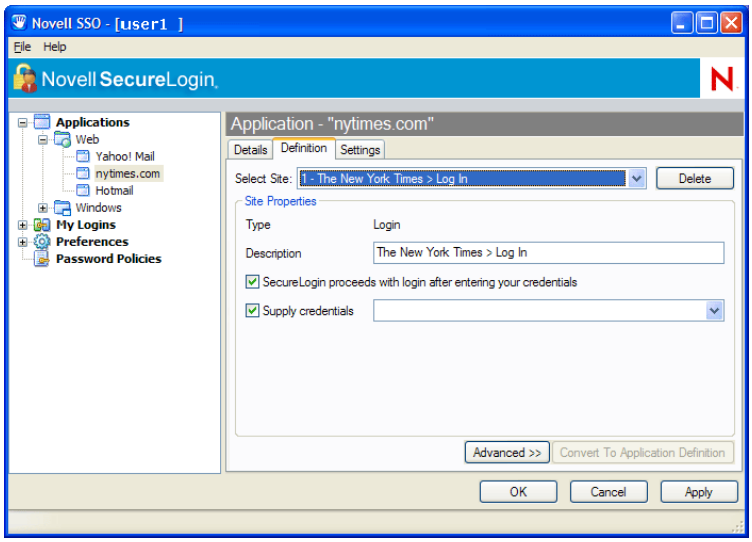
4 To view the application definition created above, start the Personal Management Utility.

5 Click *Applications*.The application definitions are listed in the Applications pane.

6 In the navigation tree, under *Web*, double-click the application created by the Web wizard. The *Details* tab lists the application definition.



7 Click the *Definition* tab.



NOTE: The Definition tab lists the application definition.The Definition tab allows you to customize site and credential details. Also available on this tab is an Advanced button which provides more functionality for these application definitions.

8 You can customize Site Properties by selecting the following:

Table 8-2 *Customizing Site Properties*

If...	Then...
You want to automatically log on to the Web site each time you go to it.	Select the *SecureLogin proceeds with login after entering your credentials* check box.

If...	Then...
You have more than one log on for a Web wizard application.	Select the *Supply credentials* check box and click the appropriate credentials in the drop-down list.
You want to view the descriptions and associated site details.	Click *Advanced*.
You want to convert the details on the Definition tab to a SecureLogin application definition which displays as script.	Click *Convert To Script*. If you select Convert To Script, the action cannot be reversed. You must delete the existing Web wizard application definition and repeat the process of SSO-enabling the Web site.

8.6 Enable a Web Site Using the Add Application Wizard

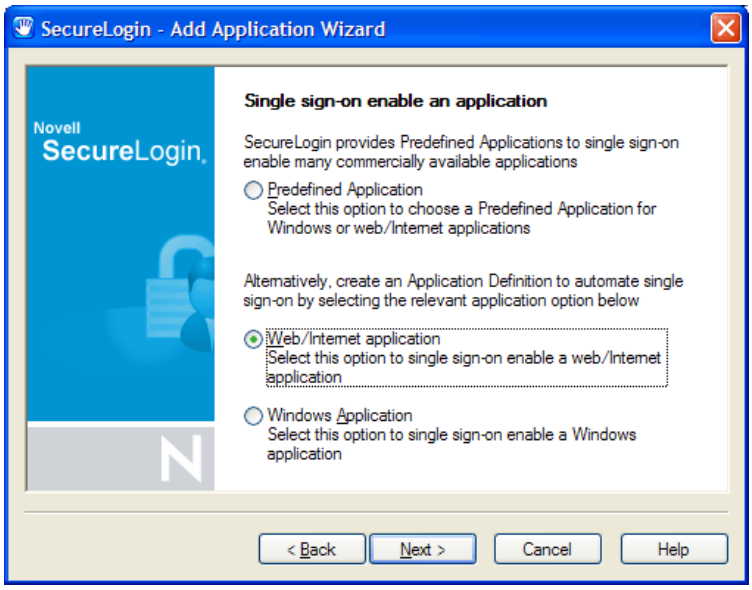
The Add Application Wizard helps you SSO-enable Web sites.

The Add Application Wizard and the Administrative Management Utility cannot be active simultaneously. Exit the Administrative Management Utility before using the Wizard.

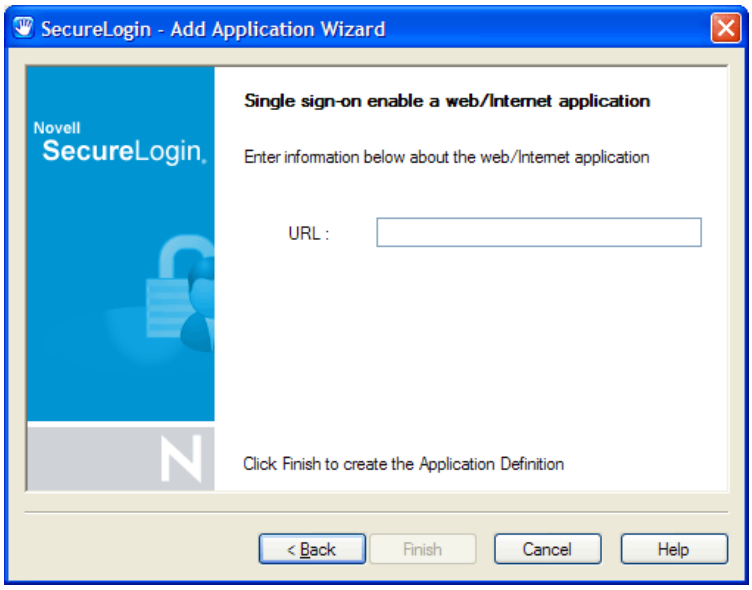
To Enable a Web site using the Add Application wizard:

1. Go to the Web site's login page.
2. On the system tray, right-click , and then click *Add Application*. The Welcome to SecureLogin page is displayed.

3 Click *Next*. The Single sign-on enable an application page is displayed.



4 Select the appropriate option, then click *Next*.The Single sign-on enable a web/Internet application page is displayed.



5 Copy and paste the Web site's URL into the URL field. Click *Finish*.

The Web site is now SSO-enabled and you will be automatically logged on to the Web site the next time you visit.

8.7 Enabling Terminal Emulator Applications

You can configure terminal emulators for SSO in the application definition editor in the Administrative Management Utility and Personal Management Utility and the Terminal Launcher tool.

To SSO enable a terminal emulator, you must run tlaunch.exe, which you configure in Terminal Launcher, and link to the configuration in an application definition. For more information, see *Novell SecureLogin 6.0 Application Definition Guide*.

For more information on enabling specific terminal emulators see, *Novell SecureLogin 6.0 Congifuration Guide for Terminal Emulation*. Contact Novell Technical Services for further Terminal Emulator support and documentation.

Terminal Launcher helps you configure terminal emulator applications for SSO-enabling. The following sections document the procedure to do the following through an example application:

- Create and save a terminal emulator session file.
- Build a terminal emulator application definition.
- Run Terminal Launcher.
- Create a terminal emulator desktop shortcut.
- Set Terminal Launcher command line parameters.

Although these procedures apply to most terminal emulators, the application definition and other configuration information may differ for each emulator application. Contact Novell Technical Services for help.

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

Prior to SSO-enabling any terminal emulator, 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.

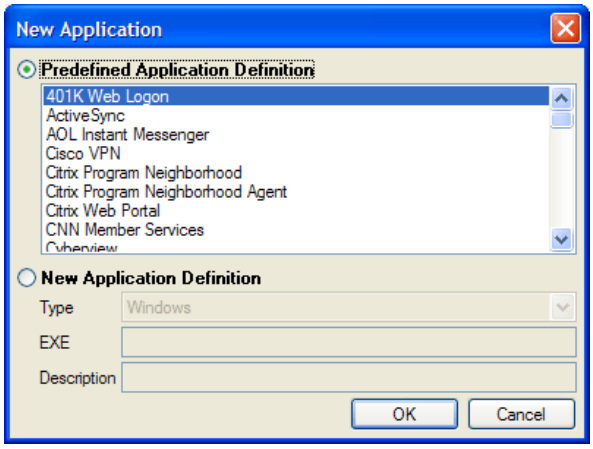
8.8 Create and Save a Terminal Emulator Session File

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.

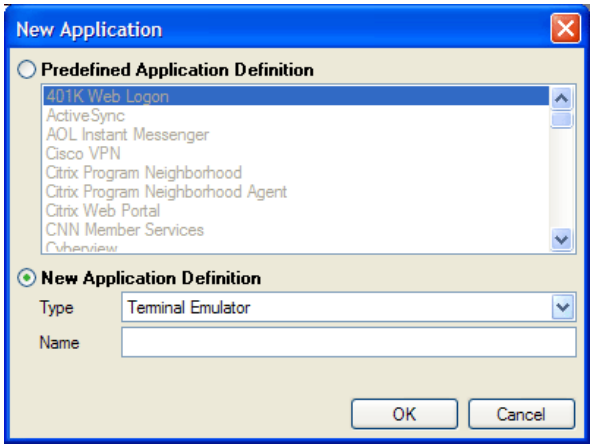
8.9 Build a Terminal Emulator Application Definition

In the following procedure, we are building a terminal emulator application definition on the local workstation for the example application, Eicon Aviva. For more information about application definitions, see *Novell SecureLogin 6.0 Application Definition Guide*.

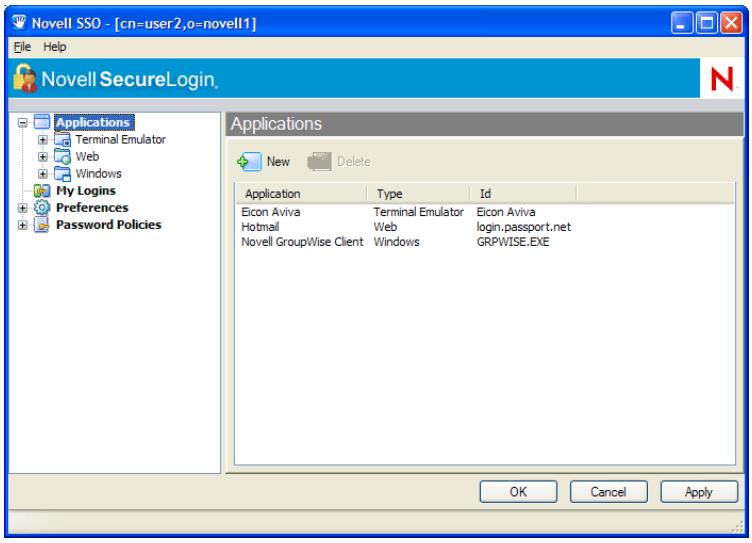
1. Open the Personal Management Utility of SecureLogin by double-clicking or by selecting *Start* > *Programs* > *Novell SecureLogin* > *Novell SecureLogin*.
2. Select *File* > *New* > *Application*. The New Application dialog box is displayed.



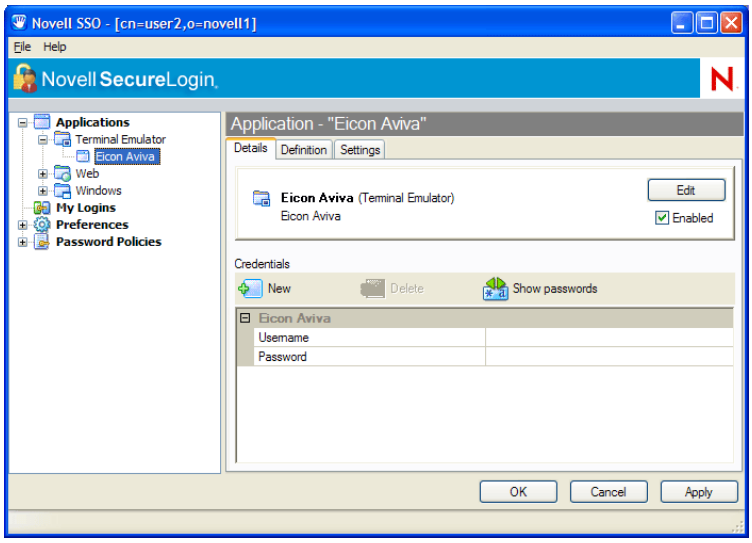
3. Select *New Application Definition*.
4. In the *Type* drop-down list, click *Terminal Launcher*.



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.

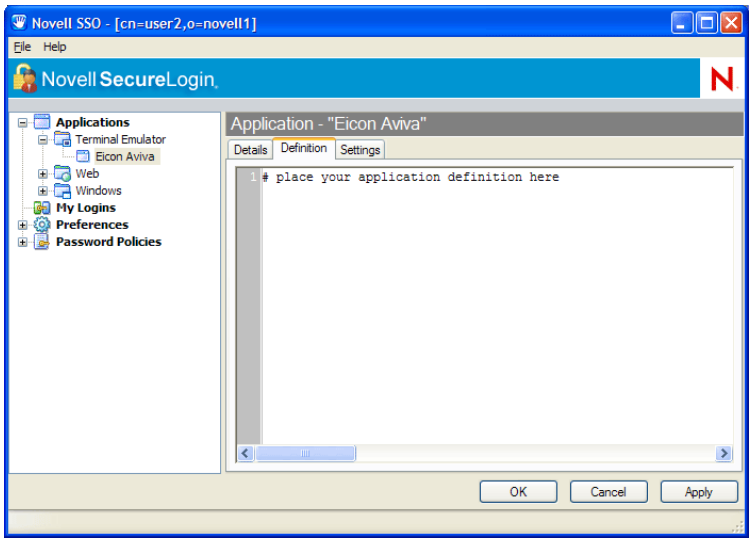


6 Double-click the new application definition. The *Details* tab is displayed.



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
```

NOTE: 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 the *Enabled* check box is selected.

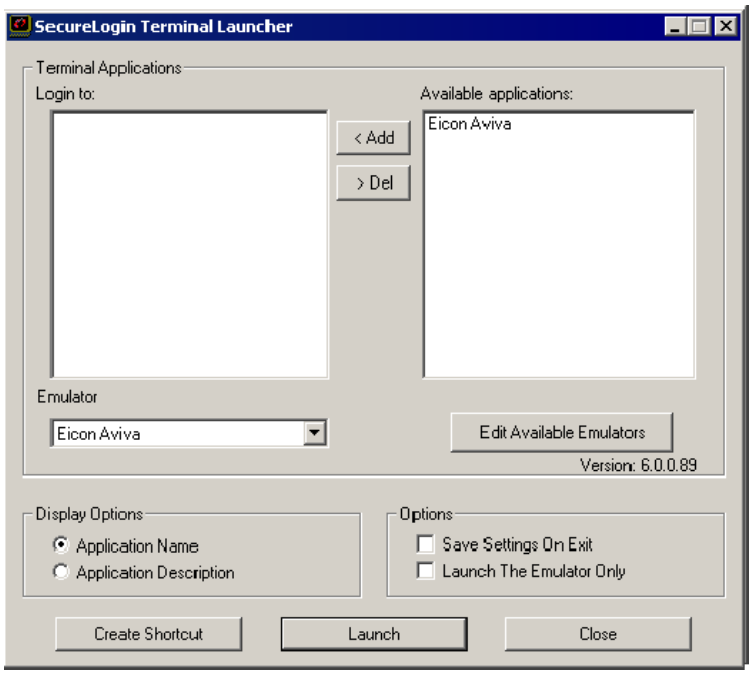
12 Click *OK*.

8.10 Run Terminal Launcher

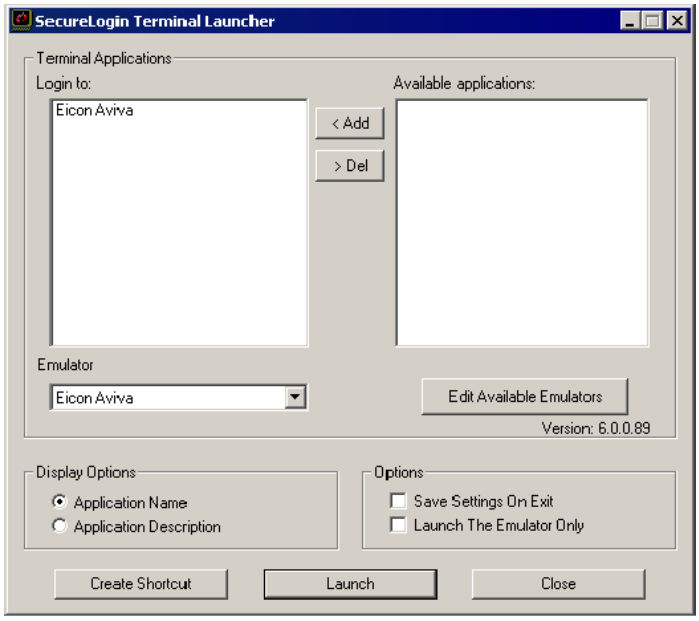
Terminal applications require Terminal Launcher to execute for SSO. After you create the application definition in the Management Utility, you must configure it to start Terminal Launcher.

A shortcut is created to enable the user to run Terminal Launcher and the terminal emulator from the desktop with automated SSO to the application or server.

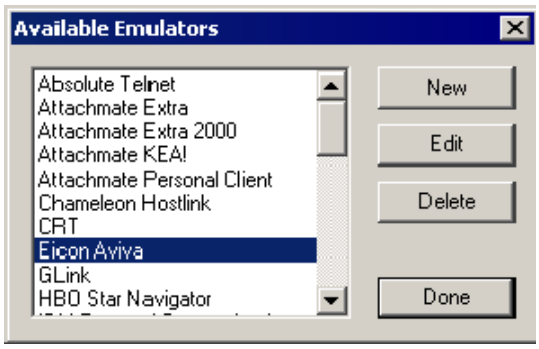
1. Select *Start* > *Programs* > *Novell SecureLogin* > *Terminal Launcher*. The Terminal Launcher dialog box is displayed.



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.

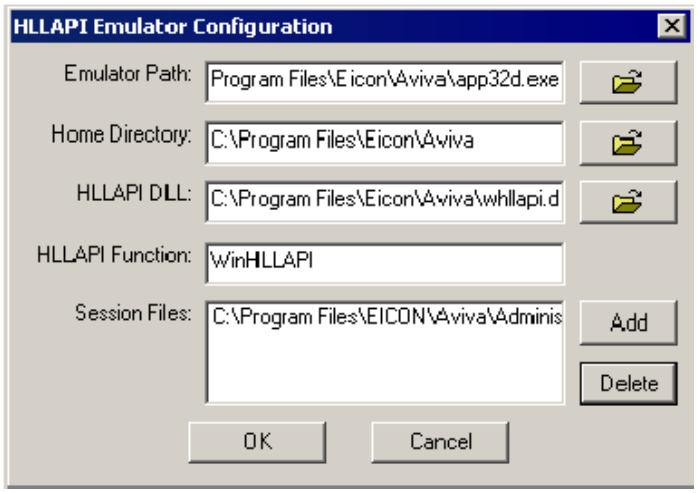


4 Click *Edit Available Emulators*. The Available Emulators dialog box is displayed.



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

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



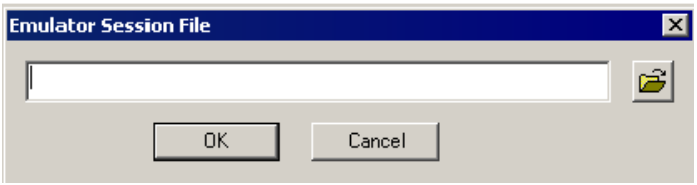
7 In the *Emulator Path* field, specify the emulator executable's location.

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. For more information on configuring a session file see, Section 8.8, "Create and Save a Terminal Emulator Session File," on page 60.

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 Eicon Aviva is selected in the Emulator drop-down list.

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

18 Click *Close*.

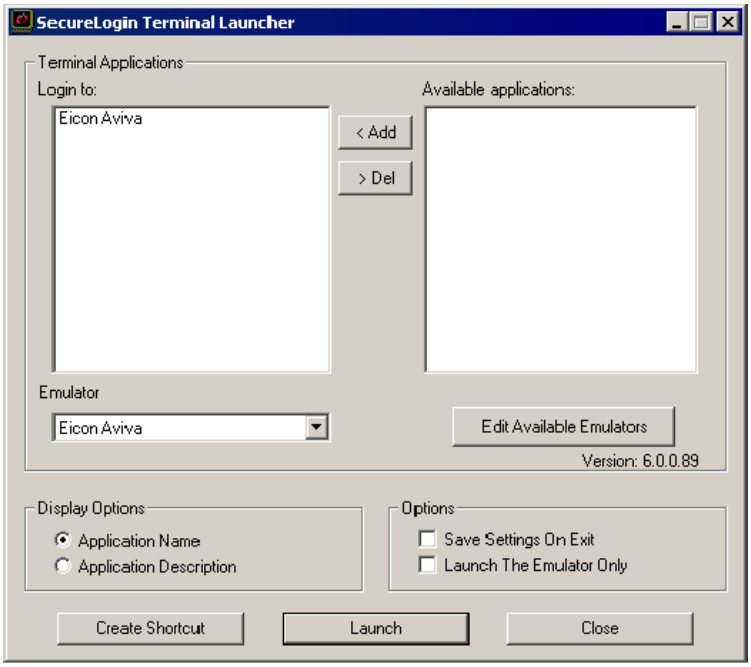
Stand-alone users or administrators can choose to start emulator applications in Terminal Launcher; however, users may not have access to Terminal Launcher. To simplify login for users, a desktop shortcut is created.

Since Terminal Launcher must start before the terminal emulator application to successfully automate SSO logon, the desktop shortcut includes the command to run Terminal Launcher first and then the emulator application.

NOTE: Record the exact name given to the terminal emulator in the Terminal Launcher dialog box, since it will be referred to in the desktop shortcut.

8.11 Create 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 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 Launcher SSO-configured terminal emulator application. 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 any additional parameters as required. For more information, see Section 8.12, "Set Terminal Launcher Command Line Parameters," on page 67.

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 user name 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.

8.12 Set 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 8.11, "Create a Terminal Emulator Desktop Shortcut," on page 66.

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

Table 8-3 *Terminal Launcher Command Line Parameters*

Parameter	Description
`/auto`	Indicates to Terminal Launcher that the following is a parameter requesting the execution of a Terminal Launcher SSO-configured terminal emulator application. 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` 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.
`/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.

Parameter	Description
/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

Reauthenticating Applications

9

Advanced authentication allows you to reauthenticate an application against an AA device where SecureLogin is used in conjunction with SLAA or Novell® NMAS infrastructure. If you have SLAA or NMAS in place against an application, then do the following:

NOTE: For environments that use NMAS infrastructure, you may add the NMAS method into the Reauthentication Method value field by entering a free text string provided by Novell.

---

1. Access the Administrative Management Utility of SecureLogin.

   For more information on how to access the Administrative Management Utility see, Section 1.2, “Administrative Management Utility,” on page 12.

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. Select the device that you will use for reauthentication from the *Reauthentication Method* drop-down list. 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

   ---

Adding Multiple Logins

10

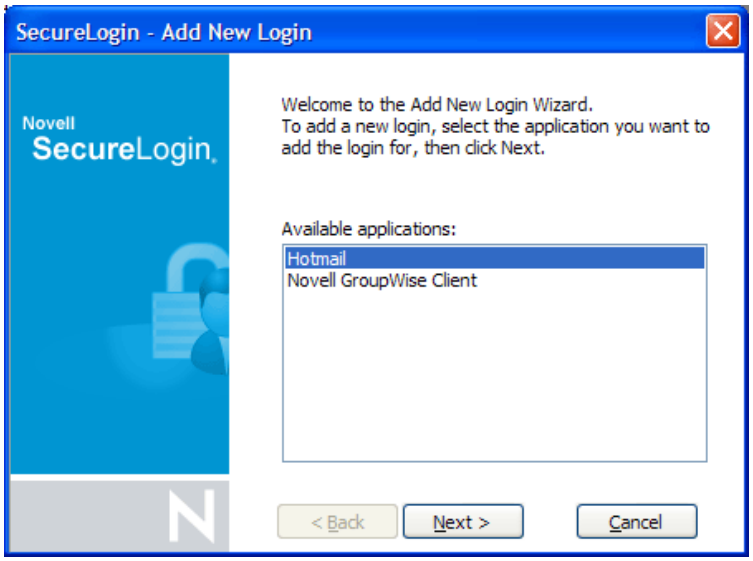
Novell® SecureLogin allows you to enable multiple logins to SSO to the same application. Before SSO-enabling your additional logins, make a list, including user names and passwords, with a name to uniquely identify the login. The following is an example list:

Table 10-1 *List of Additional logins*

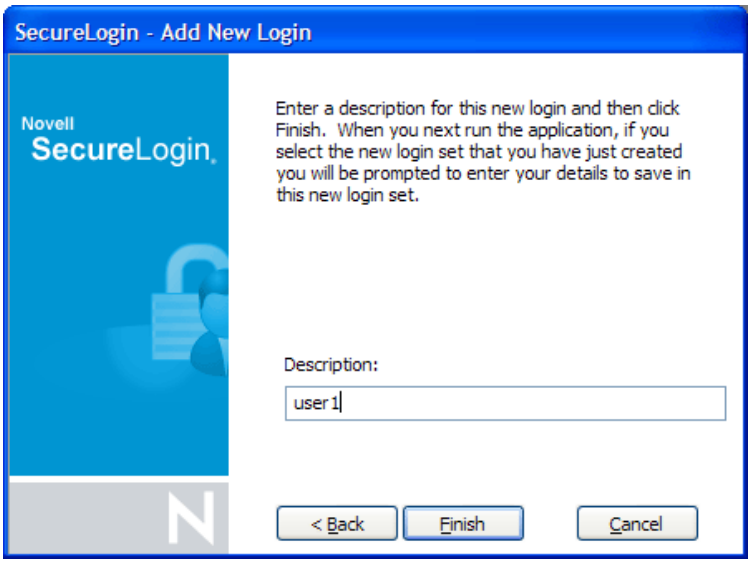
Name	User Name	Password
Administrator	admin	123456
Support	help	abcdef
User	test1	xyz123

When the list is completed, SSO-enable the first logon in the list following the relevant procedure.

1. SSO-enable the first account login. For more information, see Section 8.5, “Enable a Web Site Using the Web Wizard,” on page 56
2. On the system tray, right-click  , then select *New Login*. The Add New Login Wizard Welcome page is displayed.
3. Select the required enabled application.
4. Click *Next*. The Add New Login page is displayed.



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



6 Click *Finish*. The Enter your credentials dialog box is displayed.

7 In the *Username* field, specify your user name.

8 In the *Password* field, specify your password.

9 Enter any additional variables as required, then click *OK*.

10 Repeat steps to add any additional logons as required. When you have created all logins with the Add New Login wizard, you can view them and manage them in the Personal Management Utility.

11 On the system tray, double-click  to open the Personal Management Utility.

12 Click *My Logins*. The My Logins pane is displayed.

13 Verify that the additional login is added to the *My Logins* pane, then click *OK* to close the Personal Management Utility.

14 Log in to the application with multiple SecureLogin accounts. Start the application.

The [application] login selection dialog box is displayed.

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

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

Managing Application Definitions 11

This section contains the following information:

11.1 Add Support for Password Changes

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

Using the Add Application Wizard *Novell SecureLogin 6.0 Overview*, 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.

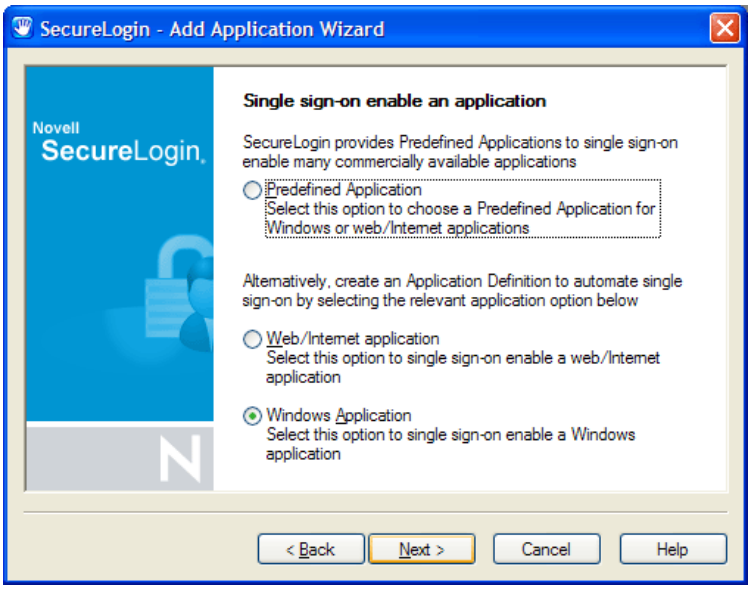
NOTE: The Change Password dialog box must be displayed for the Add Application Wizard to identify it.

---

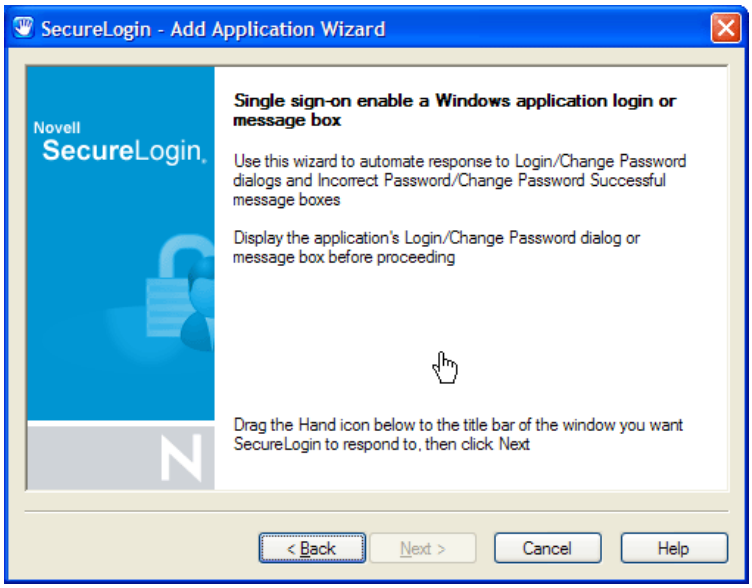
1 Display the Change Password dialog box.

2 On the system tray, right-click , and then click *Add Application*. The Welcome to SecureLogin page is displayed.

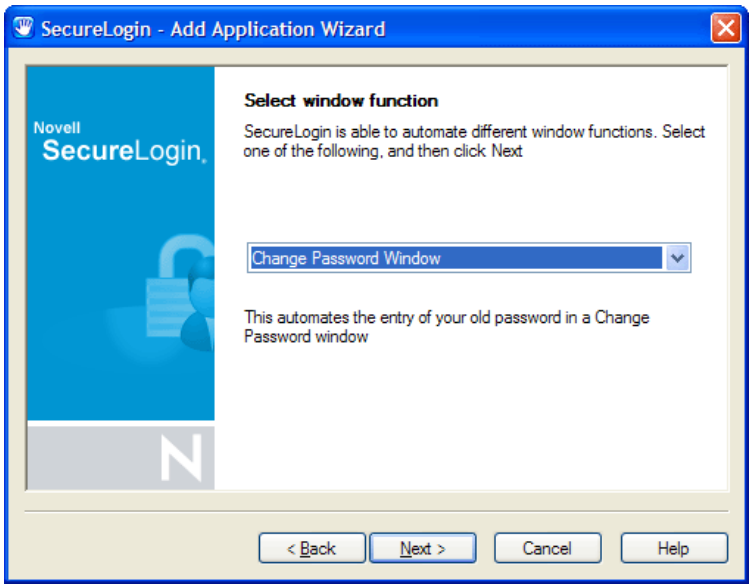
3 Click *Next*. The Single sign-on enable an application page is displayed.



4 Click *Next*. The Single sign-on enable a Windows application login or message box is displayed.

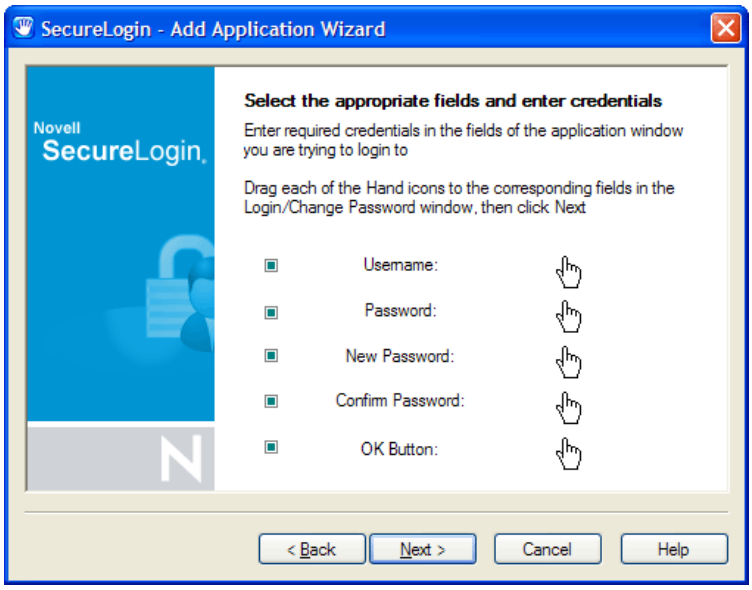


5 Click and drag the onto the application's login title bar. The Select window function page is displayed.



6 In the drop-down list, select *Change Password Window*.

7 Click *Next*. The Select the appropriate fields and enter credentials page is displayed.



8 Click and drag the onto the appropriate boxes, and then click and drag the onto *OK*. This ensures all fields are active and can be identified by the wizard.

9 Click *Next.* The Name the Application Definition page is displayed.

10 Select the name of the application definition created initially for the application's logon (recommended), then click *Finish*. The Add Application Wizard updates the application definition and closes.

11.2 Respond to Application Messages

When building a SecureLogin application definition for an application, it is important to respond to any messages that the application generates. Actions for each of these messages should be included in the application definition to ensure SecureLogin responds appropriately.

This section has the following information:

- Section 11.2.1, "Change an Application Definition to Respond to a Change Successful Message," on page 78
- Section 11.2.2, "Change an Application Definition to Respond to a Login Successful Message," on page 79
- Section 11.2.3, "Change an Application Definition to Respond to a Login Failure Message," on page 79

11.2.1 Change an Application Definition to Respond to a Change Successful Message

After a password has been changed successfully, in many application logins, a Change Successful message appears. Using the Add Application Wizard, you can change your application definition to respond to this event by clearing the application message and updating your SecureLogin stored credentials.

NOTE: Ensure that the Change Successful message is displayed so that the Add Application Wizard can identify it.

11.2.2 Change an Application Definition to Respond to a Login Successful Message

NOTE: Ensure that the Login Successful message is displayed so that the Add Application Wizard can identify it.

1. On the system tray, right-click  , and then select *Add Application*.The Welcome to SecureLogin page is displayed.
2. Click *Next*. The Single sign-on enable an application page is displayed.
3. Select *Windows Application*, then click *Next*. The Single sign-on enable a Windows application login or message box page is displayed.
4. Click and drag the Hand icon to the application's Change Password dialog box title bar. The Select window function page is displayed.
5. Click *Next.* The Select the appropriate fields and enter credentials page is displayed.
6. Click and drag the *Message Text* Hand icon to the message text on the message.
7. Click and drag the *OK* Button Hand icon to the *OK* on the message.
8. Click *Next*. The Name the Application Definition page is displayed.
9. Select the name of the application definition created initially for the application's logon (recommended). Click *Finish*.

   The Add Application Wizard updates the application definition and closes.

11.2.3 Change an Application Definition to Respond to a Login Failure Message

If an error occurs during login (for example, a credential is incorrect), the Login Failure message appears. Using the Add Application Wizard, you can change the application definition to respond to these events and update your SecureLogin stored credentials.

NOTE: Ensure the Login Failure message is displayed so that the Add Application Wizard can identify it.

1. On the system tray, right-click  , and then select *Add Application*. The Welcome to SecureLogin page is displayed.
2. Click *Next*. The Single sign-on enable an application page is displayed.
3. Select *Windows Application*, then click *Next*. The Single sign-on enable a Windows application login or message box page is displayed.
4. Click and drag the Hand icon to the application's Change Password dialog box title bar. The Select window function page is displayed.
5. In the drop-down list, select *Incorrect Password Message*.
6. Click *Next*. The Select the appropriate fields and enter credentials page is displayed.

7 Click and drag the Message Text Hand icon to the message text on the message.

8 Click and drag the *OK* Button Hand icon to the *OK* on the message.

9 Click *Next*. The Name the Application Definition page is displayed.

10 Select the name of the application definition created initially for the application's logon (recommended).

Click *Finish*.

The Add Application Wizard updates the application definition and closes. The next time the user logs on incorrectly, an error message appears.

NOTE: If the application returns different messages for similar errors (for example, different messages for an incorrect user name or password), you should configure the Add Application Wizard for one message. Additional messages require editing the application definition using the DisplayVariables command. For more information, see *Novell SecureLogin 6.0 Application Definition Guide*.

11.3 Delete an SSO-Enabled Application Definition

Any change made to an application definition through a directory management utility is available to all associated directory objects. Application definitions inherited from higher level objects, for example, a container or organizational unit, display a red triangle on the application type icon.

1 Access the Administrative Management Utility of SecureLogin.

For more information on how to access the Administrative Management Utility see, Section 1.2, "Administrative Management Utility," on page 12 and Section 1.3, "Accessing the SSO Plug-In Through iManager," on page 13.

2 Click *Applications*, then select the application that you want to delete.

3 Click *Delete*.

4 Click *OK*. A confirmation message appears.

5 Click *Yes*.

Distributing Configurations

12

This section contains the following information:

12.1 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/backup to stand-alone users.

An SSO environment that is configured at the container, OU, or Group Policy level is inherited by all associated directory objects in the hierarchy.

We recommend that you first SSO-enable applications 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.

12.2 Distribute Configurations Within Directory Domains

There are two options for distributing the SSO-configured environment within the domain:

- **Corporate Redirection:** Specifies the object from which the selected object will inherit its SecureLogin configuration settings. These settings are redirected and inherited by the object. For more information, see Section 12.3, “Set Corporate Redirection,” on page 82.
- **Copy SecureLogin Configuration:** Replicates and stores the SecureLogin environment from one directory object to another. For more information, see Section 12.4, “Copy a Configuration Across Organizational Units,” on page 83.

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

Table 12-1 *Enter Table Title Here*

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. We do not recommend using Corporate redirection across a LAN/ WAN.	Click *Corporate redirection*.
You: • Want to distribute configurations within the same domain across a LAN/WAN. • Want to quickly replicate a complete SecureLogin configuration environment from one object to another in the directory. • Do not want to use XML files to distribute SecureLogin configuration data.	Click *Copy SecureLogin configuration*.

12.3 Set Corporate Redirection

Corporate redirection functionality bypasses native directory inheritance by specifying, in the Corporate redirection tab of the Advance Settings pane, the object from which the object will inherit its SecureLogin 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.

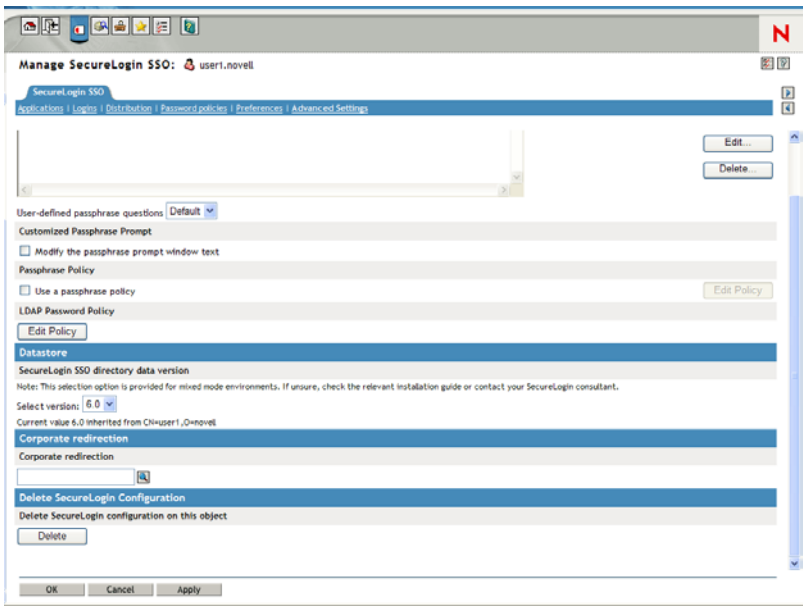
Inheritance of SecureLogin data using Corporate redirection functionality stops at the container/ organizational unit. Any settings, enabled applications, or password rules that are inherited by the container or organizational unit providing the SecureLogin environment will not be inherited from a higher level directory object.

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

1 Access the Administrative Management Utility of SecureLogin.

  For more information on how to access the Administrative Management Utility see, Section 1.2, "Administrative Management Utility," on page 12 and Section 1.3, "Accessing the SSO Plug-In Through iManager," on page 13.

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.

4 Press the *Apply*.

5 Click *OK*.

IMPORTANT: 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 as part of a SecureLogin environment to the container/organizational unit, including the Administrator user object, the administrator cannot view or change SecureLogin settings since they reside in that organizational unit. To prevent this from happening, it is recommended that all administrator user objects are located in a separate organizational unit, and administrator preferences are manually configured.

12.4 Copy 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 Access the Administrative Management Utility of SecureLogin.

For more information on how to access the Administrative Management Utility see, Section 1.2, "Administrative Management Utility," on page 12 and Section 1.3, "Accessing the SSO Plug-In Through iManager," on page 13.

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.

Table 12-2 *Description of check boxes*

Configuration	Function
Applications	Copies, exports, imports all configured application definitions, as displayed in the Applications pane.
Credentials	Copies, exports, imports all credentials as displayed in the Logins pane, excluding passwords for copy settings and uninterrupted export/import. **NOTE:** This option is not available through iManager.
Password Policies	Copies, exports, imports password policies as displayed in the Password Policies Properties Table
Preferences	Copies, exports, imports all preferences manually set in the Preferences pane.
Active Passphrase Question	Provides users with a selection of passphrase questions. This option copies, exports, 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 *OK*.

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. For more information on predefined applications, see the *Novell SecureLogin 6.0 Overview*. Provides users with a selection of passphrase questions. This option copies/exports/imports only the passphrase question the user has responded to.

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*.

Exporting and Importing Configurations

13

This section contains the following information:

13.1 About Exporting and Importing Configurations

Novell® SecureLogin provides a range of options for backing up and distributing all, or selected, components of the SecureLogin configuration environment, including backing up and restoring the local configuration on the workstation.

The export and import functionality of SecureLogin creates an XML file, internal or 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 export or import the following XML file types:

- Unencrypted.
- Encrypted and password-protected.
- Digitally signed and encrypted.

From the Distribution pane, you can do the following:

- Export XML settings. For more information see Section 13.2, “Export XML Settings,” on page 85.
- Import XML settings. For more information see Section 13.3, “Import XML Settings,” on page 87.
- Export SSO data in encrypted XML files. For more information see Section 13.4, “Export SSO Data in Encrypted XML Files,” on page 89.
- Import SSO data in encrypted XML files. For more information see Section 13.5, “Import SSO Data in Encrypted XML Files,” on page 91.

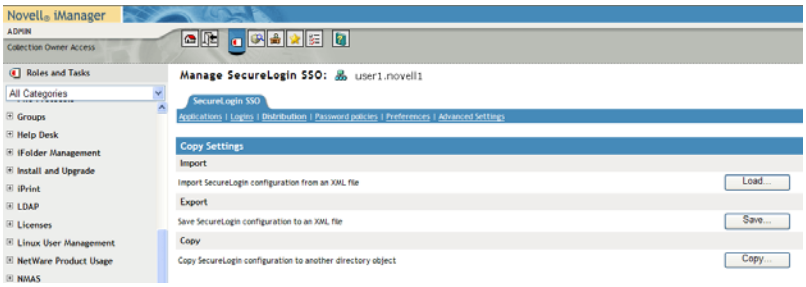
13.2 Export XML Settings

To export XML settings:

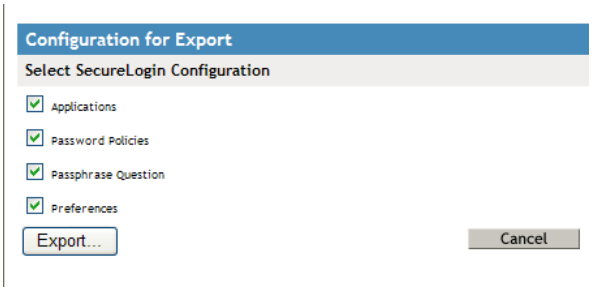
1 Access the Administrative Management Utility of SecureLogin.

For more information on how to access the Administrative Management Utility see, Section 1.2, “Administrative Management Utility,” on page 12 and Section 1.3, “Accessing the SSO Plug-In Through iManager,” on page 13.

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



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



4 Select or clear the appropriate check boxes.

The following table describes each check box:

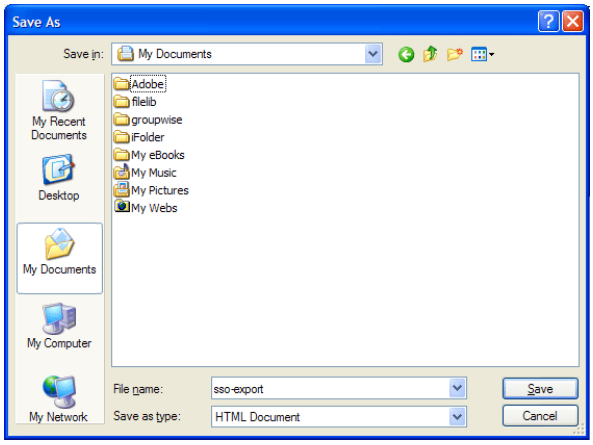
Configuration	Function
Applications	Copies, export, imports all configured application definitions, as displayed in the Applications pane.
Credentials	Copies, export, imports all credentials as displayed in the Logins pane, excluding passwords for copy settings and unencrypted export/import.
	NOTE: This option is not present for iManager.
Password Policies	Copies, exports, imports password policies as displayed in the Password Policies Properties Table.
Preferences	Copies, exports, imports all preferences manually set in the Preferences Properties Tables.
Passphrase Question	Provides users with a selection of passphrase questions. This option copies, exports, imports only the passphrase question the user has responded to.

5 Under *Select File Protection*, select *Not encrypted*.

NOTE: This option is not present for iManager.

6 Click *Export*. Do you want to open or save this file? dialog box is displayed.

7 Click *Save*.



8 In the *File name* field, specify a file name.

9 Click *Save*. A confirmation message appears stating what information has been saved to the XML file.

10 Click *OK*.

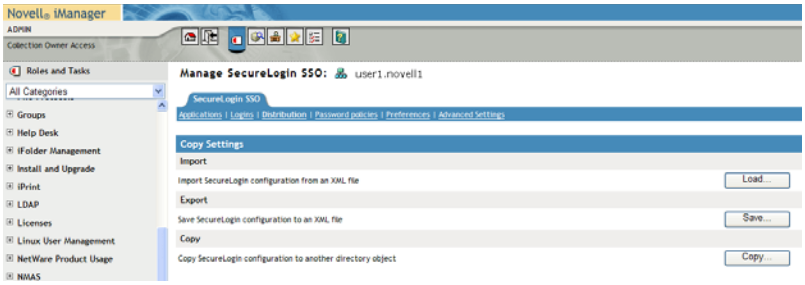
13.3 Import XML Settings

To import XML settings:

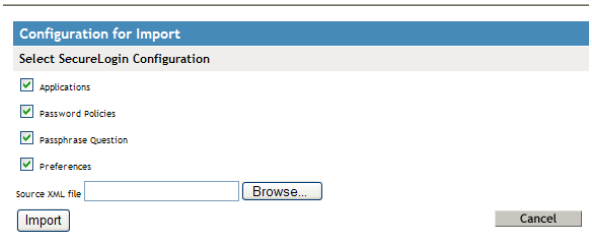
1 Access the Administrative Management Utility of SecureLogin.

For more information on how to access the Administrative Management Utility see, Section 1.2, “Administrative Management Utility,” on page 12 and Section 1.3, “Accessing the SSO Plug-In Through iManager,” on page 13.

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



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



4 Select or clear the appropriate check boxes.

The following table describes each check box:

Configuration	Function
Applications	Copies, exports, imports all configured application definitions, as displayed in the Applications pane.
Credentials	Copies, exports, imports all credentials as displayed in the Logins pane, excluding passwords for copy settings and uninterrupted export or import. **NOTE:** This option is not present for iManager.
Password Policies	Copies, exports, imports password policies as displayed in the Password Policies Properties Table.
Preferences	Copies, exports, imports all preferences manually set in the Preferences Properties Tables.
Passphrase Question	Provides users with a selection of passphrase questions. This option copies, exports, imports only the passphrase question the user has responded to.

5 Click *OK*.

6 Select the exported XML file, then click *Open*. If a predefined application or an application definition currently exists in the destination object, a confirmation message appears.

7 Click:

- *Yes* if you are sure that the imported application definition is preferred over the application definition currently stored, as the application definition cannot be retrieved.
- *No* to prohibit importing of the application definition and to retain the application definition currently stored in the user cache.

8 The selected SecureLogin configuration is copied across to the destination user object, organizational unit, or container.

A confirmation message appears stating the information that has been loaded to the destination object.

9 Click *OK*.

IMPORTANT: If you are saving credentials, you must select either the Password-protected and encrypted option or Digitally signed and encrypted option for file protection. Credentials cannot be saved to an unencrypted XML file.

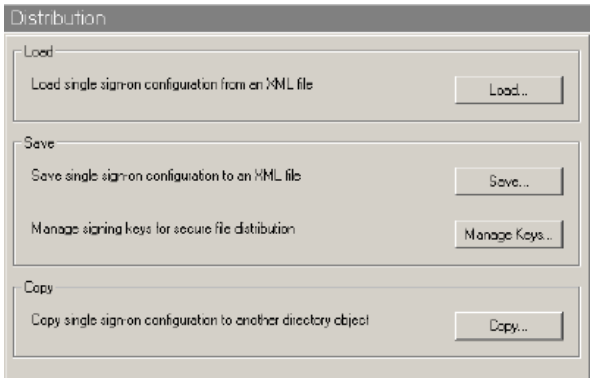
13.4 Export SSO Data in Encrypted XML Files

To export SSO data in encrypted XML files:

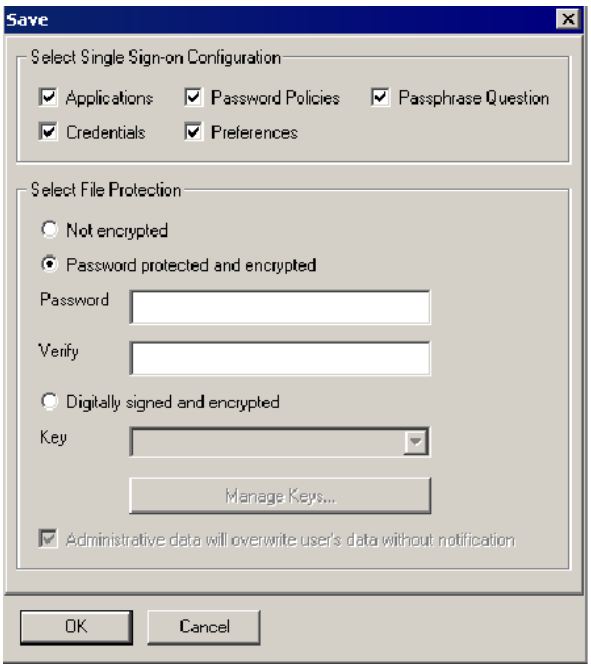
1 Access the Administrative Management Utility of SecureLogin.

For more information on how to access the Administrative Management Utility see, Section 1.2, “Administrative Management Utility,” on page 12.

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



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



4 Select or clear the appropriate check boxes.

The following table describes each check box.

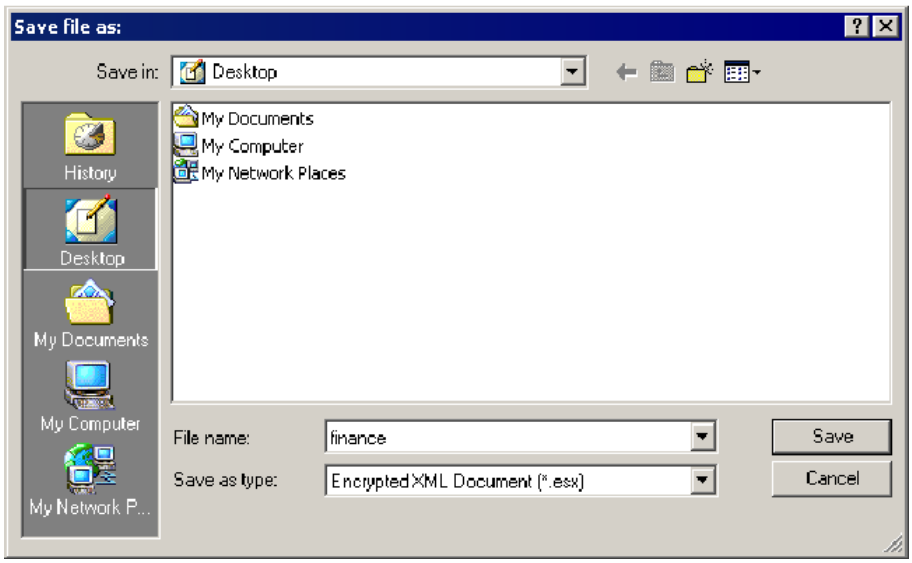
Configuration	Function
Applications	Copies, exports, imports all configured application definitions, as displayed in the Applications pane.
Credentials	Copies, exports, imports all credentials as displayed in the Logins pane, excluding passwords for copy settings and unencrypted export/import.
	NOTE: This option is not present for iManager.
Password Policies	Copies, exports, imports password policies as displayed in the Password Policies Properties Table.
Preferences	Copies, exports, imports all preferences manually set in the Preferences Properties Tables.
Passphrase Question	Provides users with a selection of passphrase questions. This option copies, exports, imports only the passphrase question the user has responded to.

5 Under *Select File Protection,* select *Password protected and encrypted.*

6 In the *Password* field, specify a password.

7 In the *Verify* field, retype the password.

8 Click *OK*. The *Save file as* dialog box is displayed.



9 Select the file location.

10 In the *File* name field, specify a file name.

11 Click *Save*. The selected SecureLogin configuration is saved and a confirmation message appears stating what information has been saved.

12 Click *OK*.

13.5 Import SSO Data in Encrypted XML Files

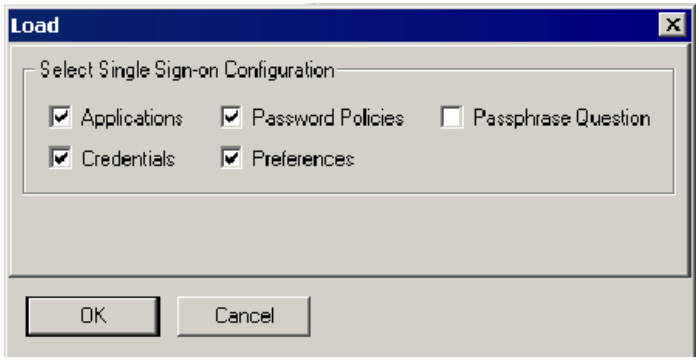
To import SSO Data in Encrypted XML Files:

1 Access the Administrative Management Utility of SecureLogin.

For more information on how to access the Administrative Management Utility see, Section 1.2, “Administrative Management Utility,” on page 12.

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

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

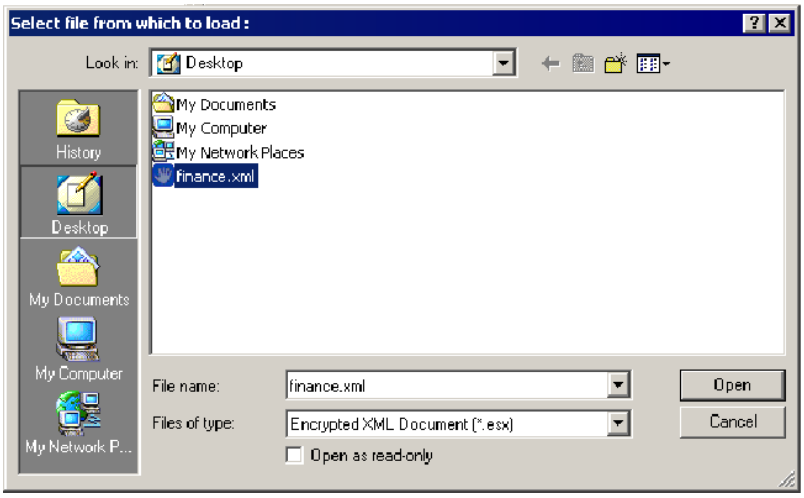


4 Select or clear the appropriate check boxes.

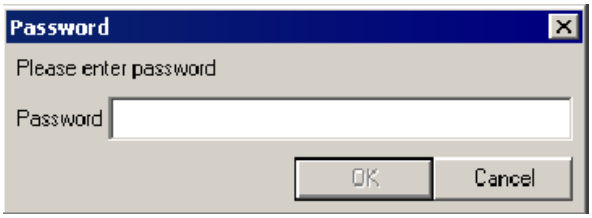
The following table describes each check box.

Configuration	Function
Applications	Copies, exports, imports all configured application definitions, as displayed in the Applications pane.
Credentials	Copies, exports, imports all credentials as displayed in the Logins pane, excluding passwords for copy settings and unencrypted export/import.
	NOTE: This option is not present for iManager.
Password Policies	Copies, exports, imports password policies as displayed in the Password Policies Properties Table.
Preferences	Copies, exports, imports all preferences manually set in the Preferences Properties Tables.
Passphrase Question	Provides users with a selection of passphrase questions. This option copies, exports, imports only the passphrase question the user has responded to.

5 Click *OK*. The *Select file from which to load* dialog box is displayed.



6 Click *Open*. The Password dialog box is displayed.



7 In the *Password* field, specify the password.

8 Click *OK*. If a predefined application or an application definition currently exists in the destination object, a confirmation message appears.

9 Click:

- *Yes* if you are sure that the imported application definition is preferred over the application definition currently stored, as the application definition cannot be retrieved.
- *No* to prohibit importing of the application definition and to retain the application definition currently stored in the user cache.

The selected SecureLogin configuration is copied across to the destination user object, organizational unit, or container.

A confirmation message appears, stating the information that has been copied to the destination object.

10 Click *OK*.

Using the SLAP Tool

14

This section contains the following information:

14.1 About the SLAP Tool

The SecureLogin Attribute Provisioning (SLAP) tool allows SecureLogin to leverage user data from an organization’s provisioning system. You can use SLAP to import the following 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
- Logons
- 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 Copy Settings, the SLAP tool can extract user names. The SLAP tool cannot export from SecureLogin 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 logon with the SLAP tool. Use a file containing multiple users’ username/password combinations from SAP, and import the file into the SecureLogin datastore as a bulk process using the SLAP tool. The SLAP tool removes the requirement for each user to enter credentials on first log on to SecureLogin.

NOTE: 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 changed by the user after deployment.

14.2 SLAP Syntax

```
slaptool [-hlaspcPef] -r object_name_file | -o "object" [file ...]
```

The following table describes the command options:

Table 14-1 *SLAP tool command options*

Commands	Description
-h	Displays help message and exit (all other options are ignored).
-l	Excludes userIDs.
-v	Excludes variables (passwords will not be exported in current version).
-a	Excludes applications.
-s	Excludes settings.
-p	Excludes password policies.
-c	Excludes credsets.
v	Excludes Passphrase (affects import only).
-e	Performs export rather than 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 - user will be selected interactively at run time).

[file ...]	Specifies one or more .XML files from which to read data (or to write to in the case of exporting). No file specification reads/writes data from/to stdin/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 on 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/response combination: `slaptool.exe -k password -o context filename.xml`

14.2.1 SLAP Tool Example

The following Perl application definition, created for the example organization discussed previously, assumes user names 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 (see the following example) 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
foreach $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*".


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 Workstation Cache

15

This section contains the following information:

15.1 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 smartcard 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 either under <Path to SecureLogin >\Cache.

For example:

```
C:\Program Files\SecureLogin\Cache
```

or in the user's profile, for example,

```
C:\Documents and Settings\<Username>\Application
Data\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, SSO 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: SecureLogin cache refresh interval is by default five minutes. You can change the default in the Preferences Properties Table.

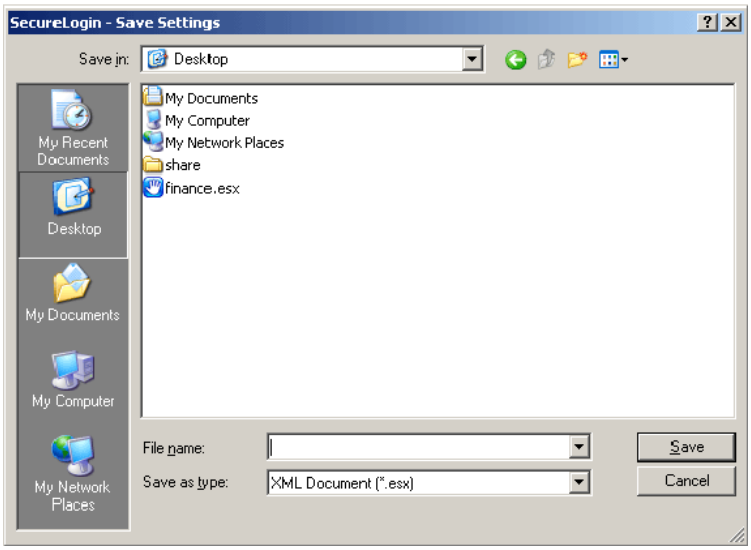
Since SecureLogin data is stored in the directory, existing directory backups also backup SecureLogin data. In addition, the local cache synchronizes with the directory for further redundancy of data. Backup or restore using the SecureLogin menu options is typically performed

by users who have been disconnected from the network for long periods of time, such as weeks or months.

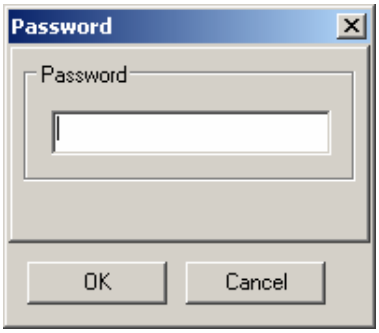
Using workstation backup and restore, users can securely back up their SecureLogin cache in stand-alone or directory deployments. All user data, including passwords and passphrases, is saved in a password-protected, encrypted XML file.

15.2 Create a Backup File

1. On the system tray, right-click , 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.

6 Click *OK*. The encrypted and password-protected backup file is saved, and a confirmation message appears.

7 Click *OK*.

15.3 Delete the Local Workstation Cache

Before restoring the backup file, you must delete the cache file on the workstation and in directory environments, deleting the User Object Data in the directory. For more information see, Section 2.4, "Reset User Data," on page 17. This is important in cases of data corruption locally or in the directory.

For more information about the SecureLogin cache file, see the *Novell SecureLogin 6.0 Overview*.

1 Right-click the Windows *Start* button, and then click *Explore*.

2 Browse to the following directory: *C:\Documents and Settings\[user]\Application Data\SecureLogin\Cache*

NOTE: Ensure you have selected Show hidden files and folders in the Windows Folder Options dialog box.

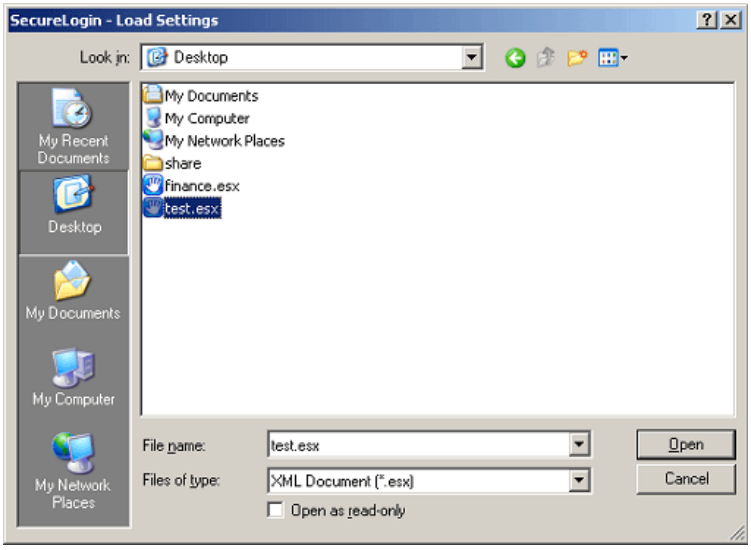
---

3 Delete the cache directory.

4 Close Windows Explorer.

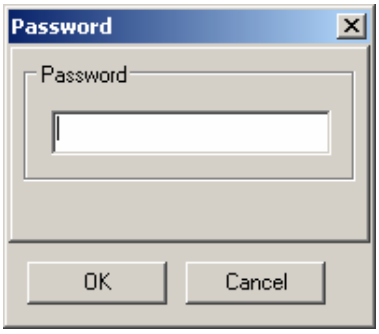
15.4 Restore the Local Cache Backup File

1 On the system tray, right-click , 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.

5 Click *OK*. The following message appears.

It confirms cache data has been loaded to the local workstation cache.

6 Click *OK*.

Auditing

16

This section contains the following information:

16.1 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.

16.2 Send SNMP Alerts

You can send SNMP alerts from a client workstation to a specified console. This requires a 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 on the SecureLogin distribution (CD-ROM). Copy the files to the following location on the client workstation:

```
<local drive>\Program Files\ActivCard\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.

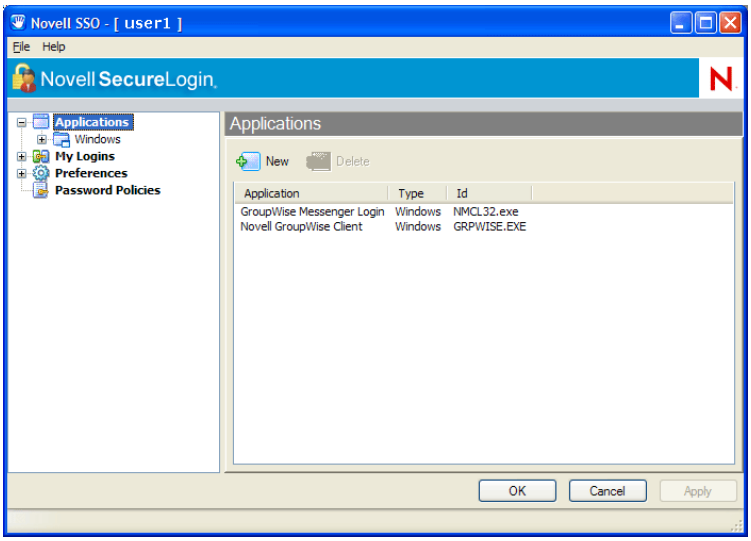
16.3 Scripting for SNMP Auditing

The following examples use the Windows Notepad application. Although Notepad does not require logon, you can create an application definition to respond to the execution of almost any application and to elicit additional information, such as machine name, as a SNMP alert.

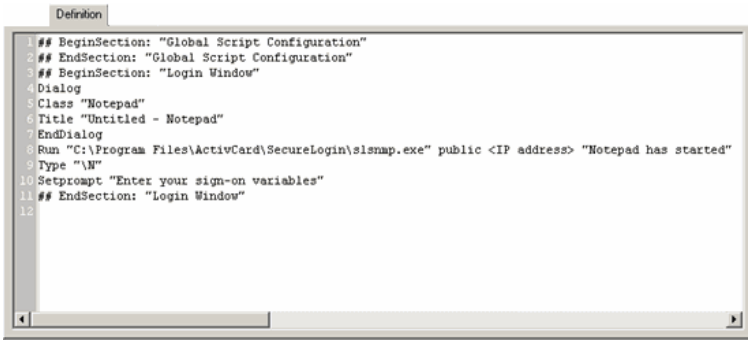
16.3.1 Prerequisites

- ❑ Identify the IP address of the receiving computer.
- ❑ Ensure the SNMP console application is active.

1. Close the Personal Management Utility (if open).
2. Start Notepad.
3. On the system tray, right-click , and then click *Add Application*. The Add Application Wizard is displayed. Follow the prompts to enable the application.
4. On the system tray, double-click to open the Personal Management Utility.
5. Click *Applications*.



6. Double-click the application description, in this example, Untitled - Notepad.The Application Pane is displayed.
7. Click the *Definition* tab. The application definition editor is displayed.



The following example command sends a SNMP alert to the computer running the SNMP console application, advising that Notepad has been activated.

NOTE: You can set alerts for any event that SecureLogin responds to, including Change Password dialog boxes and error messages.

---

8 After the EndDialog command, type the following:

```
Run "C:\Program Files\ActivCard\SecureLogin\slsnmp.exe" public
<IP address> "Notepad has started"
```

9 Click *OK* to save the command and to close the Personal Management Utility.

10 Start Notepad. The alert is sent to the SNMP console.

NOTE: For more information about commands and events that you can configure to produce SNMP alerts, see the *Novell SecureLogin 6.0 Application Definition Guide*.

16.4 About Windows Event Log Alerts

Windows event log alerts are activated 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.

For more information about the use and configuration of `Logevent.exe`, go to:

http://support.microsoft.com

NOTE: `Logevent.exe` is included in the Windows 2000 Resource Kit. Microsoft licensing regulations apply.

16.5 Create a Windows Event Log Alert

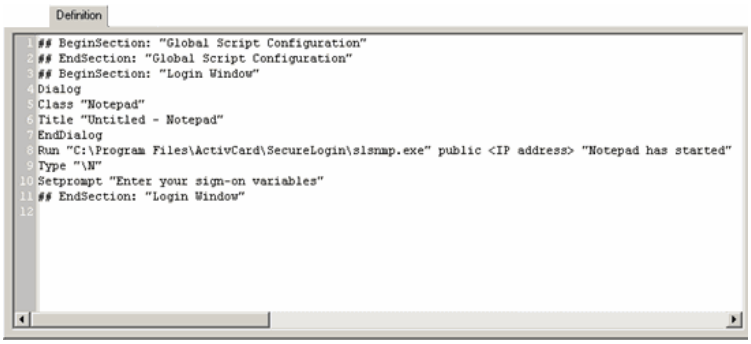
The following procedure uses the Windows Notepad application as an example.

1 On the system tray, double-click  to open the Personal Management 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-t timeout"event text"
```

NOTE: 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.

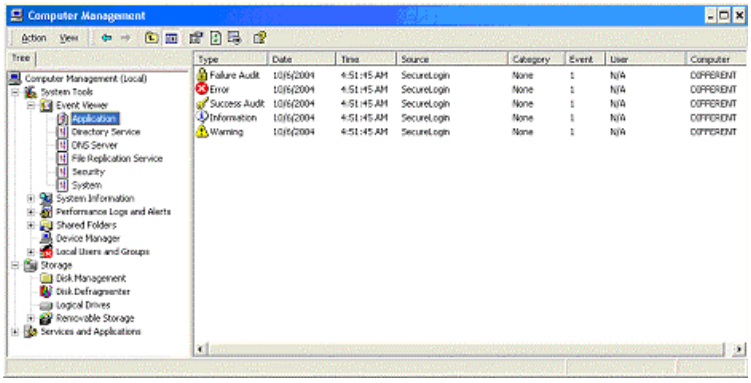
For example:

```
Run "C:\Program Files\Resource Kit\LogEvent.exe -m SecureLogin
-s -e 99"Notepad has started"
```

This command requests an alert 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.



Novell Audit Configuration For SecureLogin

17

Novell® Audit has two primary components, the Secure Logging Server and the Platform Agent. The Secure Logging server receives and processes events from all other services on the network. The Platform Agent runs on all the SecureLogin workstations that you want to audit.

To configure Novell Audit you have to do the following:

17.1 Pointing Platform Agents to Logging Server

You can point the platform agents to the Secure Logging Server during the platform agent installation, or you can modify the platform agent configuration file, `logevent.cfg`, to reflect the location. This file is available in the Windows directory if the Platform Agent is installed (`Winnt` for Windows 2000, `Windows` for Windows XP.

17.2 Configuring the Secure Logging Server Using iManager

If you use iManager on OES server, the Audit plug-ins for iManager are already installed. Otherwise, download and install the Novell Audit plug-ins from the Novell Web site (http://download.novell.com/).

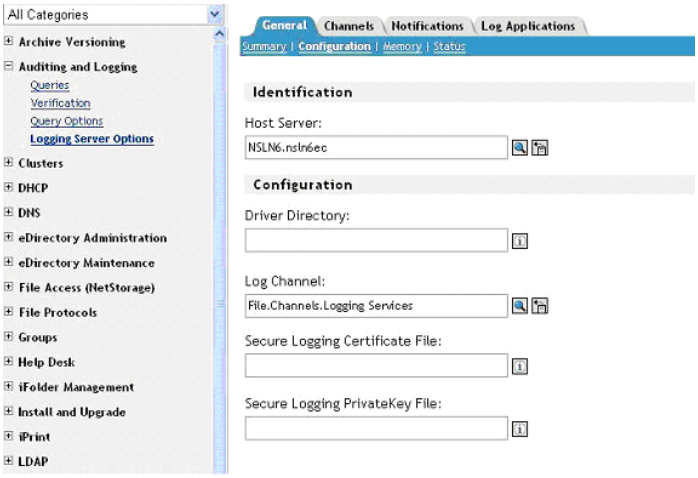
This section contains the following information:

17.2.1 Logging Events to the Appropriate Channel

1. Log in to iManager.
2. Select *Auditing and Logging* > *Logging Server Options*.
3. Browse and select the logging server installed in the tree. It is typically located under *Root* > *Logging Services* > *Server_Name* > *Logging Server*.
4. Click *General*.
5. In the *Log Channel* field under the *Configuration* section, browse and select the required channel. For example,

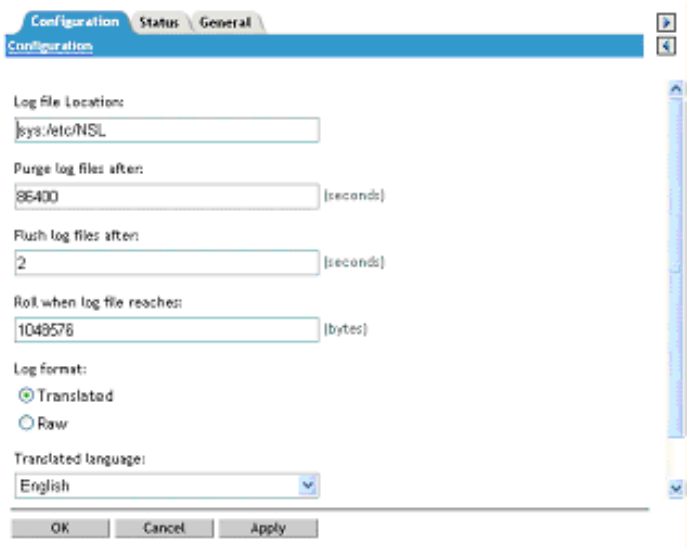
For files: `File.Channels.Logging Services`

For MySQL: `MySQL. Channels.Logging Services`



6 Click *Channels*.

7 Select the required channel and edit the channel information to provide information about where the events are logged.



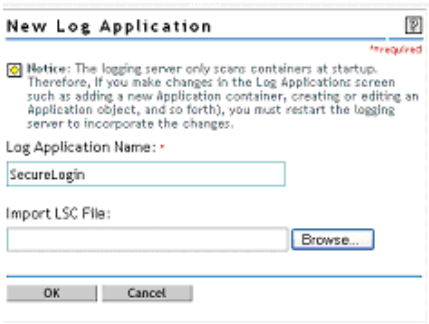
8 Click *Apply*.

17.2.2 Reconfiguring Secure Logging Server with the SecureLogin Audit Schema

1 Click *Log Applications*.

2 Select the *Applications* check box.

3 Select *New Log Application*.

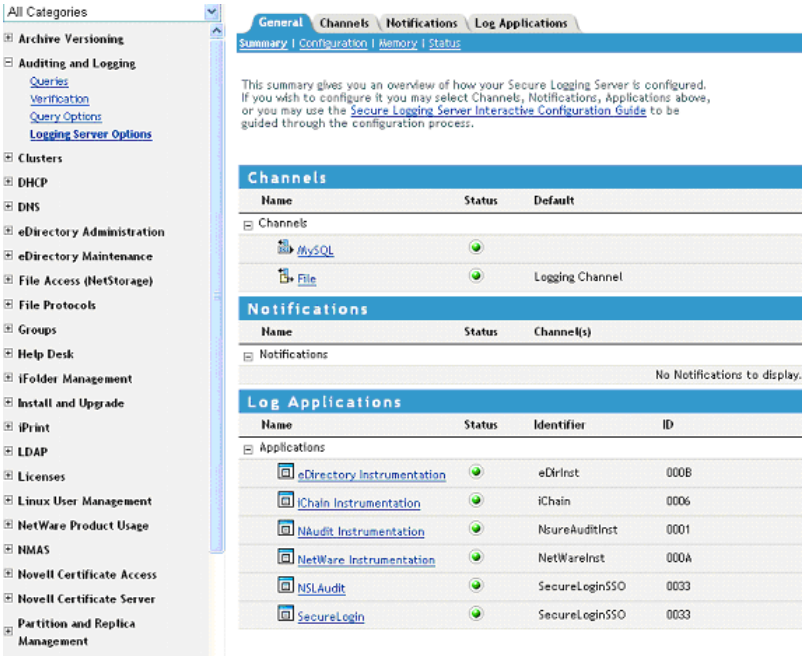


4 Type *SecureLogin*, in the *Application* field.

5 Browse to the `SecureLogin.lsc` file available in `SecureLogin\Tools` directory in the SecureLogin CD.

6 Click *OK*.

7 On the *General* tab, select *Summary* and verify all the configuration settings.



8 Click *Apply*.

17.2.3 Setting SecureLogin Preferences

To enable logging from SecureLogin, set the following preferences:

1 Access the Administrative Management Utility.

For more information on how to access the Administrative Management Utility see Section 1.2, “Administrative Management Utility,” on page 12 and Section 1.3, “Accessing the SSO Plug-In Through iManager,” on page 13.

2 Click *Preferences*.

3 In *General* Preferences, set the value of *Enable Logging to Novell Audit* to *Yes*.

4 Click *Apply*.

Following events are logged:

```
Event ID 00330001: SSO AuditEvent Script Command
Event ID 00330002: SSO Client Started
Event ID 00330003: SSO Client Exited
Event ID 00330004: SSO Client Activated By User
Event ID 00330005: SSO Client Deactivated By User
Event ID 00330006: Password Provided By A Script
Event ID 00330007: Password Changed by the user in response to a
ChagePassword command
Event ID 00330008: Password Changed automatically in response to a
ChagePassword command
```

17.3 Configuring the Registry to Enable Logging From LDAP and the Secure Workstation

To log events from SecureLogin LDAP authentication module:

1 Enter `LdapAudit` as a registry value at:
`HKEY_LOCAL_MACHINE\Software\Novell\Login\Ldap`

Following events are logged:

```
Event ID00330021: NSL user login
Event ID00330022: LDAP user password change
Event ID00330023: Workstation unlocked by different User
```

To log events from Secure Workstation:

1 Enter `SWAudit` as a registry value at: `HKEY_LOCAL_MACHINE\Software\Novell\NMAS\MethodData\Secure Workstation`

Following events are logged:

```
Event ID00330041: Inactivity Timeout
Event ID00330042: Device Removal
Event ID00330044: Manual Lock event
```

Error Codes

A

This section contains error codes for SecureLogin.

-102 BROKER_NO_SUCH_ENTRY

Possible Cause: You tried to load a script or variable that doesn't exist.

For example, you set up Terminal Launcher to run from a shortcut or to run a particular script, but the script doesn't 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 the directory.

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: Call Novell Technical Services.

-106 BROKER_UPDATE_GET_ENTRY_FAILED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-107 BROKER_ENTRY_NOT_FOUND

Possible Cause: You tried 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 has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-111 BROKER_NO_MORE_VARIABLES

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-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: Call Novell Technical Services.

-114 BROKER_PRIMARY_NOT_AVAILABLE

Possible Cause: You are not logged in 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 has become corrupted. You might have had 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 field and try again.

Action: Call Novell Technical Services.

-120 BROKER_INVALID_PREF_DATA_TYPE

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-121 BROKER_PREFERENCE_DATA_CORRUPT

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-122 BROKER_TARGET_ENTRY_LIST_NOT_LOADED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-123 BROKER_CACHE_PASSWORD_INCORRECT

Possible Cause: You have tried to log in 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. However, if you have installed the NMAS™ module, the passphrase can be the passphrase answer or your current directory password.

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.

Action: Call Novell Technical Services.

-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.

Action: Call Novell Technical Services.

-131 BROKER_SYM_LIST_NOT_NULL

Possible Cause: Memory is not being handled as expected.

Action: Call Novell Technical Services.

-132 BROKER_SYM_LIST_NULL

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-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.

Action: Call Novell Technical Services.

-140 BROKER_SCRIPT_DATA_CORRUPT

Possible Cause: Data has become corrupted in the application definitions.

Action: Delete the local cache file and try again.

Action: Call Novell Technical Services.

-141 BROKER_PREF_INVALID

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-142 BROKER_SET_PREF_INVALID

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-145 BROKER_SECURITY_ALERT

Possible Cause: Unable to locate security keys (AuthData), but security data appears to exist. It is possible 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 that 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 haven't 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 haven't 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: Call Novell Technical Services.

-174 BROKER_CACHE_SAVE_FAILED

Possible Cause: SecureLogin 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. The key used to decrypt the cache file is not the key that the cache file was encrypted with.

Possible Cause: If you log in as a user to the workstation and create a cache file, and then go to another workstation, reset your passphrase, and logged in. You receive this error when you return to the original workstation.

Action: Delete the cache file.

-176 BROKER_PUBLIC_KEY_READ_FAILED

Possible Cause: SecureLogin is unable to read the public key from the directory.

Action: Troubleshoot the directory.

-177 BROKER_PUBLIC_KEY_HAS CHANGED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-179 BROKER_RTVALUE_DOES_NOT_EXIST

Possible Cause: You tried to read a runtime variable that has not been defined.

Action: Check the application definition. Make sure that the variable has been 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 can’t read the variable.

Action: Make sure that you have spelled the attribute name correctly.

Action: Troubleshoot the directory.

-181 BROKER_WRONG_PASS_PHRASE

Possible Cause: You entered the wrong passphrase.

Possible Cause: You tried to change your passphrase but typed it incorrectly.

Possible Cause: Password protected the SecureLogin system tray icon and entered the incorrect password to access.

Action: Enter the passphrase 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 SecureLogin `Auth` attribute.

Action: Delete the `Prot:SSO Entry` attribute. SecureLogin creates these attributes the next time that you run SecureLogin.

-192 BROKER_UNABLE_TO_INSTANTIATE

Possible Cause: A module, for example, WinSSO is unable to connect to 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: Call Novell Technical Services.

-196 BROKER_DUMMY_OP_NOT_IMPLEMENTED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-199 BROKER_ERROR_COMMAND_NOT_HANDLED

Possible Cause: An application definition parser encountered an unrecognizable command.

Action: Make sure that you have spelled the command correctly.

Action: Make sure that 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: Call Novell Technical Services.

-201 BROKER_UNEXPECTED_END_OF_SCRIPT

Possible Cause: `If/EndIf` or `Repeat/EndRepeat` blocks don't 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 `If/EndIf` and `Repeat/EndRepeat` blocks match.

-206 BROKER_BREAK_BLOCK

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-207 BROKER_END_SCRIPT_NOW

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-210 BROKER_CORPORATE_MOD_ABORTED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-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: Rename the 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: Call Novell Technical Services.

-214 BROKER_UNABLE_TO_GET_CURRENT_OU

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-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: Check the *Novell SecureLogin 6.0 Application Definition Guide* for that command. Make sure that you are passing to the command the correct number of arguments.

-219 BROKER_NOT_A_NUMBER

Possible Cause: The application definition language was expecting a decimal number, but characters other than 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 that 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 typed the HLLAPI function correctly. For more information see *Novell SecureLogin 6.0 Congifuration Guide for Terminal Emulation*.

-221 BROKER_HLLAPI_OBJECT_UNINITIALISED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Contact Novell Customer Support.

-222 BROKER_HLLAPI_DLL_LOAD_FAILED

Possible Cause: Terminal Launcher was unable to load the `hllapi.dll` that you specified.

Action: Make sure that the path and file that you entered for the DLL are correct.

Possible Cause: The `hllapi.dll` for that emulator is looking for other `.dll` files that don't exist or haven't been installed for that emulator.

Action: 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: Call Novell Technical Services.

-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: Check t you have specified the correct emulator type. For more information see *Novell SecureLogin 6.0 Congifuration Guide for Terminal Emulation*.

-226 BROKER_ERROR_DURING_WINHLLAPISTARTUP

Possible Cause: The terminal emulator does not support the right version of HLLAPI (requires at least V.1.1).

Possible Cause: The attempt to reset a connection to a HLLAPI terminal emulator has failed.

Action: Check the vendor's documentation for information about that emulator.

-227 BROKER_CANNOT_FIND_WINHLLAPICLEANUP_FUNCTION_IN_DLL

Possible Cause: In the Terminal Launcher configuration, you incorrectly specified that the emulator is a WinHLLAPI emulator.

Action: Check that you have specified the correct emulator type. For more information see *Novell SecureLogin 6.0 Congifuration Guide for Terminal Emulation*.

-228 BROKER_BUTTON_NOT_FOUND

Possible Cause: For a Windows single sign-on application, no button exists for the control ID that you specified. For example, if you specified `Click #3`, no button exists for control ID #3.

Action: Check that you have specified the correct emulator type. For more information see *Novell SecureLogin 6.0 Congifuration Guide for Terminal Emulation*.

-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: Call Novell Technical Services.

-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: Call Novell Technical Services.

-235 BROKER_VBA_LOGIN_INTERFACE_NOT_IMPLEMENTED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-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_EXCEPTION_CHARACTER_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: Type 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: Call Novell Technical Services.

-256 BROKER_UNABLE_TO_GET_NT_CACHE_DIR

Possible Cause: You are using NT 4 Domains mode, but you haven't 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 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 didn't 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: Type 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: Call Novell Technical Services.

-261 BROKER_ENTRY_SRC_OBJECT_MISMATCH

Possible Cause: You are using a platform other than 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.

Action: 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: Call Novell Technical Services.

NOTE: Version 3.6 and above do not support Windows NT.

-264 BROKER_DDE_CONNECT_FAILED

Possible Cause: Terminal Launcher couldn't 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: Refer to 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 NT 4 Domains.

Action: Grant the User object rights so that the user can write files to the Home directory.

-269 BROKER_NOT_A_PASSWORD_POLICY_COMMAND

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 requirements as specified in password policies.

Action: Enter the password correctly.

-273 BROKER_MSTELNET_OPERATION_NOT_SUPPORTED

Possible Cause: The generic emulator can't 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 that 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 control 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_TLAUNCH_INI

Possible Cause: SecureLogin is unable to read the `TLAUNCH.INI` file because the file has been deleted.

Action: Create a blank `TLAUNCH.INI` file.

Action: Create a 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 has not been defined.

Action: Use the 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: Call Novell Technical Services.

-286 BROKER_RELOAD_NOT_ENABLED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-287 BROKER_TERMINAL_CONNECT-TRY-AGAIN

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-289 BROKER_WRONG_OBJECT_TYPE

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-290 BROKER_FILE_LOAD_FAILED

Possible Cause: You do not have enough rights to convert an earlier `TLAUNCH.INI` file to a later format, read an earlier tlaunch.ini file, or create a new tlaunch.ini file.

Action: Create a new `TLAUNCH.INI` file.

Action: Read an earlier `TLAUNCH.INI` file.

NOTE: The network administrator must assign necessary rights.

-292 BROKER_DLL_NOT_INITIALISED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-294 BROKER_SETPLAT_VARIABLE_MUST_BE_RUN_TIME

Possible Cause: The first argument to a `SetPlat` argument can be a variable. If it is a variable, it must be a runtime 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 doesn't handle text in the second part of an `If` command.

Action: Make sure that the command is one listed and documented in the *Novell SecureLogin 6.0 Congifuration Guide for Terminal Emulation*.

-297 BROKER_PARSER_ELSE_STATEMENT_FOUND

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-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_EXIST

Possible Cause: You have tried to use repeated characters in a password, but a password policy 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 doesn't 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_WRITEABLE_VARIABLE

Possible Cause: You tried to save a new value to type of variable that can't 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: Call Novell Technical Services.

-312 BROKER_NO_OU_PERIOD_FOUND

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-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.

Action: Close the process and try again.

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 the directory, SecureLogin employs a redundancy check. If the redundancy check does not match when SecureLogin reloads the entry, the data in the directory has been corrupted.

Action: Troubleshoot the directory.

-319 BROKER_DISALLOWED_DUPLICATE_EXIST

Possible Cause: You entered a password that has unacceptable duplicate characters.

Action: Call Novell Technical Services.

-320 BROKER_GOTO_LIST_ASSERTION

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: What can be done to resolve the problem.

-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: Call Novell Technical Services.

-323 BROKER_PASSWORD_FIELD_STYLE_NOT_SET

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-324 BROKER_WEB_ACTION_NOT_SUPPORTED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-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 script 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 but isn't.

Action: Change the argument to a variable.

-327 BROKER_OBJECT_NOT_FOUND

Possible Cause: LDAP or Active Directory* was unable to locate the User object in the directory.

Action: Troubleshoot the directory.

-328 BROKER_ADS_MEMORY_FAILURE

Possible Cause: The Microsoft Active Directory or 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 Active Directory or 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, SecureLogin tried to delete part of an attribute from Microsoft Active Directory or 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 so that the user can modify SecureLogin attributes.

-331 BROKER_ADS_ERROR_DELETING_VALUE

Possible Cause: Microsoft Active Directory or ADAM was unable to delete a value.

Action: Troubleshoot Microsoft Active Directory or ADAM.

-332 BROKER_NO_PASSWORD_FIELD_VARIABLE_IN_SCRIPT

Possible Cause: A Web script 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 :SSO-Auth data attribute has become corrupt.

Action: Call Novell Technical Services.

-337 BROKER_DES_KEY_NOT_SET

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-338 BROKER_DES_INVALID_BLOCK_LEN

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-339 BROKER_INVALID_ENCRYPTION_TYPE

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-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: Call Novell Technical Services.

-343 BROKER_PRIMARY_KEY-DECRYPT_FAILED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-344 BROKER_SECONDARY_KEY_DECRYOPT_FAILED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-345 BROKER_MERGE_WRONG_ENTRY_TYPE

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-348 BROKER_PASSWORD_RESET_DETECTED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-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: Call Novell Technical Services.

-353 BROKER_RECURSIVE_SCRIPT_INCLUDE_DETECTED

Possible Cause: While using the `Include` command, you included an application definition twice.

Action: Include an application definition only 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 system tray. 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: Call Novell Technical Services.

-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_ERROR_REG_CACHE_NO_DETAILS

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-358_ERROR_REG_CHACE_SAVE_FAILED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-359 BROKER_ERROR_REG_CACHE_SPLIT

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-360 BROKER_PASSWORD_VARIABLE_NOT_ALLOWED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-361 BROKER_NMAS_DLL_NOT_AVAILABLE

Possible Cause: SecureLogin cannot load 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_REQUIRED

Possible Cause: The command requires a $ variable. However, you provided 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: Call Novell Technical Services.

-365 BROKER_LDAP_INIT_FAILED

Possible Cause: The initialization of the LDAP SSL layer failed.

Action: Contact Novell Technical Services.

-367 BROKER_REG_AUTH_CACHE_MISMATCH

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-358 BROKER_LDAP_TOKEN_DELETED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-369 BROKER_CRED_LIST_NOT_NULL

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-370 BROKER_CRED_LIST_NULL

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-371 BROKER_NO_MORE_CERD_SETS

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-372 BROKER_ACCESS_IS_DENIED

Possible Cause: For LDAP, you do not have rights to the part of the directory that you are trying to access.

Action: Grant users the correct rights.

-373 BROKER_HLLAPI_CONNECT_FAILED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Make sure that the emulator has HLLAPI enabled.

-374 BROKER_DUPLICATE_ENTRIES_EXIST

Possible Cause: A possible cause of the problem.

Action: Call Novell Technical Services.

-375 BROKER_NOT_RUNNING_NT

Possible Cause: Although you are not running NT, you tried to use a feature that is only available through NT.

Action: Do not use that feature unless you are running NT.

-376 BROKER_WINNT_CACHE_AUTH_REG_FAILED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-377 BROKER_WINNT_CACHE_AUTH_REG_WRONG_USER

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-378 BROKER_INVALID_PIPE_STRING_FOUND

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-379 BROKER_HEX_LENGTH_INCORRECT

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-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 Technical Services.

-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 other HLLAPI applications.

-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 Terminal Launcher is set up correctly with the emulator.

-387 BROKER_LAST_NDS_USER_NOT_FOUND

Possible Cause: The last eDirectory User object, as stored in the registry, could not be read for use in an NMAS login.

Action: Make sure that the last eDirectory user is stored correctly in the registry.

-388 BROKER_LAST_NDS_USER_UNWORTHY

Possible Cause: The last 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 that the last eDirectory User object is stored correctly in the registry.

-389 BROKER_NMAS_DISCONNECTED_LOGIN_NOT_FOUND

Possible Cause: The NMAS disconnected login function was 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: Call Novell Technical Services.

-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, SecureLogin uses Distinguished Encoding Rules (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: Make sure that the variable name is correct.

-393 BROKER_SCRIPT_NOT_PURELY_INDEXED

Possible Cause: While working with the 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 login to LDAP was incorrect.

Action: Check the password.

-395 BROKER_LDAP_USER_NON_EXISTENT

Possible Cause: The username that you used to log in to LDAP does not exist.

Action: Make sure that the username 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.

Action: 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: Call Novell Technical Services.

-399 BROKER_DIVIDE_BY_ZERO_IS_BAD

Possible Cause: Using the `Divide` command, you attempted division by zero.

Action: Don’t attempt to divide 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: 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.

-402 BROKER_LDAP_ATTRIBUTE_DOES_NOT_EXIST_IN_SCHEMA

Possible Cause: You are running LDAP on eDirectory, but you have not correctly mapped the LDAP attributes.

Action: Check your LDAP attribute mappings. For more information see “Installing in LDAP Environments” in the *SecureLogin 6.0 Installation Guide*.

Possible Cause: You are running LDAP on a platform other than eDirectory. However, the schema is not extended for that platform.

Action: 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: Call Novell Technical Services.

-409 BROKER_OPERATION_ABORTED_BY_USER

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-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 a 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 username was invalid.

Action: Check the format of the username 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 *Novell SecureLogin 6.0 Application Definition Guide* for the 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: For this application, do not use the wizard.

-417 BROKER_ADS_PUT_OCTET_INSUFFICIENT_RIGHTS

Possible Cause: You do not have sufficient rights to Microsoft Active Directory or ADAM to perform the current operation.

Action: Ask the directory administrator to assign you additional Microsoft Active Directory or ADAM rights.

-418 BROKER_ADS_CLR_OCTET_INSUFFICIENT_RIGHTS

Possible Cause: You do not have sufficient rights to Microsoft Active Directory or ADAM to perform the current operation.

Action: Ask the directory administrator to assign you additional Microsoft Active Directory or ADAM rights.

-420 BROKER_SLASSO_ERR_CRYPTO_KEY_NOT_SET

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-421 BROKER_SLASSO_ERR_UNKNOWN_DATA

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-422 BROKER_SLASSO_OUT_OF_MEMORY

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-423 BROKER_ERROR_INITIALIZING_DATA_STORES

Possible Cause: SecureLogin was unable to initialize either the primary or secondary datastore.

Action: Call Novell Technical Services.

-424 BROKER_UNABLE_TO_LOAD_SLOTP_DLL

Possible Cause: SLOTP.DLL could not be loaded. This DLL is required for synchronizing one-time passwords 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_IUSERNAME_UNSUITABLE_FOR_READING_SLINA_CREDS

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-428 BROKER_NO_EXCEPTION_HANDLER_DEFINED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-429 BROKER_EXCEPTION_RAISED

Possible Cause: Data has become corrupted, or the software is not working as intended.

Action: Call Novell Technical Services.

-430 BROKER_MUST_BE_CALL_OR_GOTO

Possible Cause: When using the `OnException` command, the second parameter must be either `Call` or `GoTo`.

Action: Check the script documentation for OnException. For more information see "OnException/ClearException" in the *SecureLogin 6.0 Application Definition Guide*.

-442 BROKER_CHAR_UCASE_NOT_IN_REQUIRED_POSITION

Possible Cause: Raised by the password policy code if there is no uppercase character in a position where the password policy code requires one.

Action: Make sure that the password complies with the password policy.

-443 BROKER_CHAR_LCASE_NOT_IN_REQUIRED_POSITION

Possible Cause: Raised by the password policy code if there is no lowercase character in a position where the password policy code requires one.

Action: Make sure that the password complies with the password policy.

-444 BROKER_PUNCTUATION_NOT_IN_REQUIRED_POSITION

Possible Cause: Raised by the password policy code if there is no punctuation character in a position where the password policy code requires one.

Action: Make sure that the password complies with the password policy.

-447 BROKER_UNABLE_TO_GET_A_REGISTRY_DATA

Possible Cause: The SecureLogin application definition command `GetReg` could not read the required registry information.

Action: Call Novell Technical Services.

-478 BROKER_ERROR_PARSING_PARAMETER

Possible Cause: The registry entry name passed to the SecureLogin application definition command `GetReg` was incorrect.

Action: Must begin with one of the following: {HKCR, HKCC, HKCU, HKLM, 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: Call Novell Technical Services.

-482 BROKER_VERSION_NO_ROLL_BACK

Possible Cause: The SecureLogin datastore version cannot be returned to an older datastore version once it has been set to version 6.0.

Action: Call Novell Technical Services.

-483 BROKER_SECURE_CONNECTION_REQUIRED

Possible Cause: SecureLogin cannot load sensitive data from server over insecure connections.

Action: Call Novell Technical Services.

-500 BROKER_ERROR_ACCOUNT_EXPIRED

Possible Cause: SecureLogin was unable to authenticate your Active Directory account because your user accout was 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 becuase your password has expired

Action: Change your Active Directory password.

Action: Contact your system administrator.

-600 BROKER_NONFIR_INVALID_TARGET

Possible Cause: A nondirectory daastore is unable to load the local rule that contains the required data for an object becuase of insufficient user permissions.

Possible Cause: File failed to download.

Possible Cause: File has been deleted.

Action: Contact your system administrator.

- 2147016656 Error opening specified object

Possible Cause: 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. Re-enter the correct object or container definition.

Schema Updates

B

This section contains the following information:

B.1 Introduction

SecureLogin introduces 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 Novell® eDirectory™ environment, `ndsschema.exe` s used and in Active Directory environments, `adsschema.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. These attributes are required for the storage of SecureLogin data. 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.

B.1.1 Protocom-SSO-Auth-Data

This attribute contains all user-specific authentication data, such as the passphrase.

Table B-1 *Authentication data*

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.1.2 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.

Table B-2 *Entries*

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.1.3 Protocom-SSO-Entries-Checksum

This attribute stores a checksum so that the SSO client can easily determine whether a complete reload of SSO adapter information is required.

Table B-3 *Entries Checksum*

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.1.4 Protocom-SSO-Profile

This attribute stores the address of the organizational unit to be redirected to.

Table B-4 *Profile*

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.1.5 Protocom-SSO-Security-Prefs

This attribute stores data required for advanced Passphrase Policies. This data includes administrator set passphrase questions, passphrase help information and settings.

Table B-5 *Security Preferences*

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.1.6 Protocom-SSO-Security-Prefs-Checksum

A checksum used to optimize reading of the security Preference attribute.

Table B-6 *Security Preferences Checksum*

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.1.7 Security Rights Assignments

This section contains the following information:

- "User-Based Attributes" on page 145
- "Container-Based Attributes" on page 145

User-Based Attributes

The directory user objects for people using the SecureLogin software require the following attribute rights against their own objects:

Table B-7 *User-Based Attributes*

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

Container-Based Attributes

In addition, users require the following directory attribute rights against all container objects:

Table B-8 *Container-based Attributes*

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

Frequently Asked Questions

C

Listed below are some of the frequently asked questions on Novell® SecureLogin 6.0 and the Smartcard functionality.

C.1 SecureLogin

Why do I get the error “Secure Workstation failed with error XX’ during authentication with a particular sequence?

You get this error because a Secure Workstation object for that sequence does not exist. After you create the sequence with a Secure Workstation post login method, access the Secure Workstation plug-in through iManager. This creates the Secure Workstation object for that sequence. If the Secure Workstation plug-in displays a particular sequence, it implies that an object for this sequence is created.

Can my login Name contain a Dot (.)?

Yes, your login name can contain a dot (.). But in LDAP mode, if a login name contains a dot, the dot has to be preceded by a back slash (\). For example if your login name is `"Username.1"`, you have to enter `"Username\.1"`.

C.2 Smartcard

How does the SecureLogin Smartcard functionality work?

Novell SecureLogin 6.0 provides the option of using a smartcard to deliver secure single sign-on (SSO). This new smartcard functionality provides a highly portable, secure and efficient SSO solution that allows:

- SSO credentials to be stored in a PIN protected area on the card (synchronized with the directory)
- The card to store the key that is used to encrypt the user's SSO secrets

---

NOTE: Scripts, settings and policies are not stored on the smartcard for performance reasons.

In SecureLogin 6.0 application credentials stored on a smartcard are synchronized with user's the directory based credentials store. Optionally, these synchronized credentials can be encrypted using PKI based certificate from the smartcard. SecureLogin 6.0 also provides AES encryption as an option or as an alternative to Triple DES.

NOTE: The AES and smartcard functions are not available in the stand-alone version of the product. This functionality is being considered for a future release.

Is Smartcard password login same as a PKI login?

No. Smartcard Password Login is not PKI based in that log on is effected using a password stored on the card, rather than verifying a digital signature based on asymmetric (PKI) keys and certificates.

That means this solution does not rely on having a PKI backend in place - such as a Certificate Authority issuing certificates and publishing a certificate revocation list(CRL).

Will SecureLogin 6.0 support non ActivIdentity card middleware?

SecureLogin should be able to work with most smartcard middleware where a PKCS#11 container is being used. However, most SCPL testing has been carried out with the version of ActivClient 5.4 and Cumulative Hot fix FIX0602012. We recommend that customers wishing to deploy SecureLogin 6.0 with an alternate middleware product validate compatibility as part of their testing and validation phase.

C.3 Credentials on Card

How are credentials on card protected?

Credentials are stored in a Generic Container on the card that is PKCS#11 PIN protected.

What credentials are stored on the card?

The user’s application credentials are stored if this preference is enabled in the administrative interface. Scripts, settings and policies are not stored on the card.

The user's LDAP credentials are stored on the card if LDAP is the selected directory mode and the *Store credentials on smartcard* preference is enabled.

The user's Windows log on credentials are also stored on the smartcard if the SCPL component is installed and used.

C.4 Capacity/Performance

How do I calculate how much space SSO may consume within the generic container?

The following are some figures from testing:

The test setup was:

- 15 character random usernames, passwords and applications names
- 0 - 50 applications

The ones actually used in this case where we are testing the SecureLogin *Store Credentials on Smartcard* feature were:

- 001 - the SSO credentials
- 003 - the user's LDAP distinguished name

We recommend allocating 3 KB of generic container space for use by SecureLogin to ensure enough capacity for 50 applications.

What happens if you attempt to store more passwords than that will fit on the card?

A message appears warning the user that the card is full. The container that is used to hold SecureLogin data will need to be increased.

NOTE: Any excess data will not overflow to the cache.

If space becomes available on the smartcard, what process does the client go through to add entries to the smartcard once again? Is there any chance that a credential set that exists only in the local cache could end up on the smartcard?

When credentials are stored on the card then no credentials are stored in the user cache. If the card runs out of space, SecureLogin will stop a user from adding credentials. However, you can startup SecureLogin at a later time and use the existing credentials from the card - you shouldn't need to make more space on the card to use SecureLogin only to add extra credentials.

Will SecureLogin store any data other than credentials on the card?

No. The smartcard will only store application credentials.

If SSO is used in LDAP mode and the *Store credentials on smartcard* preference is used then the LDAP authentication details are stored on the card.

Will there be SecureLogin performance impacts with splitting data (i.e. credentials on the smartcard and scripts/policies on the hard drive)?

There will be some overhead associated with using credentials on the card when there are changes to credentials such as new ones added or old ones updated. SecureLogin should function with similar performance to a non smartcard implementation where read/write activities such as saving new credentials to the card are not being performed.

What about support of custom profiles? Will SecureLogin use a specific generic container or will it rely on standard PKCS#11 private objects storage?

SecureLogin 6.0 data will be stored within the standard generic container.

C.5 Advanced Encryption Standard (AES)

SecureLogin 6.0 now includes AES as an option to triple DES, what is the default encryption method?

Triple DES is the default encryption method for existing deployments and these can be migrated to AES by changing preferences on the objects in the directory and updating the software to SecureLogin 6.0. Triple DES is the default setting. To use AES the administrator must select the AES preference.

NOTE: Setting the encryption method to AES requires you to migrate the SSO datastore version to SecureLogin 6.0. This may have an impact if you are planning on using multiple versions of the client (i.e., SecureLogin 3.5 and the new SecureLogin 6.0 release) for the same user across different workstations. We recommend not turning on the SecureLogin 6.0 datastore mode (and the AES/ smartcard related features) in this case until all clients have been migrated to SecureLogin 6.0.

C.6 Local Cache

Is the local cache needed when using smartcards and SecureLogin 6.0?

Yes, local cache is required as it will act as the local store of scripts, settings and policies. If “Store credentials on smartcard” is not used then it also contains the encrypted application credentials for entry into the application log ons.

When is the card synchronized with the SecureLogin client cache?

Synchronization occurs on SecureLogin startup, on double clicking of the SecureLogin icon in the system tray, on setting the default preference time for synchronization and by choosing synchronization from the SecureLogin icon in the system tray menu.

C.7 Security

What interface is used by SecureLogin 6.0 to talk to the card via ActivClient?

“Store credentials on smartcard” is achieved via PKCS#11.

Microsoft Crypto API is used for PKI based functionality (encryption of the directory SecureLogin datastore).

Is the encryption used to protect SSO secrets in the local cache the same the encryption used on the card?

No. SSO secrets are encrypted with triple DES or AES 256 bit when stored in the cache or the directory. SSO secrets are PIN protected on the smartcard.

What is the process flow, when the user logs on, if the local cache does not exist (initial log on) or is deleted after every successive log off?

The user log on process is as follows:

1. The user successfully authenticates.
2. Local cache is created on first successful authentication and synchronization of the user’s credentials occurs with the smartcard.
3. The user utilizes SSO.
4. The user closes SecureLogin.
5. Cache remains but is encrypted so that only the successfully authenticated user can access it.
6. On subsequent successful logon the users' cache will be synchronized with the directory if any changes have occurred at either end.

What will be cached in memory?

Application credentials are exposed in memory only for the time they are needed to enter into the application and then they are destroyed. Credentials are obfuscated in memory at other times using DPAPI .

Is the SecureLogin session impacted on card removal? If not, what checks are performed to prevent an incorrect card from being inserted and being filled with another user's SecureLogin cache on synchronization?

Security events associated with card insertion or removal are controlled by the smartcard middleware (expected to be ActivClient) and not by SecureLogin. if the middleware is not configured to lock the screen on card removal it is possible for a third party to insert their card and copy a users credentials. This risk must be addressed by local security policies, including locking the user's screen on card removal.

When SecureLogin 6.0 is used with smartcards in offline mode, can the local cache be removed (for security reasons) when the card is removed/session terminated?

No. The local cache is needed in all smartcard enabled modes. Offline mode will require a cache to reference scripts, settings and policies which aren't contained on the card.

NOTE: All credentials are in a PIN protected generic container on the smartcard and the cache is Triple DES or AES encrypted.
