

## Application Definition Guide

# Novell® SecureLogin

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# About This Guide

This guide helps users to write or modify application definitions for single sign-on-enabled applications. Most users will find it quicker and easier to use the Application Definition Wizard but, assuming the relevant permissions have been granted, users may also write their own application definitions to suit their particular requirements.

- ♦ [Chapter 2, “Command Quick Reference,” on page 15](#)
- ♦ [Chapter 1, “Application Definition Language: an Overview,” on page 11](#)
- ♦ [Chapter 3, “Managing Application Definitions,” on page 27](#)
- ♦ [Chapter 4, “Application definition variables,” on page 45](#)
- ♦ [Chapter 5, “Command Reference,” on page 55](#)
- ♦ [Chapter 6, “Testing Application Definitions,” on page 173](#)
- ♦ [Chapter 7, “Reference Commands and Keys,” on page 179](#)
- ♦ [Chapter 8, “Application Definition Commands for SNMP Alerts,” on page 187](#)

## Audience

This guide is intended for:

- ♦ System and network administrators
- ♦ System integrators
- ♦ IT Support staff

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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](http://www.novell.com/documentation/feedback.html) and enter your comments there.

## Documentation Updates

For the most recent version of the *Application Definition Guide*, visit the [Novell SecureLogin Documentation Web site \(http://www.novell.com/documentation/securelogin70\)](http://www.novell.com/documentation/securelogin70).

## Additional Documentation

For documentation on other Novell SecureLogin documentation, see the [Novell SecureLogin Documentation Web site \(http://www.novell.com/documentation/securelogin70\)](http://www.novell.com/documentation/securelogin70).

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

- ♦ *Getting Started*
  - ♦ [“Novell SecureLogin Readme 7.0 SP1”](#)

- ♦ “Novell SecureLogin Quick Start Guide”
- ♦ *Novell SecureLogin Overview Guide*
- ♦ *Installation*
  - ♦ *Novell SecureLogin Installation Guide*
- ♦ *Administration*
  - ♦ *Novell SecureLogin Administration Guide*
  - ♦ *Novell SecureLogin Application Definition Wizard Administration Guide*
  - ♦ *Novell SecureLogin Citrix and Terminal Services Guide*
  - ♦ *pcProx Guide*
- ♦ *End User*
  - ♦ *Novell SecureLogin User 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.

# Application Definition Language: an Overview

# 1

The capability of Novell® SecureLogin to create proprietary application definitions is a powerful feature. This application definition command language facilitates single sign-on of all types of applications.

SecureLogin implements application definition commands to provide a flexible single sign-on and monitoring environment. For example, the SecureLogin Windows Agent watches for application login boxes. When a login box is identified, the agent runs an application definition to enter the username, password, and background authentication information.

This section contains the following information:

- ♦ [Section 1.1, “What is an Application Definition?,” on page 11](#)
- ♦ [Section 1.2, “Advantages of Using Application Definitions,” on page 11](#)
- ♦ [Section 1.3, “Using Application Definitions,” on page 12](#)
- ♦ [Section 1.4, “Defining Applications Enabled for Single Sign-On,” on page 12](#)
- ♦ [Section 1.5, “Corporate Definitions,” on page 12](#)
- ♦ [Section 1.6, “Using Dialog Specifier Commands,” on page 13](#)
- ♦ [Section 1.7, “Reading from and Writing to Variables,” on page 13](#)

## 1.1 What is an Application Definition?

An application definition is essentially a list of instructions that SecureLogin follows in order to perform various tasks on various windows. For example, for a Windows application (\*.exe), an application definition is written for each executable file that you want SecureLogin to act upon. In that application definition, you are able to assign different instructions to each dialog box or screen that the executable file or application might produce. By doing this, you have the choice of acting upon only the login panel, only selected windows, or every window that is produced by the executable file, such as account locked, invalid username, invalid password, back-end database is down, password expiry, and so on.

SecureLogin follows the application definition from left to right, top to bottom. However, with the use of flow control commands, such as `Call`, it is possible to skip, repeat, or jump to certain parts of the application definition.

## 1.2 Advantages of Using Application Definitions

- ♦ Enables you to single sign-on enable almost any Windows, mainframe, internet, intranet, terminal server, or Unix application.
- ♦ No need to install software on your application servers.
- ♦ The flexibility for you and your application owners to choose what to do once an application generated message is detected, giving you full control over your single sign-on environment.

- ♦ Allows more sophisticated single sign-on to supported applications, including the ability to seamlessly handle several versions of one application. This feature is especially important when you upgrade your applications.
- ♦ Security. Novell SecureLogin data (for example, user credentials) is stored and protected in the directory.
- ♦ Speed. When Novell SecureLogin is started, it locates user data in the directory and caches its encrypted contents in memory (and optionally on disk) for later use by the workstation's Novell SecureLogin agent.

## 1.3 Using Application Definitions

You can use application definitions to:

- ♦ Execute the retrieval and entering of correct login details. Application definitions are stored and secured within the directory to ensure maximum security, support for single-point administration, and manageability.
- ♦ Automate many login processes, such as multi-page login and login panels requiring other information that you can store in the directory (such as surname or telephone number).
- ♦ Application definitions can include commands to automate password changes on behalf of users and to request user input when required.
- ♦ Application definitions can accommodate error handling that is generated by the back-end application. For example, handling of invalid logins.

## 1.4 Defining Applications Enabled for Single Sign-On

Novell SecureLogin provides the option to define which applications are enabled for single sign-on. This option gives you:

- ♦ Complete control for deciding which applications need to be enabled for single sign-on.
- ♦ The ability to update the entire directory database with a new application login application definition by updating a single object.

## 1.5 Corporate Definitions

Corporate applications allow scripts to flow down to all users located within a container, allowing central administrators and maintenance of the script.

Corporate application definitions are stored in a container object rather than on the individual user objects. For users, the result is a less complex system.

For you as the administrator, the improved login mechanisms provide the following:

- ♦ A greater level of accountability with increased productivity and security.
- ♦ A reduced workload at the help desk because of significantly fewer password resets.

## 1.6 Using Dialog Specifier Commands

Using the `Dialog Specifier` commands, you can assign individual sections of an application definition to the different windows an executable file produces. This allows the login dialog box, for example, to be treated differently from the Error Message box and so on.

Currently, there are 65 different commands in the Novell SecureLogin application definition language. Many of the SecureLogin commands such as `Repeat` and `Dialog`, have one or two commands that are used to close them.

## 1.7 Reading from and Writing to Variables

Application definition commands can read from and write to variables. These variables enable SecureLogin to use corporate application definitions, while each individual user's secrets are securely stored in the directory. It is also possible to read attributes, such as the user's full name and phone number, from attributes in the directory.

SecureLogin not only writes information to the screen, but also reads from it with the use of commands such as `ReadText`. Use this to extract usernames, domains in use, error messages, and other useful information. Use `Variable Manipulator` commands to perform calculations, break apart information, and join it back together again.

All these features come together to form an extremely powerful language that is able to accomplish almost any task that is required.

### 1.7.1 Using Characters Interpretable by Novell SecureLogin

Using interpretable characters in Novell SecureLogin application definitions has implications for definitions that are created in, or copied from, and pasted from a Microsoft Word.

For example, when you are writing an application definition that requires a “-” (dash) in the command syntax, make sure you use a short “-” or en dash (Unicode glyph U+2013 (Hex) or 8211(Decimal) and cannot be an extended “—” or em dash as generated in Microsoft Word.

In Microsoft Word, when you type a space and one or two hyphens between text, Microsoft Word automatically inserts an ASCII dash or en dash ( – ). If you type two hyphens and do not include a space before the hyphens, an em dash ( — ) is created.

Similarly, when you are writing an application definition that requires quotation mark in the command syntax, make sure you use a straight quotation mark (Unicode glyph U+0022 (Hex) or 0034 (Decimal) or the ASCII printable character 34). For quotation mark syntax example, see [Section 4.3.7, “Quotation Marks,” on page 51](#).

In Microsoft Word, when you type a question mark, Word automatically changes straight quotation marks to curly (or smart) quotes, as you type unless the Word *AutoCorrect*, *AutoFormat As You Type* features are disabled.



# Command Quick Reference

# 2

- ♦ [Section 2.1, “Application Definition Command Quick Reference,” on page 15](#)

## 2.1 Application Definition Command Quick Reference

**Table 2-1** *Application Definition Command Quick Reference*

Command	What it means?
#	<p>Use the this symbol to define a line of text as a comment field. Comment fields are used to leave notes.</p> <p>For more information, see <a href="#">“#” on page 43</a></p>
" "	<p>Use quotation marks to group together text or variables containing spaces. Quotation marks are used with commands like <code>Type</code>, <code>MessageBox</code>, and <code>If -Text</code>.</p> <p>For more information, see <a href="#">“" ”” on page 43</a></p>
\$	<p>Use the dollar sign to define the use of a SecureLogin variable stored in the directory for later use by that user.</p> <p>For more information, see <a href="#">“\$” on page 15</a></p>
?	<p>Use the question mark to define the use of a runtime variable.</p> <p>The values of these variables are not stored in the directory. They are reset each time SecureLogin is started.</p> <p>For more information, see <a href="#">“?” on page 43</a></p>
%	<p>Use the percentage sign to define the use of a directory attribute. The attributes that are available vary depending on the directory in use, and the setup of the directory.</p> <p>For more information, see <a href="#">“%” on page 44</a></p>
\	<p>Use the backslash with the <code>Type</code> and <code>Send Key</code> commands to specify the use of a special function.</p>
@	<p>Use this symbol in the same way as the backslash symbol, except its use is limited to HLLAPI enabled emulators.</p> <p>For more information, see <a href="#">“@” on page 44</a></p>
-	<p>Use the hyphen as a switch within several commands, such as <code>If</code> and <code>Type</code>.</p> <p>For more information, see <a href="#">“-” on page 44</a></p>

Command	What it means?
<a href="#">AAVerify</a>	<p>Use <code>AAVerify</code> with SecureLogin Advanced Authentication or Novell NMAS to verify the user. It is typically used before the application Username and Password are retrieved and entered into the login box.</p> <p>For more information, see <a href="#">Section 5.2.1, “AAVerify,” on page 61</a></p>
<a href="#">Add</a>	<p>Adds one number to another. The numbers can be hard-coded into the application definition, or they can be variables. The result can be the output of another variable, or one of the original numbers.</p> <p>For more information, see <a href="#">Section 5.2.2, “Add,” on page 64</a></p>
<a href="#">Attribute</a>	<p>Use the <code>Attribute</code> specifier in conjunction with the <code>Tag/EndTag</code> command to specify which HTML attributes and attribute values must exist for that particular HTML tag.</p> <p>For more information, see <a href="#">Section 5.2.3, “Attribute,” on page 65</a></p>
<a href="#">AuditEvent</a>	<p>Use the <code>AuditEvent</code> to audit the following events from an application definition:</p> <ul style="list-style-type: none"> <li>◆ SecureLogin client started</li> <li>◆ SecureLogin client exited</li> <li>◆ SecureLogin client activated by user</li> <li>◆ SecureLogin client deactivated by user</li> <li>◆ Password provided to an application by a script</li> <li>◆ Password changed by the user in response to a <code>changepassword</code> command</li> <li>◆ Password changed automatically in response to a <code>changepassword</code> command</li> </ul> <p>For more information, see <a href="#">Section 5.2.4, “AuditEvent,” on page 66</a></p>
<a href="#">BeginSplashScreen/EndSplashScreen</a>	<p>Use to display a Novell splash screen across the whole Terminal Emulator window. This is used to mask any flashing produced by SecureLogin scraping the screen for text. A <code>Delay</code> command at the start of the application definition ensures that the emulator window is in place before the splash screen is displayed.</p> <p>For more information, see <a href="#">Section 5.2.5, “BeginSplashScreen/EndSplashScreen,” on page 66</a></p>
<a href="#">BooleanInput</a>	<p>Use <code>BooleanInput</code> within a <code>site</code> block to set the state of a Boolean field (either a check box or radio button).</p> <p>For more information, see <a href="#">Section 5.2.6, “BooleanInput,” on page 67</a></p>
<a href="#">Break</a>	<p>Use <code>Break</code> within the <code>Repeat/EndRepeat</code> commands to break out of a repeat loop.</p> <p>For more information, see <a href="#">Section 5.2.7, “Break,” on page 68</a></p>
<a href="#">Call</a>	<p>Use the <code>Call</code> command to call and run a subroutine. When a subroutine is called, the application definition begins executing from the first line of the subroutine.</p> <p>For more information, see <a href="#">Section 5.2.8, “Call,” on page 69</a></p>



Command	What it means?
<a href="#">ChangePassword</a>	<p>Use the <code>ChangePassword</code> command to change a single variable and is used in scenarios where password expiry is an issue. Set the <code>&lt;Variable&gt;</code> to the new password.</p> <p>For more information, see <a href="#">Section 5.2.9, "ChangePassword," on page 70</a></p>
<a href="#">Class</a>	<p>When a window is created, it is based on a template known as a window class. The <code>Class</code> command checks to see if the class of the newly created window matches its <code>&lt;Window-Class&gt;</code> argument.</p> <p>For more information, see <a href="#">Section 5.2.10, "Class," on page 72</a></p>
<a href="#">ClearPlat</a>	<p>Use to reset the last chosen platform, causing subsequent calls to <code>ReLoadPlat</code> to do nothing.</p> <p>For more information, see <a href="#">Section 5.2.11, "ClearPlat," on page 72</a></p>
<a href="#">ClearSite</a>	<p>Use within a <code>Site</code> block to clear the 'matched' status for a given site.</p> <p>For more information, see <a href="#">Section 5.2.12, "ClearSite," on page 75</a></p>
<a href="#">Click</a>	<p>When used with windows applications, the <code>Click</code> command sends a click instruction to the specified <code>&lt;#Ctrl-ID&gt;</code>.</p> <p>For more information, see <a href="#">Section 5.2.13, "Click," on page 75</a></p>
<a href="#">ConvertTime</a>	<p>Use to convert a numeric time value, for example, <code>?CurrTime(system)</code>, into a legible format and store it in <code>&lt;String Time&gt;</code>.</p> <p>For more information, see <a href="#">Section 5.2.14, "ConvertTime," on page 78</a></p>
<a href="#">Ctrl</a>	<p>Use the <code>Ctrl</code> command to determine if a window contains the control expressed in the <code>&lt;#Ctrl-ID&gt;</code> argument. The control ID number is a constant that is established at the time a program is compiled.</p> <p>For more information, see <a href="#">Section 5.2.15, "Ctrl," on page 79</a></p>
<a href="#">DebugPrint</a>	<p>Use the <code>DebugPrint</code> command to display the text specified in the <code>&lt;Data&gt;</code> variable on a Debug console. The command can take any number of text arguments, including variables, (for example, <code>DebugPrint "The user " \$Username " has just been logged onto the system"</code>).</p> <p>For more information, see <a href="#">Section 5.2.16, "DebugPrint," on page 79</a></p>
<a href="#">Decrement</a>	<p>Use the <code>Decrement</code> command to subtract from a specified variable. For example, you can use <code>Decrement</code> to count the number of passes a particular application definition has made.</p> <p>For more information, see <a href="#">Section 5.2.17, "Decrement," on page 80</a></p>
<a href="#">Delay</a>	<p>Use the <code>Delay</code> command to delay the execution of the application definition for the time specified in the <code>&lt;Time Period&gt;</code> argument.</p> <p>For more information, see <a href="#">Section 5.2.18, "Delay," on page 81</a></p>
<a href="#">Dialog/EndDialog</a>	<p>Use the <code>Dialog/EndDialog</code> command to identify the beginning and end of a dialog specification block respectively. You can use these commands to construct a dialog specification block, which consists of a series of dialog specification statements (for example <code>Ctrl</code> and <code>Title</code>).</p> <p>For more information, see <a href="#">Section 5.2.19, "Dialog/EndDialog," on page 82</a></p>

Command	What it means?
<a href="#">DisplayVariables</a>	<p>Use the <code>DisplayVariables</code> command to display a dialog box that lists the user's stored variables (for example, <code>\$Username</code> and <code>\$Password</code>) for the current application.</p> <p>For more information, see <a href="#">Section 5.2.20, "DisplayVariables," on page 83</a></p>
<a href="#">Divide</a>	<p>Use to divide one number by another. The numbers can be hard coded into the application definition, or they can be variables. The result can be output to another variable, or to one of the original numbers.</p> <p>For more information, see <a href="#">Section 5.2.21, "Divide," on page 85</a></p>
<a href="#">DumpPage</a>	<p>Use the <code>DumpPage</code> command to provide information about the current Web page. Use for debugging Web page application definitions.</p> <p>For more information, see <a href="#">Section 5.2.22, "DumpPage," on page 86</a></p>
<a href="#">EndScript</a>	<p>Use the <code>EndScript</code> command to immediately terminate execution of the application definition.</p> <p>For more information, see <a href="#">Section 5.2.23, "EndScript," on page 86</a></p>
<a href="#">Event/Event Specifiers</a>	<p>Application definitions generally execute at the point when an application window is created. This corresponds to the <code>WM_CREATE</code> message received from an application window at startup.</p> <p>By adding the Event Specifier to a dialog block, you can override this behavior whereby application definition executes only when the specified message is generated. If an Event Specifier is not given, it is treated as the same as Event <code>WM_CREATE</code>.</p> <p>For more information, see <a href="#">Section 5.2.24, "Event/Event Specifiers," on page 87</a></p>
<a href="#">FocusInput</a>	<p>Use within a <code>Site</code> Block to focus on an input field based on the Boolean value of <code>"focus"</code>.</p> <p>For more information, see <a href="#">Section 5.2.25, "FocusInput," on page 88</a></p>
<a href="#">GenerateOTP</a>	<p>Used to generate a one time password (OTP) as an authentication method in lieu of a traditional fixed and static password.</p> <p>For more information, see <a href="#">Section 5.2.26, "GenerateOTP," on page 88</a></p>
<a href="#">GetCheckBoxState</a>	<p>Use the <code>GetCheckBoxState</code> command to return the current state of the specified checkbooks.</p> <p>For more information, see <a href="#">Section 5.2.27, "GetCheckBoxState," on page 90</a></p>
<a href="#">GetCommandLine</a>	<p>Use the <code>GetCommandLine</code> command to capture the full command line of the program that is loaded, and save it to the specified variable.</p> <p>For more information, see <a href="#">Section 5.2.28, "GetCommandLine," on page 91</a></p>
<a href="#">GetEnv</a>	<p>Use the <code>GetEnv</code> command to read the value of an environment variable and save it in the specified <code>&lt;variable&gt;</code>.</p> <p>For more information, see <a href="#">Section 5.2.29, "GetEnv," on page 91</a></p>

Command	What it means?
<a href="#">GetHandle</a>	<p>Use <code>GetHandle</code> to capture the unique handle of the window on which the Windows application definition script is activated.</p> <p>For more information, see <a href="#">Section 5.2.30, “GetHandle,” on page 92</a></p>
<a href="#">GetIni</a>	<p>Use the <code>GetIni</code> command to read data from the <code>INI</code> file.</p> <p>For more information, see <a href="#">Section 5.2.31, “GetIni,” on page 93</a></p>
<a href="#">GetMD5</a>	<p>Use the <code>GetMD5</code> command to generate an MD5 hash value of the current process the script is running for. <code>GetMD5</code> works only with the Win32 scripts.</p> <p>For more information, see <a href="#">Section 5.2.32, “GetMD5,” on page 93</a></p>
<a href="#">GetReg</a>	<p>Use the <code>GetReg</code> command to read data from the registry and save it in the specified <code>&lt;variable&gt;</code>.</p> <p>For more information, see <a href="#">Section 5.2.33, “GetReg,” on page 94</a></p>
<a href="#">GetDirectoryStatus</a>	<p>Use the <code>GetDirectoryStatus</code> command to find out whether Novell SecureLogin can connect to the directory or not.</p> <p>For more information, see <a href="#">Section 5.2.34, “GetDirectoryStatus,” on page 95</a></p>
<a href="#">GetSessionName</a>	<p>Use the <code>GetSessionName</code> command to find the current HLLAPI session name that is used to connect and return it to the specified variable.</p> <p>For more information, see <a href="#">Section 5.2.35, “GetSessionName,” on page 95</a></p>
<a href="#">GetText</a>	<p>Use the <code>GetText</code> command to get all of the text from the screen and save it to the specified variable. It is used in a large Web application definition that might contain several <code>If -Text</code> statements.</p> <p>For more information, see <a href="#">Section 5.2.36, “GetText,” on page 96</a></p>
<a href="#">GetURL</a>	<p>Use the <code>GetURL</code> command to capture the URL of the site that is loaded and save it to the specified variable.</p> <p>For more information, see <a href="#">Section 5.2.37, “GetURL,” on page 96</a></p>
<a href="#">GoToURL</a>	<p>Use the <code>GoToURL</code> command to make the browser navigate to the specified <code>&lt;URL&gt;</code>. By default the command opens the new Web page in the main window, rather than the frame that started the application definition.</p> <p>For more information, see <a href="#">Section 5.2.38, “GoToURL,” on page 97</a></p>
<a href="#">If/Else/EndIf</a>	<p>Use the <code>If</code> command to establish a block to execute if the expression supplied is true. The <code>Else</code> command works inside an <code>If</code> block. The <code>Else</code> command is executed if the operator in the <code>If</code> block is false. Use the <code>EndIf</code> command to terminate the <code>If</code> block.</p> <p>For more information, see <a href="#">Section 5.2.40, “If/Else/EndIf,” on page 98</a></p>
<a href="#">Include</a>	<p>Use the <code>Include</code> command to share commonly used application definition commands by multiple applications. The application definition identified by <code>&lt;Platform-Name&gt;</code> is included at execution time into the calling application definition. The application definition included with the <code>Include</code> command must consists of commands supported by the calling application.</p> <p>For more information, see <a href="#">Section 5.2.41, “Include,” on page 101</a></p>

Command	What it means?
<a href="#">Increment</a>	<p>Use the <code>Increment</code> command to add to a specified variable. For example, you can use <code>increment</code> to count the number of passes a particular application definition has made.</p> <p>For more information, see <a href="#">Section 5.2.42, “Increment,” on page 102</a></p>
<a href="#">KillApp</a>	<p>Use to terminate an application.</p> <p>For more information, see <a href="#">Section 5.2.43, “KillApp,” on page 103</a></p>
<a href="#">Local</a>	<p>Use the <code>Local</code> command to declare that a runtime variable will only exist for the lifetime of the application definition. Local runtime variables are used in the same way as normal runtime variables and are still written as <code>?Variable</code>.</p> <p>For more information, see <a href="#">Section 5.2.44, “Local,” on page 105</a></p>
<a href="#">MatchDomain</a>	<p>Use <code>MatchDomain</code> inside a site block to filter a site based on its domain. If the domain does not match, the site block fails to match.</p> <p>For more information, see <a href="#">Section 5.2.45, “MatchDomain,” on page 106</a></p>
<a href="#">MatchField</a>	<p>Use <code>MatchField</code> to filter a form based on the presence of a particular field. If the field fails to match and it is not specified as optional, then the parent form fails to match.</p> <p>For more information, see <a href="#">Section 5.2.46, “MatchField,” on page 106</a></p>
<a href="#">MatchForm</a>	<p>Use <code>MatchForm</code> to filter a site based on the presence of a particular field. If the field fails to match and it is not specified as optional, then the site fails to match.</p> <p>For more information, see <a href="#">Section 5.2.47, “MatchForm,” on page 108</a>.</p>
<a href="#">MatchOption</a>	<p>Use the <code>MatchOption</code> command to filter a field based on the presence of a particular option.</p> <p>For more information, see <a href="#">Section 5.2.48, “MatchOption,” on page 109</a>.</p>
<a href="#">MatchReferer</a>	<p>Use <code>MatchReferer</code> inside a <code>Site/EndSite</code> block to match or filter a site based on a referrer.</p> <p>For more information, see <a href="#">Section 5.2.49, “MatchReferer,” on page 111</a>.</p>
<a href="#">MatchRegex</a>	<p>Use the <code>MatchRegex</code> command to test whether a regular expression matches against the specified string or not. You can also use it inside a <code>Site-EndSite</code> or <code>Dialog-EndDialog</code> block for example.</p> <p>For more informations, see <a href="#">Section 5.2.50, “MatchRegex,” on page 111</a>.</p>
<a href="#">MatchTitle</a>	<p>Used inside a site block, <code>MatchTitle</code> is used to filter a site based on its title. If the site title does not match, the site block fails to match.</p> <p>For more information, see <a href="#">Section 5.2.51, “MatchTitle,” on page 112</a>.</p>
<a href="#">MatchURL</a>	<p>Use <code>MatchURL</code> inside a site block to match or filter an HTML page within a site based on its URL. The URL can be a complex Web address or a secure Web site.</p> <p>For more information, see <a href="#">Section 5.2.52, “MatchURL,” on page 113</a>.</p>

Command	What it means?
<a href="#">MessageBox</a>	<p>Use the <code>MessageBox</code> command to display a dialog box that contains the text specified in the <code>&lt;Data&gt;</code> variable. The application definition is suspended until the user reacts to this message. The <code>MessageBox</code> can take any number of text arguments, including variables, (for example <code>MessageBox "The user " \$Username " has just been logged onto the system")</code>).</p> <p>For more information, see <a href="#">Section 5.2.53, "MessageBox," on page 114</a>.</p>
<a href="#">Multiply</a>	<p>Use to multiply one number by another. You can hard-code the numbers into the application definition, or you can use variables. The results can be output to another variable, or to one of the original numbers.</p> <p>For more information, see <a href="#">Section 5.2.54, "Multiply," on page 116</a>.</p>
<a href="#">OnException/ ClearException</a>	<p>Use the <code>OnException</code> command to detect when certain conditions are met. Currently, this is when <i>Cancel</i> is clicked on either of two dialog boxes. When the condition is met, a subroutine is run. Use the <code>ClearException</code> command to reset the exceptions value.</p> <p>For more information, see <a href="#">Section 5.2.55, "OnException/ClearException," on page 117</a>.</p>
<a href="#">Parent/EndParent</a>	<p>Use the <code>EndParent</code> command to terminate a <code>Parent</code> block and set the subject of the application definition back to the original window. You can nest the <code>Parent</code> command, thereby allowing the <code>Parent</code> block to act on the parent of the parent.</p> <p>For more information, see <a href="#">Section 5.2.56, "Parent/EndParent," on page 123</a>.</p>
<a href="#">PickListAdd</a>	<p>Use the <code>PickList</code> command to allow users with multiple accounts for a particular system to choose the account to which they will log in.</p> <p>For more information, see <a href="#">Section 5.2.57, "PickListAdd," on page 124</a>.</p>
<a href="#">PickListDisplay</a>	<p>Use the <code>PickListDisplay</code> command to display the pick list entries built by previous calls to <code>PickListAdd</code>. The <code>PickListDisplay</code> command returns the result in a <code>&lt;?Variable&gt;</code> sent to the command.</p> <p>For more information, see <a href="#">Section 5.2.58, "PickListDisplay," on page 126</a>.</p>
<a href="#">PositionCharacter</a>	<p>Use the <code>PositionCharacter</code> command in a password policy application definition to enforce that a certain character in the password is a numeral, uppercase, lowercase, or a punctuation character.</p> <p>For more information, see <a href="#">Section 5.2.59, "PositionCharacter," on page 127</a>.</p>
<a href="#">PressInput</a>	<p>Used within a site block to simulate a keyboard enter event.</p> <p>For more information, see <a href="#">Section 5.2.60, "PressInput," on page 128</a>.</p>
<a href="#">ReadText</a>	<p>Use the <code>ReadText</code> command to run in both Windows and Terminal Launcher application definitions. Although the usage and arguments for the use of <code>ReadText</code> with Windows and Terminal Launcher are different, the results of each command are the same.</p> <p>For more information, see <a href="#">Section 5.2.61, "ReadText," on page 128</a>.</p>

Command	What it means?
<a href="#">RegSplit</a>	<p>Use the <code>RegSplit</code> command to split a string by using a regular expression. <code>&lt;Output-String1&gt;</code> and <code>&lt;Output-String2&gt;</code> contain the first and second subexpressions.</p> <p>For more information, see <a href="#">Section 5.2.62, “RegSplit,” on page 131</a>.</p>
<a href="#">ReLoadPlat</a>	<p>Use to set the current platform to the last one chosen by the application definition, or if a platform is not chosen, leaves the platform unset.</p> <p>For more information, see <a href="#">Section 5.2.63, “ReLoadPlat,” on page 133</a>.</p>
<a href="#">Repeat/EndRepeat</a>	<p>Use the <code>Repeat</code> command to establish an application definition block similar to the <code>If</code> command. The <code>repeat</code> block is terminated by an <code>EndRepeat</code> command. Alternatively, you can use the <code>Break</code> or <code>EndScript</code> commands to break out of the loop.</p> <p>For more information, see <a href="#">Section 5.2.64, “Repeat/EndRepeat,” on page 135</a>.</p>
<a href="#">RestrictVariable</a>	<p>Use the <code>RestrictVariable</code> command to monitor a <code>&lt;Variable&gt;</code> and enforce a specified <code>&lt;Password-Policy&gt;</code> on the <code>&lt;Variable&gt;</code>. Any variable specified must match the policy or it is not saved.</p> <p>For more information, see <a href="#">Section 5.2.65, “RestrictVariable,” on page 136</a>.</p>
<a href="#">Run</a>	<p>Use the <code>Run</code> command to launch the program specified in <code>&lt;Command&gt;</code> with the specified optional [<code>&lt;Arg1&gt;</code> [<code>&lt;Arg2&gt;</code>] ...] arguments.</p> <p>For more information, see <a href="#">Section 5.2.66, “Run,” on page 139</a>.</p>
<a href="#">Select</a>	<p>Use the <code>Select</code> command to select entries from a combo box or list box control.</p> <p>For more information, see <a href="#">Section 5.2.67, “Select,” on page 140</a>.</p>
<a href="#">SelectListBoxItem</a>	<p>Use the <code>SelectListBoxItem</code> command to select entries from a list box.</p> <p>For more information, see <a href="#">Section 5.2.68, “SelectListBoxItem,” on page 141</a>.</p>
<a href="#">SelectOption</a>	<p>Use the <code>SelectOption</code> command to select or deselect options within a list box or combo dialog box.</p> <p>For more information, see <a href="#">Section 5.2.69, “SelectOption,” on page 141</a>.</p>
<a href="#">SendEvent</a>	<p>Use the <code>SendEvent</code> command to broadcast events.</p> <p>For more information, see <a href="#">Section 5.2.70, “SendEvent,” on page 142</a>.</p>
<a href="#">SendKey</a>	<p>Use the <code>SendKey</code> command to work only with Generic and Advanced Generic emulators. You can use the <code>SendKey</code> command in the same manner as the <code>Type</code> command. Generally, the <code>Type</code> command is the preferred command to use. The <code>Type</code> command places the text into the clipboard, and then pastes it into the emulator screen. The <code>SendKey</code> command enters the text directly into the emulator screen.</p> <p>For more information, see <a href="#">Section 5.2.71, “SendKey,” on page 143</a>.</p>

Command	What it means?
<a href="#">Set</a>	<p>Use the <code>Set</code> command to copy the value of <code>&lt;Data&gt;</code> into <code>&lt;Variable&gt;</code>. The <code>&lt;Data&gt;</code> can be any text, or another variable, whereas the <code>&lt;Variable&gt;</code> must be either a <code>?Variable</code> or <code>\$Variable</code>.</p> <p>For more information, see <a href="#">Section 5.2.72, "Set," on page 143</a>.</p>
<a href="#">SetCheckBox</a>	<p>Use the <code>SetCheckBox</code> command to select or clear a check box.</p> <p>For more information, see <a href="#">Section 5.2.73, "SetCheckBox," on page 145</a>.</p>
<a href="#">SetCursor</a>	<p>Use the <code>SetCursor</code> command to set the cursor to a specified <code>&lt;ScreenPosition&gt;</code> or <code>&lt;X Co-ordinate&gt; &lt;Y Co-ordinate&gt;</code>.</p> <p>For more information, see <a href="#">Section 5.2.74, "SetCursor," on page 146</a>.</p>
<a href="#">SetFocus</a>	<p>Use the <code>SetFocus</code> command to set the keyboard focus to a specified <code>&lt;#Ctrl-ID&gt;</code>.</p> <p>For more information, see <a href="#">Section 5.2.75, "SetFocus," on page 147</a>.</p>
<a href="#">SetPlat</a>	<p><code>SetPlat</code> sets the platform or application from which variables are read and saved.</p> <p>By default, variables are stored directly against the platform or application on which you have SecureLogin enabled. For example, if you enable <code>Groupwise.exe</code>, the Groupwise® credentials are stored against the <code>Groupwise.exe</code> platform. <code>SetPlat</code> sets the platform or application from which variables are read and saved.</p> <p>For more information, see <a href="#">Section 5.2.76, "SetPlat," on page 148</a>.</p>
<a href="#">SetPrompt</a>	<p>Use the <code>SetPrompt</code> command to customize the text in the Enter SecureLogin Variables dialog boxes. These dialog boxes are used to prompt the user for new variables. You can also use the <code>DisplayVariables</code> command to customize the prompt text in the dialog box (for previously stored variables).</p> <p>For more information, see <a href="#">Section 5.2.77, "SetPrompt," on page 151</a>.</p>
<a href="#">Site/Endsite</a>	<p><code>Site/Endsite</code> are Web commands added to allow for finer control of site matching. More detailed information within a loaded Web site can now be matched upon an used to execute blocks of scripting commands.</p> <p>Begins and ends an application definition, in place of <code>Dialog/EndDialog</code>.</p> <p>For more information, see <a href="#">Section 5.2.79, "Site/Endsite," on page 153</a>.</p>
<a href="#">StrCat</a>	<p>Use the <code>StrCat</code> command to append a second data string to the first data string. For example, <code>StrCat ?Result "SecureRemote "\$Username</code>.</p> <p>For more information, see <a href="#">Section 5.2.80, "StrCat," on page 155</a>.</p>
<a href="#">StrLength</a>	<p>Use the <code>StrLength</code> command to count the number of characters in a variable and output that value to the destination variable.</p> <p>For more information, see <a href="#">Section 5.2.81, "StrLength," on page 156</a>.</p>

Command	What it means?
<a href="#">StrLower</a>	<p>Use the <code>StrLower</code> command to modify a variable so that all the characters are lowercase.</p> <p>For more information, see <a href="#">Section 5.2.82, “StrLower,” on page 157</a>.</p>
<a href="#">StrUpper</a>	<p>Use the <code>StrUpper</code> command to modify a variable so that all the characters are uppercase.</p> <p>For more information, see <a href="#">Section 5.2.83, “StrUpper,” on page 157</a>.</p>
<a href="#">Sub/EndSub</a>	<p>Use the <code>Sub/EndSub</code> commands around a block of lines within an application definition to denote a subroutine.</p> <p>For more information, see <a href="#">Section 5.2.84, “Sub/EndSub,” on page 158</a>,</p>
<a href="#">Submit</a>	<p>Use the <code>Submit</code> command only in Web application definitions, and only with Internet Explorer, to allow for enhanced control of how and when a form is submitted. The <code>Submit</code> command performs a Submit on the form in which the first password field is found. The <code>Submit</code> command is ignored if used with Netscape.</p> <p>For more information, see <a href="#">Section 5.2.85, “Submit,” on page 159</a>.</p>
<a href="#">Subtract</a>	<p>Use the <code>Subtract</code> command to subtract one value from another. This is useful if you are implementing periodic password change functionality for an application. You can use the <code>subtract</code> command (in conjunction with the <code>Divide</code> function and the <code>Slna DLL</code>) to determine the number of days that have elapsed since the last password change. Other numeric commands include <code>Add</code>, <code>Divide</code>, and <code>Multiply</code>.</p> <p>For more information, see <a href="#">Section 5.2.86, “Subtract,” on page 160</a>.</p>
<a href="#">Tag/EndTag</a>	<p>Use the <code>Tag/EndTag</code> commands to find HTML tags.</p> <p>For more information, see <a href="#">Section 5.2.87, “Tag/EndTag,” on page 162</a>.</p>
<a href="#">TextInput</a>	<p>Use within a site block to input text into a special field.</p> <p>For more information, see <a href="#">Section 5.2.88, “TextInput,” on page 162</a>.</p>
<a href="#">Title</a>	<p>Use the <code>Title</code> command to retrieve the title of a window and compare it against the string specified in the <code>&lt;Window-Title&gt;</code> argument. For this block of the application definition to run, the retrieved window title and the <code>&lt;Window-Title&gt;</code> argument must match the text supplied to the <code>Title</code> command in the dialog block.</p> <p>For more information, see <a href="#">Section 5.2.89, “Title,” on page 163</a>.</p>
<a href="#">Type</a>	<p>Use the <code>Type</code> command to enter data, such as usernames and passwords, into applications. There are reserved character sequences that are used to type special characters, for example <code>TAB</code> and <code>ENTER</code>. If it is not possible to determine Control IDs in a Windows application, and the <code>Type</code> command is not working, use the <code>SendKey</code> command instead.</p> <p>For more information, see <a href="#">Section 5.2.90, “Type,” on page 165</a>.</p>



Command	What it means?
<a href="#">WaitForFocus</a>	<p>Use the <code>WaitForFocus</code> command to suspend the running of the application definition until the <code>&lt;#Ctrl-ID&gt;</code> has received keyboard focus, or the <code>&lt;Repeat-Loops&gt;</code> expire. The <code>&lt;Repeat-Loops&gt;</code> is an optional value that defines the number of loop cycles to run. The <code>&lt;Repeat-Loops&gt;</code> value defaults to 3000 loops if nothing is set. After focus is received, the application definition continues.</p> <p>For more information, see <a href="#">Section 5.2.91, “WaitForFocus,” on page 170</a>.</p>
<a href="#">WaitForText</a>	<p>Use the <code>WaitForText</code> command so the Terminal Launcher waits for the specified <code>&lt;text&gt;</code> to display before continuing. For example, the user waits for a username field to display before attempting to type a username.</p> <p>For more information, see <a href="#">Section 5.2.92, “WaitForText,” on page 171</a>.</p>



# Managing Application Definitions

# 3

Application definitions are generally imported, built, or modified in the Management utility of Novell® SecureLogin, tested locally, and then copied to the relevant container, or the organizational unit in multi-user directory environments. Application definitions are imported and exported in the XML file format for ease of distribution and deployment.

Novell SecureLogin application definitions can be created using the application definition wizard.

For more information about the Application Definition Wizard, see the [Novell SecureLogin Application Definition Wizard Administration Guide](#).

## 3.1 Application Definition Checklist

When you have built or modified your application definitions, it is recommended that you test each supported application or the Web page for the following scenarios:

- ♦ Entering a correct username or password.
- ♦ Entering an incorrect username or password.
- ♦ Cancelling a login by the user.
- ♦ Exceeding maximum password retries.
- ♦ A user changing his or her own password.
- ♦ Attempting to change to an illegal password.

This illegal password action is relevant when you define a password policy and you try to define a password that does not match the policy.

- ♦ An administrator cancelling a password change.
- ♦ An administrator changing a user password.
- ♦ Expiry of user password.
- ♦ Locking out the account.
- ♦ Locking out someone from the account.

## 3.2 Exporting and Importing Predefined Applications and Application Definitions

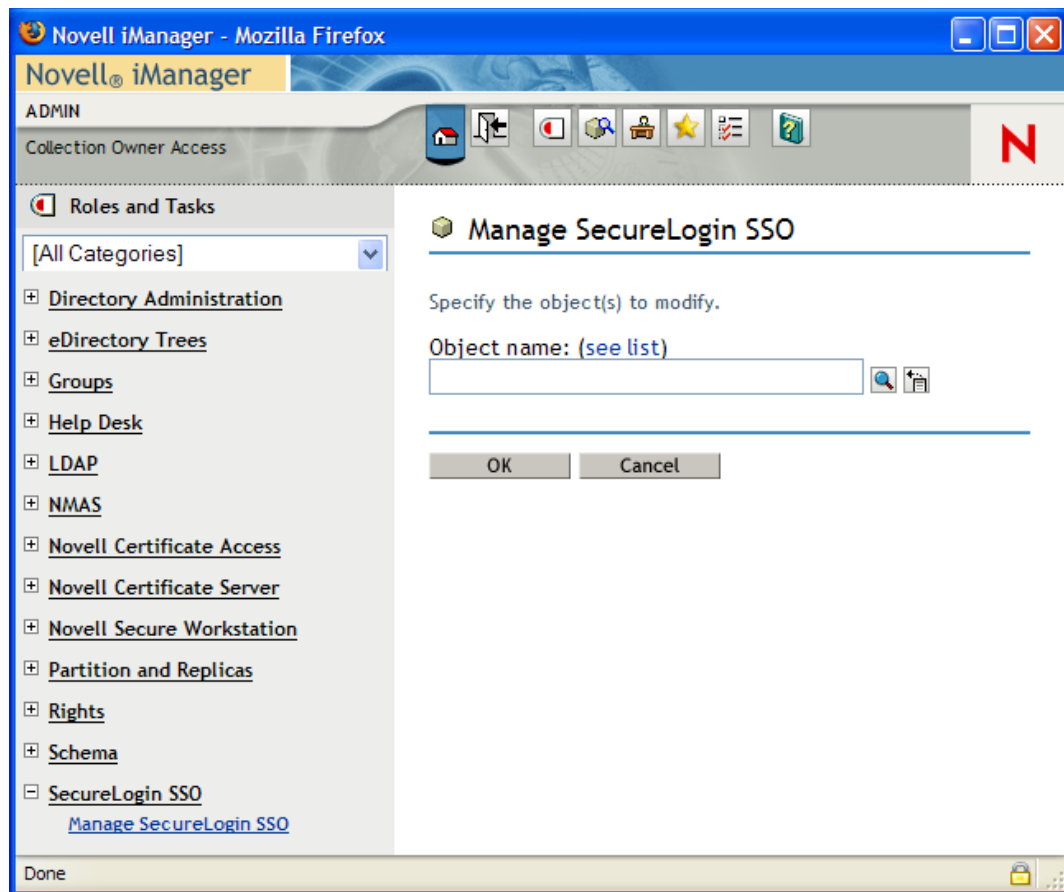
Novell SecureLogin provides export functionality to facilitate distribution of predefined applications and application definitions. Converting predefined applications and application definitions to XML format allows you to distribute and deploy predefined applications and application definitions across directories, software, and hardware platforms.

This section contains the following information:

- ♦ [Section 3.2.1, “Exporting Individual Applications,” on page 28](#)
- ♦ [Section 3.2.2, “Importing Individual Applications,” on page 31](#)

### 3.2.1 Exporting Individual Applications

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



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

**Manage SecureLogin SSO:**

SecureLogin SSO

[Applications](#) | [Logins](#) | [Distribution](#) | [Password policies](#) | [Preferences](#) | [Advanced Settings](#)

**Copy Settings**

**Load**

Load SecureLogin configuration from an XML file Load...

**Save**

Save SecureLogin configuration to an XML file Save...

**Copy**

Copy SecureLogin configuration to another directory object Copy...

OK Cancel Apply

- 5 Click *Save*. The Configuration for Export dialog box is displayed.
- 6 Under *Select SecureLogin Configuration*, select the appropriate text boxes.

**Configuration for Export**

**Select SecureLogin Configuration**

☒ Applications

☒ Password Policies

☒ Passphrase Question

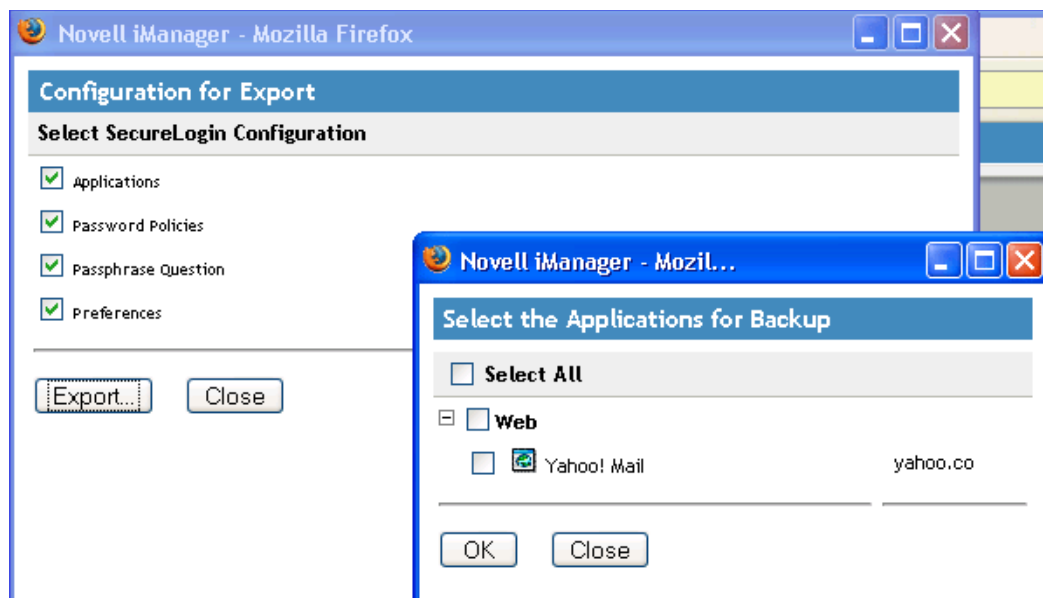
☒ Preferences

Export... Close

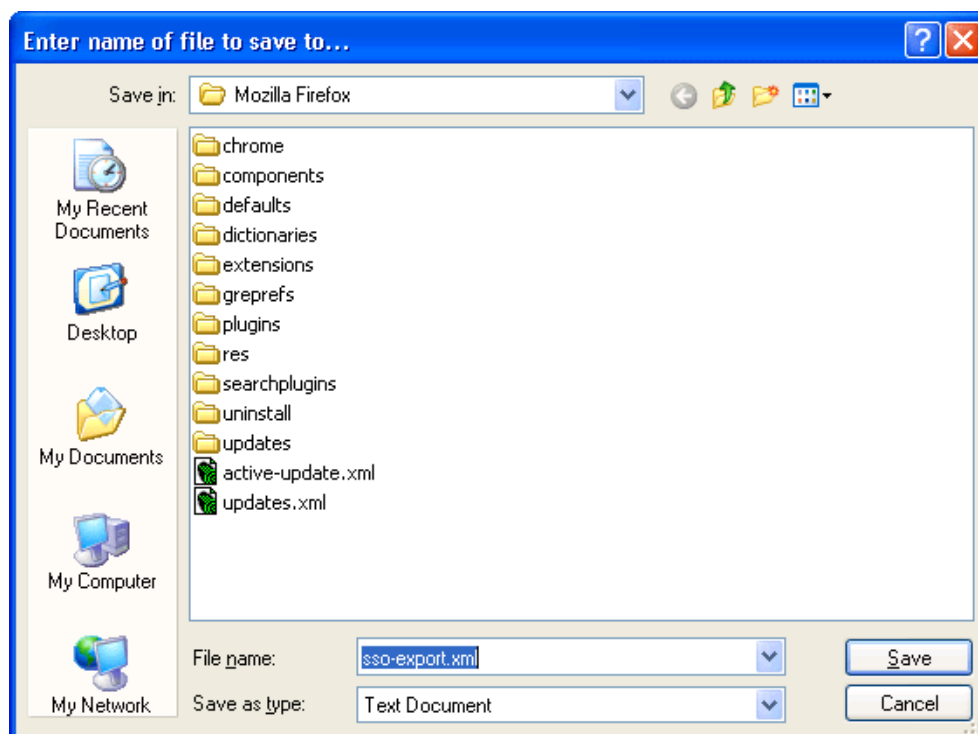
Configuration	Function
Application	Copies, exports, or imports all configured application definitions as displayed in the <i>Application</i> pane.
Credentials	Copies, exports, or imports all credentials as displayed in the <i>Logins</i> pane, excluding passwords for copy settings and unencrypted export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

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

- 8 Select the applications you want to backup.



- 9 Click *OK*. The Save File As dialog box is displayed.
- 10 Provide a name to the file, select the file location, and click *Save*.



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**NOTE:** The file is saved in an XML format.

---

## 3.2.2 Importing Individual Applications

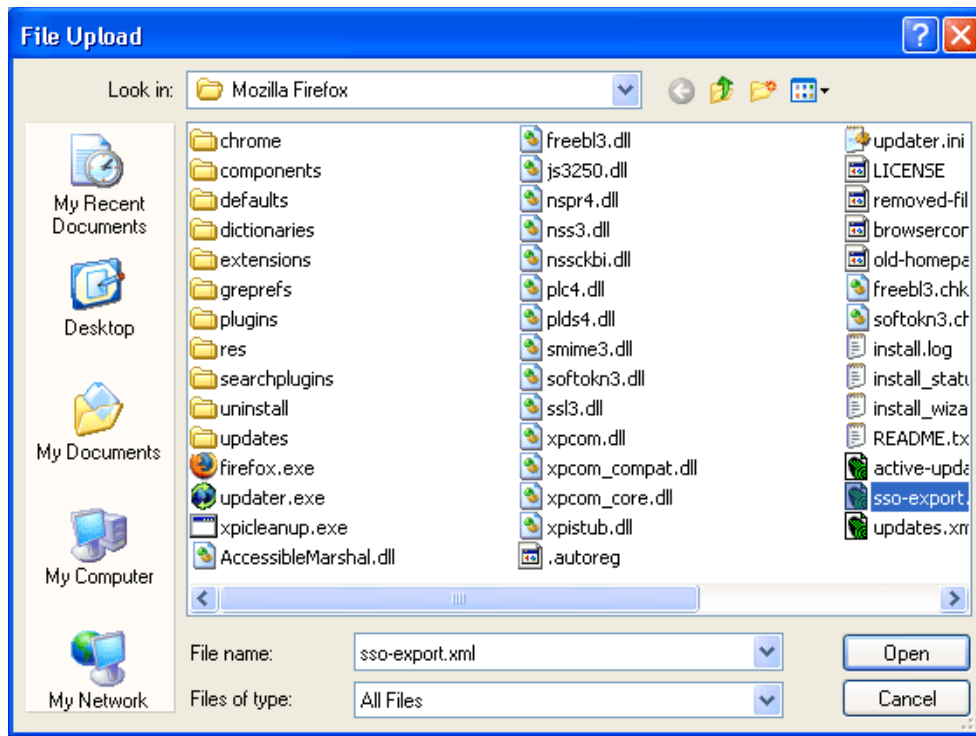
- 1 Log in to iManager.
- 2 Select *Securelogin SSO* > *Manage Securelogin SSO*. The Manage SecureLogin SSO page is displayed.
- 3 In the object field, specify your object name, then click *OK*.
- 4 Click *Distribution*. The Distribution details are displayed.

The screenshot shows the 'Manage SecureLogin SSO' dialog box. It has a title bar 'Manage SecureLogin SSO:' and a tabbed interface with 'SecureLogin SSO' selected. Below the tabs is a navigation bar with links: 'Applications', 'Logins', 'Distribution' (highlighted), 'Password policies', 'Preferences', and 'Advanced Settings'. The main content area is titled 'Copy Settings' and contains three sections: 'Load' with a 'Load SecureLogin configuration from an XML file' label and a 'Load...' button; 'Save' with a 'Save SecureLogin configuration to an XML file' label and a 'Save...' button; and 'Copy' with a 'Copy SecureLogin configuration to another directory object' label and a 'Copy...' button. At the bottom are 'OK', 'Cancel', and 'Apply' buttons.

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

The screenshot shows the 'Configuration for Import' dialog box. It has a title bar 'Configuration for Import' and a section titled 'Select SecureLogin Configuration'. This section contains four checked checkboxes: 'Applications', 'Password Policies', 'Passphrase Question', and 'Preferences'. Below these is a 'Source XML file' label, an empty text input field, and a 'Browse...' button. At the bottom are 'Import' and 'Close' buttons.

- 6 Browse to and select the exported XML file.



- 7 Click *Open* to select the file.

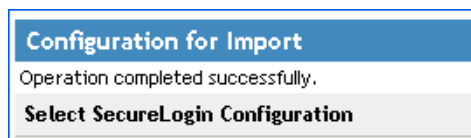
The selected predefined applications and application definitions are copied across to the receiving organizational unit or container.

The selected Securelogin configuration is copied across to the receiving object.

If predefined applications and application definitions currently exist in the receiving object, a confirmation message is displayed to confirm or reject overwrite with the imported data.

- 8 Click *Import* to confirm or click *Cancel* to reject overwriting with the imported data.

A SecureLogin message is displayed to confirm SecureLogin data is loaded.



### 3.3 Modifying Predefined Applications and Application Definitions

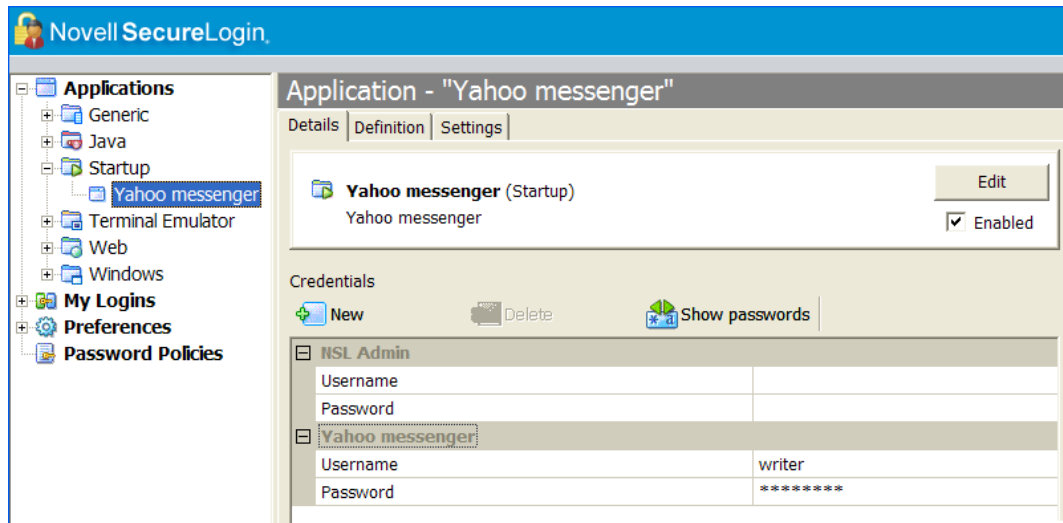
Novell SecureLogin predefined applications and application definitions are easily modified to cater to your organization's requirements.

Use the following procedure to modify a Novell SecureLogin predefined application or application definition:

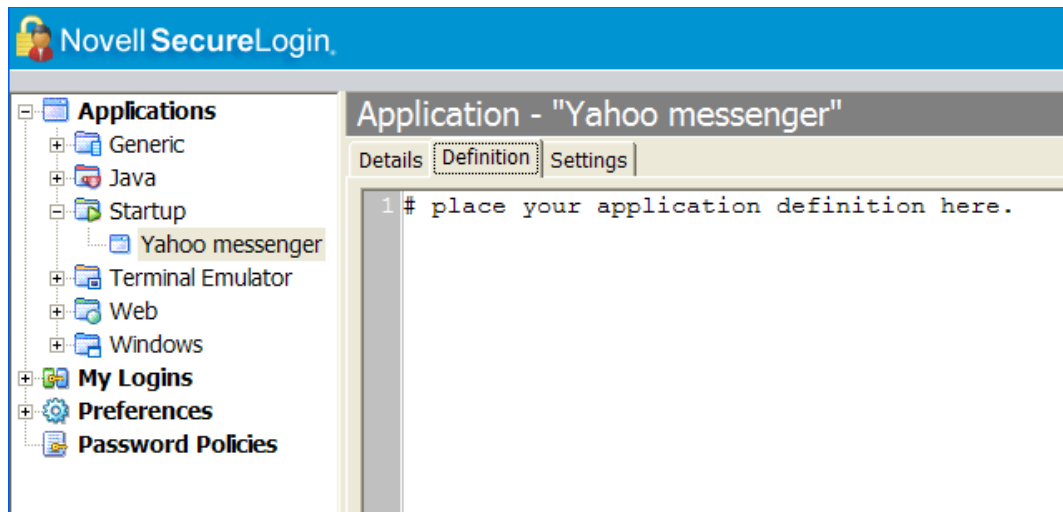
- 1 Double-click the SecureLogin icon in the notification area to display the Personal Management utility.
- 2 Click *Applications*. The Applications pane is displayed.



- 3 Double-click the required application definition. The application details are displayed.



- 4 Select the *Definition* tab. The application definition editor is displayed.



- 5 Modify the application definition or the predefined application, as required.

It is a good practice to include the date and a description of the changes made for future reference.

The predefined Web applications such as eBay or Hotmail under the *Type* drop-down list are titled *Web* and not *Advanced Web*. There is no difference between a *Web* application definition or an *Advanced Web* application definition.

- 6 Click *OK* to save changes and close the Personal Management utility.

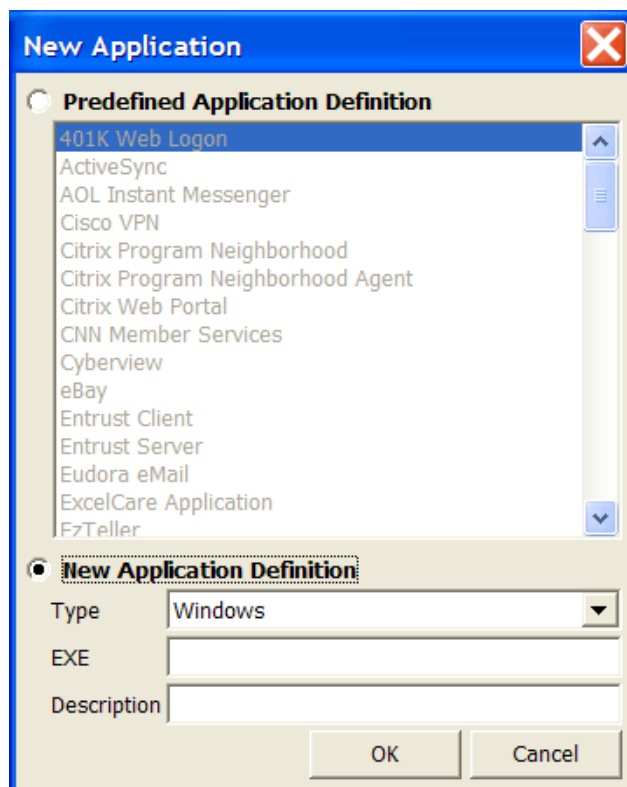
For information on how to modify specific functions see [Chapter 5, "Command Reference," on page 55](#).

### 3.3.1 Building an Application Definition in the Personal Management Utility

This section describes how to create and modify SecureLogin application definitions in the Personal Management utility. It is recommended that you test the application definitions locally and then copy them to the relevant container or organizational unit in multi-user directory environments.

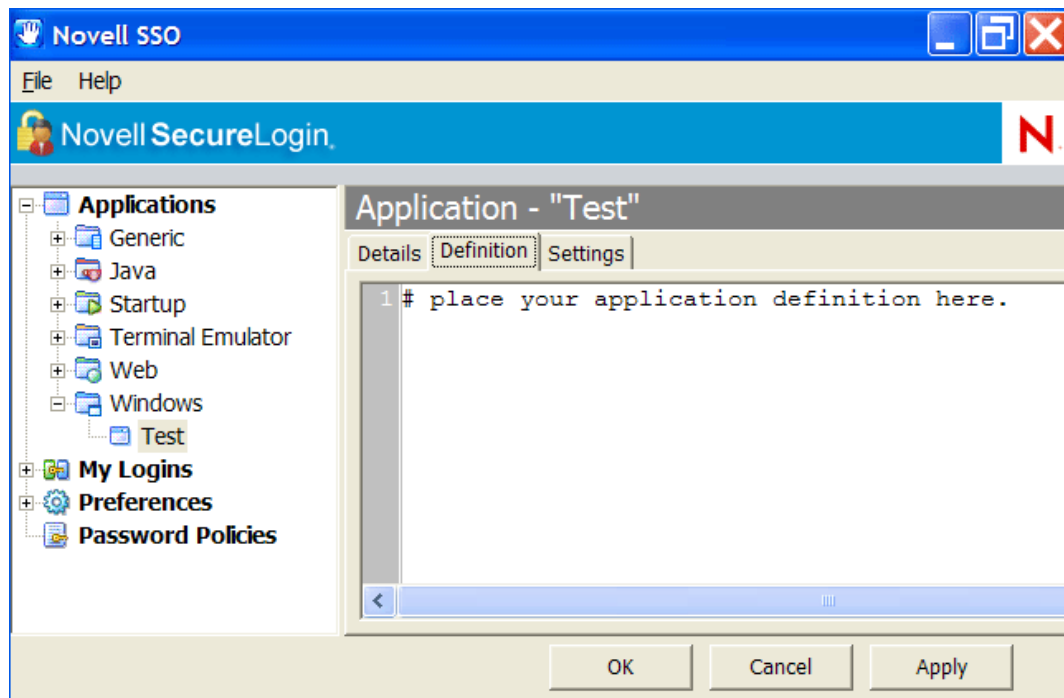
Use the following procedure to create an application definition for a Windows application:

- 1 Double-click the SecureLogin icon in the notification area to display the Personal Management utility.
- 2 Select *File > New > Application*. The New Application dialog box is displayed.
- 3 Click *New Application Definition*, and select the required application type from the *Type* drop-down list.



- 4 Specify other details such as the EXE or the description.  
These fields vary based on the application definition type that you have selected. For example, if you select *Windows* as the *Type*, you must fill in the *EXE* and *Description* fields.
- 5 Click *OK*. The application definition is added to the left pane under applications and the details display in the right pane.
- 6 Select *Definition*, and delete the text, # place your application definition here.

**Figure 3-1** The Definitions Pane



- 7 Specify your application details, then click *OK* to save the changes and close the Personal Management utility.

---

**NOTE:** If you are creating multiple application definitions, click *Apply* to save changes without closing the Personal Management utility.

---

## Settings Tab

**Figure 3-2** The Settings Options

The screenshot shows a window titled 'Application - "MSN Hotmail"'. It has three tabs: 'Details', 'Definition', and 'Settings', with 'Settings' being the active tab. The 'Settings' tab contains a table with the following options and values:

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

At the bottom of the window are three buttons: 'OK', 'Cancel', and 'Apply'.

The *Settings* tab includes the following options for application definitions and predefined applications:

**Table 3-1** Settings Options

Option	Description
<i>Allow web page to load while application definition is running</i>	<p>Applies to Microsoft Internet Explorer and application definitions created for Web pages and JavaScript* login that execute in a Web page.</p> <p>By default, this option is set to <i>No</i>. This suspends completion of any other Internet Explorer tasks until the log in is completed.</p> <p>If this option is set to <i>Yes</i>, Novell SecureLogin allows Internet Explorer to continue functioning while Novell SecureLogin is executing the login.</p>
<i>Enable third party access for this platform</i>	<p>By default, this option is set to <i>No</i>. This disables the API access for this predefined application or the application definition.</p> <p>If this option is set to <i>Yes</i>, it disables the API access for this predefined application or application definition.</p>

Option	Description
<i>Password field must exist on Internet Explorer page for application definition to run</i>	<p>Applies to Microsoft Internet Explorer and application definitions created for Web pages and JavaScripts within Web pages.</p> <p>If this option is set to <i>Yes</i>, Novell SecureLogin does not execute automated login for pages without a password field.</p> <p>If this option is set to <i>No</i>, your Web application returns errors on pages without password fields that you need to handle with Novell SecureLogin. For example, password change successful.</p>
<i>Prompt for device reauthentication for this application</i>	<p>Allows you to reauthenticate an application against an Advanced Authentication (AA) device.</p> <p>By default, this option is set to <i>No</i>, which means that users are not prompted for device reauthentication for the application.</p> <p>If this option is set to <i>Yes</i>, user are prompted for device reauthentication for the application.</p>
<i>Reauthentication Method</i>	<p>This option allows you to reauthenticate an application against an SLAA device where Novell SecureLogin is used in along with SLAA or the NMAS™ infrastructure.</p> <p>This option is available only when <i>Prompt for device reauthentication for this application</i> is set to <i>No</i>.</p> <p>The reauthentication methods available are:</p> <ul style="list-style-type: none"> <li>◆ Any</li> <li>◆ Biometric</li> <li>◆ Smart card</li> <li>◆ Token</li> <li>◆ Password</li> <li>◆ Passphrase</li> <li>◆ Directory password</li> </ul>
<i>Synchronize with Mobile Device</i>	<p>This option is set to <i>No</i> by default, enabling synchronization to an API-enabled hand-held device, for this predefined application or application definition.</p> <p>If this option is set to <i>Yes</i>, it disables synchronization to an API-enabled handheld device for this predefined application or application definition.</p>

## 3.4 Windows Application Definition Tools

Novell SecureLogin provides wizards to assist with the creation of basic application definitions. For more complex applications and requirements, Novell SecureLogin provides the following tools to assist with finding the application information required to build an application definition:

- ♦ [Section 3.4.1, “Finding Application Details with Window Finder,” on page 38](#)
- ♦ [Section 3.4.2, “Finding Application Details with the Login Watcher,” on page 40](#)

### 3.4.1 Finding Application Details with Window Finder

The Novell SecureLogin Window Finder finds windows applications details, including control and dialog box IDs. Novell SecureLogin might require this information to identify specific objects in order to uniquely identify the application.

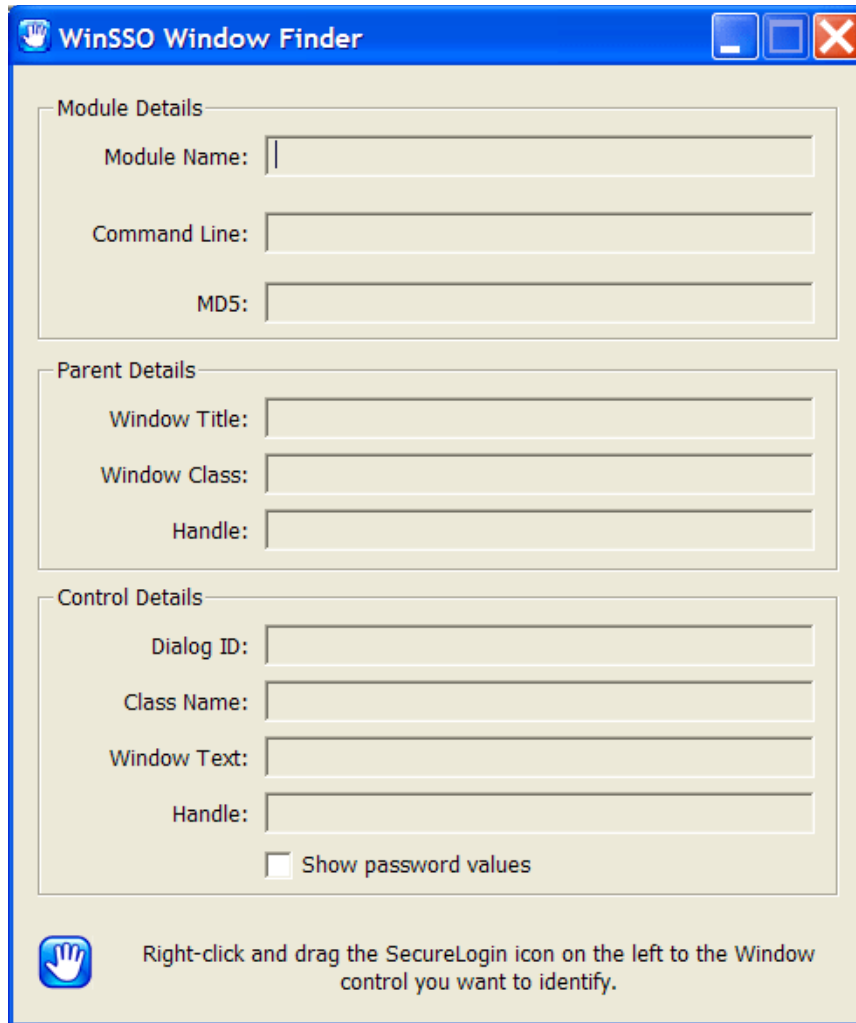
Control IDs are used to uniquely identify objects within a window. Window Finder extracts this information from the application for use in the application definition.

- ♦ [“Starting the Windows Finder” on page 38](#)
- ♦ [“WINSSO Window Finder Details” on page 39](#)

#### Starting the Windows Finder

The following procedure uses the Novell SecureLogin test application provided on the Novell SecureLogin product installer package or your other distribution source.

- 1 On the Windows *Start* menu, select *All Programs > Novell Securelogin > Window Finder*. The Window Finder is displayed.



The WinSSO Window Finder dialog box is divided into three main sections: Module Details, Parent Details, and Control Details. Each section contains several text input fields for identifying a window or control. At the bottom, there is a hand icon and a instruction to right-click and drag the SecureLogin icon to the desired window or control.

**Module Details**


- Module Name:
- Command Line:
- MD5:


**Parent Details**

- Window Title:
- Window Class:
- Handle:

**Control Details**

- Dialog ID:
- Class Name:
- Window Text:
- Handle:
- ☐ Show password values

 Right-click and drag the SecureLogin icon on the left to the Window control you want to identify.

- 2 Right-click the Novell SecureLogin  icon in the dialog box, drag it to the required window, field or control, and release the mouse button.

## WINSSO Window Finder Details

The following table lists the fields in the WinSSO Window Finder:

**Table 3-2** *Window Finder Details*

Field	Description
<b>Module Details Section</b>	
Module Name	This is the Windows executable name for the selected application.  This is the application name for a Windows application definition or the predefined application.

Field	Description
Command Line	This is the full command line used to start the application.  You can use this information in along with the <code>GetCommandLine</code> command.
<b>Parent Details Section</b>	
Window Title	This is the title of the window of the selected control.  Use with the <code>Title</code> command in the <code>Dialog/EndDialog</code> section of the application definition.
Window Class	This is the Windows class name for this dialog or window.  Use with the <code>Class</code> command in a <code>Dialog</code> or <code>EndDialog</code> section.
Handle	This is the internal Windows handle for this window.  This is generally not used in application definitions.
<b>Control Details Section</b>	
Dialog ID	This is the unique number identifying the control.  Use it with various commands, including <code>Type</code> , <code>SetPlat</code> , and <code>Click</code> .
Class Name	This is the Windows class name for the control.  Novell SecureLogin supported classes, which include Edit, Combo box, and Static.
Window Text	This is the test that exists on the control.  Useful to copy and paste into the application definition editor.  <ol style="list-style-type: none"> <li>1. Note or copy the required details from the WinSSO Window Finder window from the relevant fields.</li> <li>2. Click <i>Close</i> to quit and close the WinSSO Window Finder window.</li> </ol>

### 3.4.2 Finding Application Details with the Login Watcher

The Login Watcher records login and Windows application data to provide information that you might need for creating an application definition.

- ♦ [“Order Information Is Recorded and Stored” on page 40](#)
- ♦ [“Information Details” on page 41](#)
- ♦ [“SecureLogin Test Application Example” on page 41](#)

#### Order Information Is Recorded and Stored

Information is recorded and stored in a text file in the following order:

Time||Module Name||Window Handle||Window Text||Class Name||Parent||Visible Flag||Title  
Flag||Control ID



---

**NOTE:** The Login Watcher records all log in information, including usernames and passwords, in a text file. This text file might be a security issue.

---

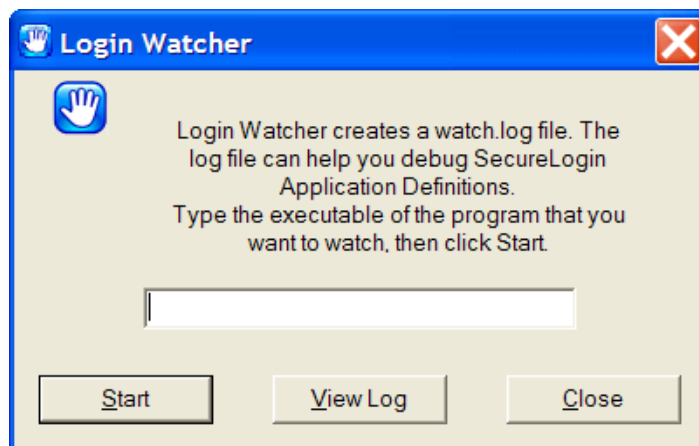
## Information Details

Information Item	Description
Time	Milliseconds elapsed since the Login Watcher started.
Module name	Name of the executable being recorded.
Window handle	Unique identifier for the window.
Window text	All text displayed in the window, which includes text entered during login and text displayed as labels for fields and buttons.
Class name	Name of the window class.
Parent	Window handle of the parent window.
Visible flag	Refers to top-level windows that have the style set to <i>Visible</i> .  If set to <i>Visible</i> , the word Visible displays; otherwise the field is empty.
Title flag	Refers to top-level windows that have the style set to display the Window Title.  If the title is not displayed, then the field is empty.
Control ID	The unique numerical identifier for the windows object.

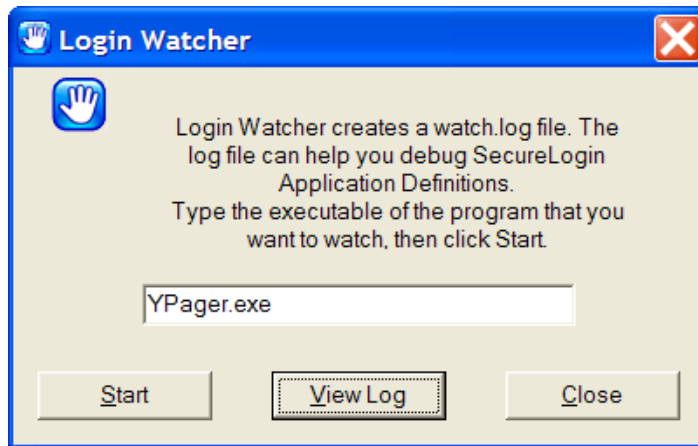
## SecureLogin Test Application Example

The following procedure uses the SecureLogin test application:

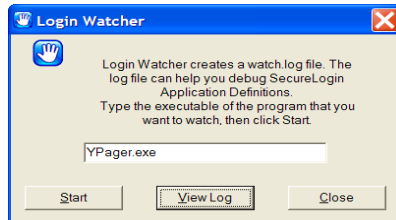
- 1 Right-click the Novell SecureLogin icon on the notification area.
- 2 Select *close* from the menu.
- 3 Right-click the Windows *Start* menu > *Explore*.
- 4 Double-click `loginwatch.exe`, by default located at `<...>\program files\novell\securelogin\tools`. The Login Watcher dialog box is displayed.



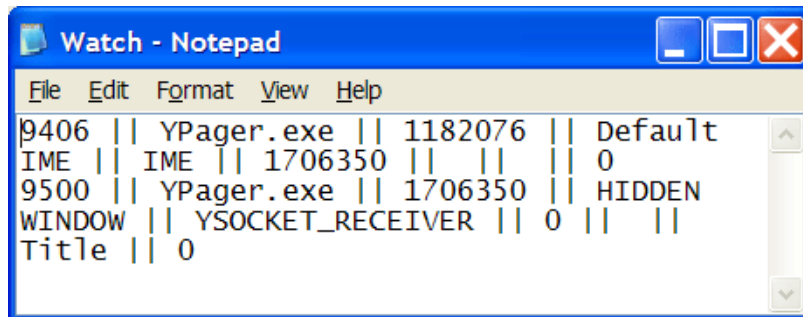
- 5 Specify the executable filename in the Login Watcher field. For example, YPager.exe.



- 6 Click *Start*. The Now Recording Log confirmation dialog box appears.



- 7 Log in to the relevant application.
- 8 Click *Stop* when logged on successfully to return to the Login Watcher dialog box.
- 9 Click *View Log*. Novell SecureLogin starts the Notepad application and displays the watch.txt file with login details recorded.



- 10 Note the required information or save the text file with a different name.
- 11 Click the Login Watcher dialog box. Click *Close*.

## 3.5 Application Definition Elements

Application definitions use various symbols to define the function of each line. The following table lists the definitions for these symbols.

**Table 3-3** *Symbol Definitions*

Symbol	Description
#	<p>Use the number of this symbol to define a line of text as a comment field. Comment fields are used to leave notes.</p> <p>Any line that starts with a # is ignored.</p> <p>Use comment lines for the following:</p> <ul style="list-style-type: none"> <li>♦ Defining sections of an application definition, for example the login window and Change Password window.</li> <li>♦ Explaining complex sections.</li> <li>♦ Removing command lines during creation and editing of the application definition. This saves continuously deleting and rewriting lines while testing.</li> <li>♦ Making notes such as when the application definition was written, what version of the software it was written for, and so on.</li> </ul> <p>When used as part of a command, such as <code>Class</code> or <code>Type</code>, the symbol specifies a numerical value.</p> <p>You can use these numerical values to specify a target for the command.</p>
" "	<p>Use quotation marks to group together text or variables that contain spaces. Quotation marks are used with commands such as <code>Type</code>, <code>MessageBox</code>, and <code>If -Text</code>.</p> <p>For these command lines to work, you must use quotation marks in the following method to group the text together:</p> <ul style="list-style-type: none"> <li>♦ <code>Type "Database 2"</code></li> <li>♦ <code>MessageBox "Please confirm your log in details."</code></li> <li>♦ <code>If -Text "Login failure"</code></li> </ul>
\$	<p>Use the dollar sign to define the use of a Novell SecureLogin variable stored in the directory for later use by that user.</p> <p>These variables are used to store information such as usernames and passwords.</p>
?	<p>Use the question mark to define the use of a runtime variable. The values of these variables are not stored in the directory; they are reset each time Novell SecureLogin is started.</p> <p>Alternatively, with the use of the <code>Local</code> command, these variables are reset each time the application definition is started.</p> <p>These variables are used to store temporary information, such as counting, data processing, and date information. The question mark is also used with several internal system generated variables.</p>

Symbol	Description
%	<p>Use the percentage sign to define the use of a directory attribute. The attributes available vary depending on the directory in use, and the setup of the directory.</p> <p>Examples of the attributes you can use are FCN and %Surname.</p> <hr/> <p><b>NOTE:</b> Quotes are required around the variable if the attribute name contains a space. For example,</p> <pre>Set ?text "%Login Time"</pre> <p>or</p> <pre>MessageBox "%Given Name"</pre> <p>For more information, see <a href="#">Section 4.1.2, "Directory Attribute Variables," on page 45</a>.</p> <hr/>
\	<p>Use the backslash with the <code>Type</code> and <code>SendKey</code> commands to specify the use of a special function.</p> <p>The backslash is used along with values to perform the simulation of pressing keys. Examples of frequently used functions are provided in the following list:</p> <ul style="list-style-type: none"> <li>♦ <b>Alt-F:</b> Alt+F on the keyboard in Windows and Web applications.</li> <li>♦ <b>ID:</b> Delete key in a Windows and Web applications. Not applicable to terminal emulators.</li> <li>♦ <b>IN:</b> Enter key in a Windows and Web applications. Not applicable to terminal emulators.</li> <li>♦ <b>IT:</b> Tab in Windows and Web applications.</li> <li>♦ <b>I-T:</b> Shift+Tab in Windows and Web applications.</li> </ul>
@	<p>Use the same way as the backslash symbol, except its use is limited to HLLAPI-enabled emulators.</p> <p>This symbol is used along with values to perform the simulation of key presses. For example, use @E to simulate pressing Enter in a terminal emulator application.</p>
-	<p>Use the hyphen as a switch within several commands, such as <code>If</code> and <code>Type</code>.</p> <p>The hyphen is used along with values to modify the behavior of commands (such as <code>-Raw</code>), or switch on or off certain functions (such as <code>-YesNo</code>).</p> <hr/>

# Application definition variables

# 4

- ♦ [Section 4.1, “Types of Variables,” on page 45](#)
- ♦ [Section 4.2, “Novell SecureLogin Supported Variables,” on page 47](#)
- ♦ [Section 4.3, “Application Definition Best Practices,” on page 49](#)

## 4.1 Types of Variables

Novell SecureLogin supports the use of four different types of variables:

- ♦ Stored
- ♦ Runtime
- ♦ Directory attribute

### 4.1.1 Using a variable to change the default platform

---

**NOTE:** Specify variables without spaces, for example \$Username\_Alias. If you use spaces you must enclose the entire variable in quotation marks, for example "\$Username Alias".

---

Each variable defaults to the platform specified in the application definition or the predefined application name. You can use a variable to change the platform, for example you can have an application definition named www.website1.com, for example:

```
type $username
type $password password
```

An application definition named www.website2.com might use the variables from www.website1.com, for example:

```
Type $Username(www.website1.com)
Type $Password(www.website1.com) Password
```

### 4.1.2 Directory Attribute Variables

Novell SecureLogin has the ability to read directory attributes from the currently logged on user's object. For example:

```
Type %CN
```

reads the CN attribute from the currently logged in user's object and specifies it.

You can only use the percentage symbol (%) variables when Novell SecureLogin is configured to use a directory, and only on single-valued text attributes.

Quotes are required around the variable if the attribute name contains a space. For example:

```
Set ?text "%Login Time"
MessageBox "%Given Name"
```

For more information on application definition elements and symbol usage refer to [Chapter 3, “Managing Application Definitions,” on page 27](#).

### 4.1.3 Stored Variables

Stored variables are the most common style of variable used in application definitions and Predefined Applications. They are preceded with a dollar symbol (\$). Use these variables to store the values used during the login process, such as usernames, passwords and any other details that are required.

This section contains the following information:

- ♦ [“Storing the Variables” on page 46](#)
- ♦ [“Using Stored Variables” on page 46](#)

#### Storing the Variables

The values of these variables are stored in the directory under the user object. They are encrypted so that only the user can access them. You can store variables separately for each application definition and predefined application, so the username variable for one application can be different from the username variable for another application. It is, however, possible to set an application to read variables from another application's application definition and predefined application. This is useful for applications that share user accounts or passwords.

For details on how to do this, see [Section 5.2.76, “SetPlat,” on page 148](#).

#### Using Stored Variables

If a stored variable is referenced in an application definition and predefined application, and there is no value stored for that variable (for example, the first time the program is run), SecureLogin prompts the user to enter a value for the variable. This is an automatic process. It is also possible to manually trigger this process to prompt a user to enter new values for particular variables.

For details on how to do this, see [Section 5.2.20, “DisplayVariables,” on page 83](#) and [Section 5.2.9, “ChangePassword,” on page 70](#).

---

**NOTE:** If you want to hide a variable from an administrator by displaying it as asterix (\*\*\*\*) instead of clear text, begin the variable name with \$Password. For example, the \$PasswordPIN variable is protected as described, however, \$PIN is not.

---

Example of stored variables in use:

```
Dialog
Class #32770
Title "Log on"
EndDialog
Type $Username #1001
Type $Password #1002
Click #1
```

## 4.1.4 Runtime Variables

Runtime variables are generally used for storage of calculations, processing data, and date information. You can also use them for temporary passwords and usernames.

Runtime variables are preceded by the question mark symbol (?). They have two modes:

- ♦ Normal runtime variables are reset each time SecureLogin is started.
- ♦ Local runtime variables are reset each time the application definition and predefined application is started.

Runtime variables are Normal by default. For details on how to switch a runtime variable to Local mode, see [Section 5.2.44, “Local,” on page 105](#).

### Using Runtime Variables

Runtime variables are not stored in the directory or the Novell SecureLogin cache; they are used straight from the computer's memory. For this reason, it is important not to use runtime variables for the storage of usernames, passwords, or other details Novell SecureLogin will need to access in the future.

If runtime variables are used for such details, the user is prompted to enter them each time the application definition or predefined application is run, or each time Novell SecureLogin is restarted. Users are not prompted for ?variables that have no value. These variables are given the value <NOTSET>.

### Example of a Runtime Variable

```
Dialog
Class #32770
Title "ERROR"
EndDialog
Local?ErrorCount
Increment?ErrorCount
If?ErrorCount Eq "2"
  MessageBox "This is the second time you have received this error. Would you
  like to reset the application?" -YesNo ?Result
  If ?Result Eq "Yes"
    KillApp "App.exe"
    Run "C:\App\App.exe"
  Else
    Set?ErrorCount "0"
  EndIf
EndIf
```

## 4.2 Novell SecureLogin Supported Variables

Novell SecureLogin reads details from the system and uses them to create variables that you can incorporate into the application definition. These variables are automatically generated as runtime variables and used in the same manner within any application definition.

Variable	Description
?BrowserType(system)	<p>Contains Internet Explorer and indicates the browser on which the application definition is running.</p> <p>This variable is only set in a Web application definition.</p>
?CurrTime(system)	<p>Contains the running time in seconds from Jan 1970 to the present. Use this variable to force password changes every X days, or similar.</p> <p>Do not use the application definition to force a password change if you want to continue the application generating the change password event. This is recommended.</p> <p>Use this variable on applications where you cannot set a password expiry at the application back end.</p>
?SysContext(system)	Contains the context within which the current Novell SecureLogin user's directory object exists.
?SysPassword(system)	<p>Contains the directory password of the user currently using Novell SecureLogin.</p> <p>This variable is only available if the appropriate options are chosen when installing Novell SecureLogin.</p>
?SysServer(system)	<p>Contains the name of the server or the IP address of the server that was entered in the Novell client login panel.</p> <hr/> <p><b>NOTE:</b> This variable is only available if the Novell client login extension is installed (eDirectory) and is not available if the MS Active Directory or ADAM option has been installed.</p> <hr/>
?SysTree(system)	<p>The name of the directory tree that the Novell SecureLogin is currently using.</p> <hr/> <p><b>NOTE:</b> The variable ?SysTree will return the Domain name when using Microsoft GINA (Microsoft Active Directory or ADAM) and the Tree name or Port Number when using Novell GINA or LDAP installation.</p> <hr/>
?SysTSLaunched (system)	<p>Contains the condition state value when SLLauncher is run.</p> <p>This variable is set to "True" when a script is being executed by SLLauncher. Otherwise it will be "&lt;NOTSET&gt;".</p>
?SysUser(system)	The name of the user currently using Novell SecureLogin.
?SysVersion(system)	<p>The local Novell SecureLogin windows agent version.</p> <p>You can use this variable to determine if specific support is built into the product running on the user's workstation. Version convention is two digits for each section, read from right to left, and leading zeroes are removed. For example, version 3.0.4.0 would be returned as 03000400.</p>



## 4.2.1 Variables that enable single sign-on in Firefox

Novell SecureLogin can select a specific credential set to single sign Firefox authentication dialog boxes by adding a Generic application definition called “Firefox–CredentialSelection”.

**IMPORTANT:** The application definition of `firefox.exe` must already exist for adding a generic application definition.

The application definition allows the administrator to define which credentials to use to single sign-on to the Firefox authentication dialog box of any realm or domain. The application definition contains variables with values that are supplied from the SecureLogin SLoMoz Firefox plug-in.

Variable	Description
?FFCredential	<p>The name of the credential set that the SecureLogin SLoMoz Firefox plug-in will use to populate the authentication dialog. By default, the variable will store the equivalent of [<code>?FFRealm "?FFDomain"</code>].</p> <p>To allow using <code>?SysUser</code> and <code>?SysPassword</code> in a login, set the <code>FFCredential</code> to be <code>-SysCredential</code>. For example,</p> <pre>set ?FFCredential -SysCredential</pre>
?FFDialogText	The text of the Firefox authentication dialog box.
?FFDomain	The domain that is prompting for authentication.
?FFMustSaveCredential	The variable that controls whether SecureLogin requires users saving credentials for a specific realm or domain.
?FFRealm	The realm that is prompting for authentication.

## 4.3 Application Definition Best Practices

The following are some of the best practice rules to follow when creating an application definition. These rules make reading the application definition easier and also help if you need to make modifications in the future.

### 4.3.1 Symbols Used

**Table 4-1** *Description of Symbols*

Symbol	Description
< >	<p>Angle brackets represent an item.</p> <p>For example, text, variable, or value.</p>
[ ]	Square brackets represent an optional item.
↩	<p>If an item is not marked with square brackets, it is a compulsory item.</p> <p>Indicates a line break</p>

## 4.3.2 Blank Line Between Sections

---

**NOTE:** Always place the title after all other commands in the dialog block.

---

Leave a blank line between sections, for example, between the dialog block and the rest of the application definition.

Instead of	Use
# Logon Dialog Box Dialog Class #32770 Title "Log on" EndDialog Type \$Username #1001 Type \$Password #1002 Click #1	# Logon Dialog Box Dialog Class #32770 Title "Log on" EndDialog Type \$Username #1001 Type \$Password #1002 Click #1

## 4.3.3 Capitalization

Use capitalization where applicable.

**Table 4-2** Capitalization

Instead of...	Use...
messagebox "some text" -yesno ?result	MessageBox "Some text" -YesNo ?Result.

## 4.3.4 Comments

Use comments throughout to explain what each section does and how it does it.

Instead of...	Use...
Dialog Class #32770 Title "Log on" EndDialog	# Written by B. Smith 2004, modified C. Silvagni 2006 # Logon Dialog Box Dialog Class #32770 Title "Log on" EndDialog

## 4.3.5 Indent Section

Indent sections between pairs of commands, for example `Dialog`, `Repeat`, and `If`. Use an indent of three spaces.

Instead of...	Use...
<pre>If -Text "Some text" #Do thisElse #Do This EndIf</pre>	<pre>If -Text "Some text" #Do thisElse #Do this EndIf</pre>

### 4.3.6 Password Policy Names

Password policy names must represent the program they are used for. Do not use numerical names.

Instead of...	Use...
PasswordPolicy3	GroupwisePasswordPolicy

### 4.3.7 Quotation Marks

Always use quotation marks around segments of text in commands.

Instead of...	Use...
Type TextOrlf -Text Login	Type "Text"Orlf -Text "Log on"

### 4.3.8 Regular Expressions

Regular expressions are text patterns normally used for string matching. Regular expressions might contain a mix of plain text and special characters to indicate the kind of matching to be done.

For example, if you are searching for any numeric character, then the regular expression that you use for the search is, "[0-9]".

The square [ ] brackets indicate that the character that is compared must match any one of the characters enclosed within the brackets. The dash ( - ) between the zero (0) and nine (9) indicates that the range is between the number zero and nine.

If you need search for a special character, then you must use the backslash (\) before the special character.

If your regular expression does not match any controls on a particular application screen, Novell SecureLogin will prompt you to check your regular expression and ensure the correct control is selected. Special characters in your regular expression might need to be escaped.

The following table briefly describes the characters that can be used in regular expressions within Novell SecureLogin application definitions, in particular the `RegSplit` command detailed in [Section 5.2.62, "RegSplit," on page 131](#).

Character	Description
\ (Backslash)	<p>The \ is an escape character indicating that the next character must be used as a regular search character and not as a special character.</p> <p>For example, the regular expression “\” matches a single asterisk and the expression “\\” matches a single backslash.</p>
^ (Caret)	<p>The ^ is an anchor. If you use the ^ preceding any character, it searches the beginning character of any string.</p> <p>For example, the expression “A^” matches an “A” only at the beginning of the string.</p>
[^ (Square bracket and Caret)	<p>The ^ immediately following [, is used to exclude the characters within the square brackets from matching the target string.</p> <p>For example, the expression “[^0-9]” specifies that the target character must not be a numeral.</p>
\$ (Dollar sign)	<p>The \$ is an anchor. The \$ matches the end of the string.</p> <p>For example, the expression “abc\$” matches the substring “abc” only if it is at the end of the string.</p>
(Vertical bar or pipe)	<p>The   allows the character on either side of the vertical bar (or pipe) to match the target string.</p> <p>For example, the expression “a b” matches a as well as b.</p>
. (Period or full stop)	The . matches any character.
* (Asterisk)	The * indicates that the character to the left of the asterisk in the expression must match at least zero or more times.
+ (Plus sign)	The + indicates that the character to the left of the plus symbol in the expression must match at least once.
? (Question mark)	The ? indicates that the character to the left of the question mark must match at least zero or more than once.
( ) (Parentheses)	The ( ) enclosing a set of characters affects the order of pattern evaluation and also serves as a tagged expression that can be used when replacing the matched substring with another expression.
[ ] (Square brackets)	The [ ] enclosing a set of characters indicates that any of the enclosed characters might match the target character.

## Capture Groups

If you are using the regular expressions to extract information rather than just match the text, use capture groups. You can use a capture group when using regular expressions to select credentials to be used based on a particular option from a command dialog box. For example, the name or IP address of a particular server to which you want to connect. In such a scenario, Novell SecureLogin uses the capture group to make a unique name for a credential set and allows users to have different credentials for different servers.

For example, if a message indicating `Welcome Kerry to the Corporate server` is displayed, then Kerry is the name of the user and Corporate is the name of the server. If you want to match just the text, `Welcome .+ to the .+ server`. If you want to use the server name as the name of the credential set, so that you can create other credential sets for other servers, add a capture group to the same regular expression and get `Welcome .+ to the (.+) server`.

For more general information on regular expressions and usage refer the [Boost Web site](http://www.boost.org/doc/libs/1_33_1/libs/regex/doc/syntax_perl.html). ([http://www.boost.org/doc/libs/1\\_33\\_1/libs/regex/doc/syntax\\_perl.html](http://www.boost.org/doc/libs/1_33_1/libs/regex/doc/syntax_perl.html))

Novell uses the Boost regular expression library (in Perl) when developing Novell SecureLogin. While other reference sites provide detailed and comprehensive information on regular expressions, only the expressions listed in the tables are supported by Novell.

### 4.3.9 Switches

Switches are placed directly after the command, for example, `Type -Raw`, `If -Text`.

**Table 4-3** *Switches*

Instead of...	Use...
<code>Type \$Username -Raw</code>	<code>Type -Raw \$Username</code>

### 4.3.10 Variables

All variable names start with a capital letter.

**Table 4-4** *Variables*

Instead of...	Use...
<code>Type \$username</code>	<code>Type \$Username</code>

### 4.3.11 Writing Subroutine Sections

Write subroutine sections at the bottom of the application definition and not partway through.

The name of the subroutine should describe its function. Do not use a numeric name. The name should follow the capitalization rule.

Wherever possible, use the `Include` command to create generic application definitions for frequently used elements, for example password change procedures. For common processes within the same application definition, use subroutines.



# Command Reference

# 5

This section contains the following information:

- ♦ [Section 5.1, “Command Reference Conventions,” on page 55](#)
- ♦ [Section 5.2, “Commands,” on page 58](#)

## 5.1 Command Reference Conventions

This section consists of descriptions and examples of the commands that make up Novell® SecureLogin application definitions.

An index and summary is also included as [Chapter 2, “Command Quick Reference,” on page 15](#).

### 5.1.1 Command Information

The information for each of the commands includes:

- ♦ [“Use With values” on page 55](#)
- ♦ [“Type Values” on page 56](#)

#### Use With values

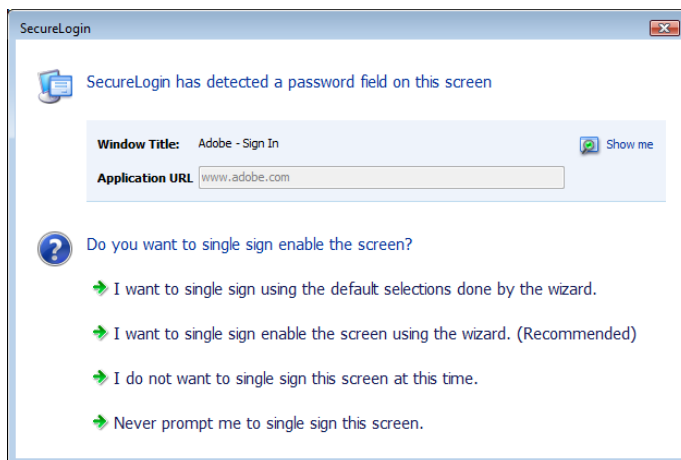
Command	Description
Java	Use as part of a Java* application definition.
Startup	Use as part of a startup.
Terminal Launcher	Use as part of a terminal launcher application definition.
Advanced Web	Use as part of a manually created Web site or Internet application definition. Not compatible with the Web Wizard application definition language.
<b>NOTE:</b> A predefined <i>Web</i> application and an <i>Advanced Web</i> application definition are the same.	
Web Wizard	Use as part of application definitions created automatically by the Web Wizard. Web Wizard application definitions can be kept in their original XML format or converted to an ASCII script for advanced editing.
Windows	Use as part of a Windows application definition.

## Type Values

Command	Description
Action	Performs an action, for example, the <code>Type</code> command types information into a field.
Dialog specifiers	Defines dialog boxes, for example, the <code>Parent</code> and <code>Class</code> commands.
Flow control commands	Directs Novell SecureLogin to a specific location in the application definition, for example, <code>Repeat</code> and <code>EndScript</code> commands.
Variable manipulators	Modifies variables, such as the <code>Add</code> and <code>Subtract</code> commands.

### 5.1.2 Web Wizard Application Definition Conventions

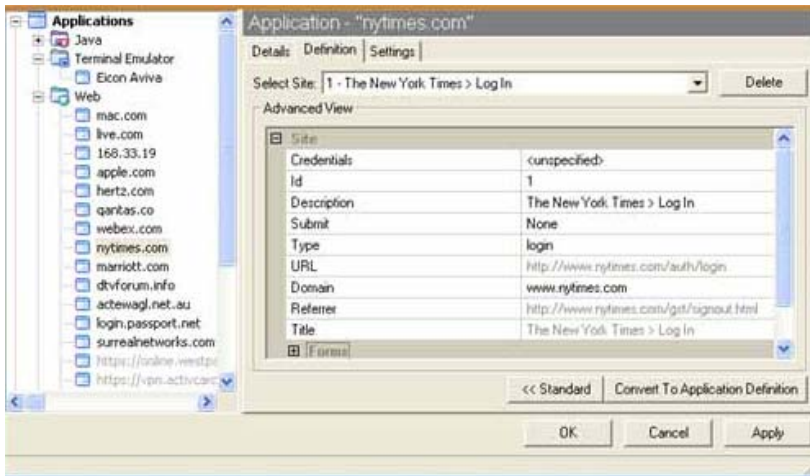
The SecureLogin advanced Web Wizard makes it easier for users to enable single sign-on Web sites and capture a user's Web-based login details. When the user accesses a Web page from the browser, SecureLogin automatically launches the Web Wizard.



The Web Wizard captures the user's login details and adds them to the user's Web application definitions.

When managing user's Web log in credentials, the *Definition* tab of the *Advanced Setting* page allows administrators to customize site and user credential details. Also available under the *Definitions* tab is an Advanced function that provides more functionality with their associated values and the option to convert the user's login credentials to an application definition.





For more details on how to manage application definitions, see [Chapter 3, “Managing Application Definitions,”](#) on page 27.

## Site Matching

In SecureLogin version 6.0 and later, Web commands are added to allow much finer control of site matching. Detailed information of the loaded Web site can be matched and used to execute blocks of scripting commands.

The technique used to specify constraints upon a site match are similar to those constraints used in windows scripting.

Instead of `Dialog/EndDialog` commands, equivalent `Site/EndSite` commands have been created and can now be used.

Within these Site blocks, Match commands can be used to filter a given site. If one of the specified match commands fails to match, then the site block will fail to match as a whole. For details of the `Site/EndSite` block command, see [Section 5.2.79, “Site/Endsite,”](#) on page 153.

## Form/Field/Option matching

When matching a specific form, field or other match option it is often the case that multiple items will match the selection criteria. In these cases, the first item on the Web site which matches is considered to be the match.

To access the other fields which also need to be matched, subsequent match commands may be added with the same selection criteria.

---

**NOTE:** Matched items may only be matched once, and

Each ID must be unique and cannot have been used previously.

---

For example:

```
MatchField #1:1 -type "password"
MatchField #1:2 -type "password"
```

will match a site with two password fields. The first is given the ID '#1:1' the second is given the ID '#1:2'

### Form/Field/Option ID's

When matching a site, match methods are used to give specific fields, forms and options their own unique ID.

Once the site has been successfully matched, the given ID is used in input commands to specify particular items.

The actual ID's are denoted with a # followed by 1, 2 or 3 numbers, each separated by a colon – for instance, "#1:3:2".

## 5.1.3 Auditing

For auditing, use either the `AuditEvent` command built into Novell SecureLogin or the `LogEvent` command from the Windows Resource Kit. Refer the *Novell SecureLogin 7.0 Administration Guide*.

For details, see [Section 5.2.4, “AuditEvent,” on page 66](#)

## 5.1.4 One-Time Passwords

The use of multiple passwords places a high maintenance overhead on large enterprises. Users are routinely required to use and manage multiple passwords, which can result in a significant cost, particularly with regard to calls to the help desk to reset forgotten passwords, or to ensure that all passwords are provisioned when a new user starts or are deleted when an existing user leaves the organization.

One of the main benefits of implementing one-time password systems is that it is impossible for a password to be captured on the wire and replayed to the server. This is particularly important if a system does not encrypt the password when it is sent to the server, as is the case with many legacy mainframe systems.

One-time passwords also offer advantages in terms of disaster recovery because the encryption key is used to generate the one-time password rarely changes. System restoration, which might be to a system version that is hours or many months old, can be achieved without consideration of restoring users' passwords or notifying staff of new passwords.

Novell SecureLogin provides a secure, robust and scalable infrastructure by integrating ActivCard\* one-time password authentication functionality.

For details of the `GenerateOTP` command, see [Section 5.2.26, “GenerateOTP,” on page 88](#)

## 5.2 Commands

- ♦ [Section 5.2.1, “AAVerify,” on page 61](#)
- ♦ [Section 5.2.2, “Add,” on page 64](#)
- ♦ [Section 5.2.3, “Attribute,” on page 65](#)
- ♦ [Section 5.2.4, “AuditEvent,” on page 66](#)
- ♦ [Section 5.2.5, “BeginSplashScreen/EndSplashScreen,” on page 66](#)

- ◆ Section 5.2.6, “BooleanInput,” on page 67
- ◆ Section 5.2.7, “Break,” on page 68
- ◆ Section 5.2.8, “Call,” on page 69
- ◆ Section 5.2.9, “ChangePassword,” on page 70
- ◆ Section 5.2.10, “Class,” on page 72
- ◆ Section 5.2.11, “ClearPlat,” on page 72
- ◆ Section 5.2.12, “ClearSite,” on page 75
- ◆ Section 5.2.13, “Click,” on page 75
- ◆ Section 5.2.14, “ConvertTime,” on page 78
- ◆ Section 5.2.15, “Ctrl,” on page 79
- ◆ Section 5.2.16, “DebugPrint,” on page 79
- ◆ Section 5.2.17, “Decrement,” on page 80
- ◆ Section 5.2.18, “Delay,” on page 81
- ◆ Section 5.2.19, “Dialog/EndDialog,” on page 82
- ◆ Section 5.2.20, “DisplayVariables,” on page 83
- ◆ Section 5.2.21, “Divide,” on page 85
- ◆ Section 5.2.22, “DumpPage,” on page 86
- ◆ Section 5.2.23, “EndScript,” on page 86
- ◆ Section 5.2.24, “Event/Event Specifiers,” on page 87
- ◆ Section 5.2.25, “FocusInput,” on page 88
- ◆ Section 5.2.26, “GenerateOTP,” on page 88
- ◆ Section 5.2.27, “GetCheckBoxState,” on page 90
- ◆ Section 5.2.28, “GetCommandLine,” on page 91
- ◆ Section 5.2.29, “GetEnv,” on page 91
- ◆ Section 5.2.30, “GetHandle,” on page 92
- ◆ Section 5.2.31, “GetIni,” on page 93
- ◆ Section 5.2.32, “GetMD5,” on page 93
- ◆ Section 5.2.33, “GetReg,” on page 94
- ◆ Section 5.2.34, “GetDirectoryStatus,” on page 95
- ◆ Section 5.2.35, “GetSessionName,” on page 95
- ◆ Section 5.2.36, “GetText,” on page 96
- ◆ Section 5.2.37, “GetURL,” on page 96
- ◆ Section 5.2.38, “GoToURL,” on page 97
- ◆ Section 5.2.39, “Highlight,” on page 97
- ◆ Section 5.2.40, “If/Else/EndIf,” on page 98
- ◆ Section 5.2.41, “Include,” on page 101
- ◆ Section 5.2.42, “Increment,” on page 102
- ◆ Section 5.2.43, “KillApp,” on page 103

- ◆ Section 5.2.44, “Local,” on page 105
- ◆ Section 5.2.45, “MatchDomain,” on page 106
- ◆ Section 5.2.46, “MatchField,” on page 106
- ◆ Section 5.2.47, “MatchForm,” on page 108
- ◆ Section 5.2.48, “MatchOption,” on page 109
- ◆ Section 5.2.49, “MatchReferer,” on page 111
- ◆ Section 5.2.50, “MatchRegex,” on page 111
- ◆ Section 5.2.51, “MatchTitle,” on page 112
- ◆ Section 5.2.52, “MatchURL,” on page 113
- ◆ Section 5.2.53, “MessageBox,” on page 114
- ◆ Section 5.2.54, “Multiply,” on page 116
- ◆ Section 5.2.55, “OnException/ClearException,” on page 117
- ◆ Section 5.2.56, “Parent/EndParent,” on page 123
- ◆ Section 5.2.57, “PickListAdd,” on page 124
- ◆ Section 5.2.58, “PickListDisplay,” on page 126
- ◆ Section 5.2.59, “PositionCharacter,” on page 127
- ◆ Section 5.2.60, “PressInput,” on page 128
- ◆ Section 5.2.61, “ReadText,” on page 128
- ◆ Section 5.2.62, “RegSplit,” on page 131
- ◆ Section 5.2.63, “ReLoadPlat,” on page 133
- ◆ Section 5.2.64, “Repeat/EndRepeat,” on page 135
- ◆ Section 5.2.65, “RestrictVariable,” on page 136
- ◆ Section 5.2.66, “Run,” on page 139
- ◆ Section 5.2.67, “Select,” on page 140
- ◆ Section 5.2.68, “SelectListBoxItem,” on page 141
- ◆ Section 5.2.69, “SelectOption,” on page 141
- ◆ Section 5.2.70, “SendEvent,” on page 142
- ◆ Section 5.2.71, “SendKey,” on page 143
- ◆ Section 5.2.72, “Set,” on page 143
- ◆ Section 5.2.73, “SetCheckBox,” on page 145
- ◆ Section 5.2.74, “SetCursor,” on page 146
- ◆ Section 5.2.75, “SetFocus,” on page 147
- ◆ Section 5.2.76, “SetPlat,” on page 148
- ◆ Section 5.2.77, “SetPrompt,” on page 151
- ◆ Section 5.2.78, “-SiteDeparted,” on page 152
- ◆ Section 5.2.79, “Site/Endsite,” on page 153
- ◆ Section 5.2.80, “StrCat,” on page 155
- ◆ Section 5.2.81, “StrLength,” on page 156

- ♦ [Section 5.2.82, “StrLower,” on page 157](#)
- ♦ [Section 5.2.83, “StrUpper,” on page 157](#)
- ♦ [Section 5.2.84, “Sub/EndSub,” on page 158](#)
- ♦ [Section 5.2.85, “Submit,” on page 159](#)
- ♦ [Section 5.2.86, “Subtract,” on page 160](#)
- ♦ [Section 5.2.87, “Tag/EndTag,” on page 162](#)
- ♦ [Section 5.2.88, “TextInput,” on page 162](#)
- ♦ [Section 5.2.89, “Title,” on page 163](#)
- ♦ [Section 5.2.90, “Type,” on page 165](#)
- ♦ [Section 5.2.91, “WaitForFocus,” on page 170](#)
- ♦ [Section 5.2.92, “WaitForText,” on page 171](#)

## 5.2.1 AAVerify

Use with	Startup, Terminal Launcher, Web, or Windows
Novell SecureLogin version	3.5 or later (arguments added in version 3.0)
Type	Action
Usage	AAVerify [-Method <Defined method to use>] [-User <Username>] [-Tree <Tree name>] [?Result]
Arguments	<p>Method</p> <p>The name of the advanced authentication method you wish to use. If not specified, AAVerify uses the method that was chosen during initial authentication to the directory.</p> <hr/> <p><b>NOTE:</b> You can specify multiple methods.</p> <hr/> <p>User</p> <p>The name of the user you wish to use for the AAVerify command. If not specified, AAVerify reauthenticates the currently logged on user.</p> <p>Tree</p> <p>The name of the tree the user is in. You must use this with the User argument.</p> <p>[?Result]</p> <p>A variable name (preferably a temporary variable) that receives the result of the AAVerify. Set this variable to true for success or false for failure.</p> <p>?AAVerifyReturnCode</p> <p>A variable that will get set with the error code that is generated from the AAVerify re-authentication process (if any).</p>

Description	<p>Use AAVerify with Novell SecureLogin re-authentication, Novell Modular Authentication Service (NMAS), or Novell Lightweight Directory Access Protocol (LDAP) to verify the user. It is typically used before the application user name and password are retrieved and entered into the login box.</p> <p>This provides application re-authentication using a strong login method. For example, a user might be forced to enter their smart card and PIN before the application will log on using single sign-on, even though the application natively knows nothing about smartcards and PINs. If the verification succeeds, the [?Result] is set to true, otherwise it is set to false. These additions are for Novell SecureLogin and NMAS.</p> <p>Novell SecureLogin re-authentication may use one of the following methods:</p> <ul style="list-style-type: none"> <li>◆ Password – your directory password.</li> <li>◆ Smart card – if the smart card option has been selected during installation.</li> <li>◆ Logon method – Novell SecureLogin prompts for the same credentials as were used to log on for the current session.</li> </ul> <p>You can specify more than one method argument. In this case the user is allowed to re-authenticate with any of the specified methods. For example, you could use the command to request authentication using a fingerprint reader or smart card.</p> <p>NMAS or Novell LDAP-specific</p> <p>The method should be the name of the sequence as defined in the Novell environment.</p> <p>If AAVerify is called with no arguments, then the currently logged on user is re-authenticated using the login method that they used for their current session.</p> <hr/> <p><b>NOTE:</b> When the AAVerify command is added to an application definition, it only increases the security of the target application if it is not possible to alter the application definition. If the application definition could be modified or overridden, then the AAVerify command could be removed and there would be no additional security. For this reason it is imperative that application definition access be restricted through directory access controls and SecureLogin's preferences, so that only a small, trusted group of administrators can modify, add and override application definitions.</p> <hr/>
Syntax examples	<p>AAVerify</p> <p>AAVerify -Method "Enhanced Password" ?Result</p> <p>AAVerify -Method "Enhanced Password"-User "BSmith" - Tree "Production" ?Result</p> <hr/>

---

**Example 1**      **Windows application definition**

This example detects the login dialog box, but before Novell SecureLogin enters the user's credentials, it prompts the user to provide their re-authentication credentials. The credentials are not submitted until the re-authentication has succeeded.

```
# Logon Dialog Box
Dialog
    Title "Log on"
EndDialog
AAVerify -Method "Enhanced Password" ?Result
If ?Result Eq "True"
    Type $Username #1001
    Click #1
Else
    Click #2
    MessageBox "Authentication failed. Please verify your
smart card is inserted and your PIN is correct."
EndIf
```

**Example 2**      **Windows application definition**

The following example shows the use of exception handling with the OnExceptions command.

Refer to [Section 5.2.55, "OnException/ClearException," on page 117](#) for further details and examples of OnException usage.

```
Dialog
    Title "Log on"
EndDialog

OnException AAVerifyCancelled Call
CancelSimpleLoginDialogCancelled
OnException AAVerifyFailed Call CancelSimpleLoginDialogFailed

AAVerify -method "smartcard"
Type $Username #1001
Click #1

Sub CancelSimpleLoginDialogCancelled
    Click #2
    EndScript
EndSub

Sub CancelSimpleLoginDialogFailed
    Click #2
    MessageBox "Your re-authentication failed. Log on
cancelled"
    EndScript
EndSub
```

---

Example 3	<p>Windows application definition</p> <p>The following example shows how to re-authenticate against the user's login method.</p> <pre> Dialog     Title "Log on" EndDialog  OnException AAVerifyFailed Call AAVerifyFailed OnException AAVerifyCancelled Call AAVerifyCancelled  If ?isPin Eq "true"     AAVerify -method "smartcard" ?result Else     AAVerify -method "password" ?result EndIf  ClearException AAVerifyFailed ClearException AAVerifyCancelled  Type \$username Type \n Type \$password Type \n  Sub AAVerifyFailed     Click #2     MessageBox "Re-authentication failed." EndScript EndSub  Sub AAVerifyCancelled     Click #2 EndScript EndSub </pre>
-----------	--

## 5.2.2 Add

Used with	Startup, Terminal Launcher, Web, or Windows
Novell SecureLogin version	3.0 or later
Type	Variable manipulator
Usage	Add <Variable1> <Variable2> [?Result]



Arguments	<p><b>&lt;Variable1&gt;</b></p> <p>The first argument, the number to which the second argument will be added. This argument will also contain the result of the addition equation if the optional [?Result] argument is not passed in. If used without the [?Result] argument, &lt;Variable1&gt; must be a Novell SecureLogin variable. Otherwise, &lt;Variable1&gt; can be any numeric value.</p> <p><b>&lt;Variable2&gt;</b></p> <p>The second argument, the number added to the first argument in the equation. &lt;Variable2&gt; can be a Novell SecureLogin variable or numeric value.</p> <p><b>[?Result]</b></p> <p>Optional, the sum or result of the equation.</p>
Description	Adds one number to another. The numbers can be written into the application definition or they can be variables. The result can be output to another variable or to one of the original numbers.
Syntax examples	<pre>Add 1 2 ?Result Add ?LoginAttempts ?LoginFailures Add ?LoginAttempts ?LoginFailures ?Result Add ?LoginAttempts 3 Add ?LoginAttempts 3 ?Result</pre>
Example	<p>Windows application definition</p> <p>This example reads the values of control IDs 103 and 104 into variables. From there they are added, and the result is typed into control ID 1</p> <pre>ReadText #103 ?Number1 ReadText #104 ?Number2 Add ?Number1 ?Number2 ?Result Type ?Result #1</pre>

### 5.2.3 Attribute

Use with	Advanced Web application definition
Novell SecureLogin version	3.5 or later
Type	Specifier
Usage	Attribute <b>&lt;Attribute Name&gt;</b> <b>&lt;Attribute Name&gt;</b>
Arguments	<p><b>&lt; Attribute Name&gt;</b></p> <p>Name of the HTML attribute to discover.</p> <p><b>&lt; Attribute Value&gt;</b></p> <p>The value the above HTML attribute must contain for the condition to be true.</p>
Description	<p>Use the Attribute specifier in conjunction with the Tag/EndTag command to specify which HTML attributes and attribute values must exist for that particular HTML tag.</p> <p>For more information, see <a href="#">Section 5.2.87, "Tag/EndTag," on page 162</a>.</p>

Example	<p>This example finds the form that has an attribute of Name with a value of Logon.</p> <pre> Tag "Form" Attribute "Name" "Logon" EndTag </pre>
---------	---

## 5.2.4 AuditEvent

Use with	Startup, Terminal Launcher, Java, Web, or Windows application definitions to send an audit event to the Windows Event Log.
Novell SecureLogin version	6.0 or later
Type	Specifier
Usage	AuditEvent [<message>]
Arguments	<p><b>&lt;message&gt;</b></p> <p>The variable or text string passed to the Windows Event Log.</p> <hr/> <p><b>NOTE:</b> The functionality to send the contents of <code>\$variable</code> or <code>?variable</code> to the Windows Event Log is only supported in Novell SecureLogin 6.1SP1 or later</p>
Description	<p>Use <code>AuditEvent</code> to log Novell SecureLogin events to the Windows Event Log.</p> <p>If the <code>ChangePassword</code> command is used to generate a <code>\$password</code> variable, then a log entry is sent to the Windows Event Log.</p>
Example	<p>If the Audit platform agent is not present on the workstation nothing will be logged.</p> <pre>AuditEvent "message"</pre> <p>The parameter "message" is passed to the Windows Event Log.</p> <pre>AuditEvent \$message</pre> <p>The parameter <code>\$message</code> variable is passed to the Windows Event Log.</p>

## 5.2.5 BeginSplashScreen/EndSplashScreen

Use with	Terminal Launcher (Generic and Advanced Generic only)
Novell SecureLogin version	3.0.4 or later
Type	Action
Usage	<p>BeginSplashScreen</p> <p>EndSplashScreen</p>
Arguments	None

Description	<p>Use to display Novell splash screen across the whole Terminal Emulator window. This is used to mask any flickering caused by Novell SecureLogin scraping the screen for text.</p> <p>A <code>Delay</code> command at the start of the application definition ensures the emulator window is in place before the splash screen is displayed.</p>
Example	<p>Terminal Launcher application definition</p> <p>This example launches the emulator and the Novell SecureLogin waits 2 seconds for it to connect. The splash screen is displayed to cover the flickering, the login field is detected, the user name is entered, then the splash screen disappears.</p> <pre> Delay 2000 BeginSplashScreen WaitForText "Login:" Type \$Username EndSplashScreen Type @E </pre>

## 5.2.6 BooleanInput

Use with	Advanced application definitions created using the Web Wizard.
Novell SecureLogin version	3.5.x or later
Type	Action
Usage	<code>BooleanInput #FormID:FieldID check "check"</code>
Arguments	<p><code>#FormID:FieldID</code></p> <p>The ID that was given to the matched field in the Site block using <code>MatchField</code> command. The FormID and FieldID must be unsigned integers.</p> <p><code>check "check"</code></p> <p>"check" is a Boolean value indicating a set or unset state for the specified field.</p>
Description	Used inside a Site block to set the state of a Boolean field (either a check box or radio button).

Example	<p>In this example the value of field #1:3 is being checked by the application definition.</p> <pre> # === Logon Application Definition #2 == # === Google Initial Logon === #===== Site Login -userid "Google Logon" -initial MatchDoimain "www.google.com" MatchField #1:1 -name "Email" -type "text" MatchField #1:2 -name "Passwd" -type "password" MatchField #1:3 -name "Cookie" -type "check" EndSite SetPrompt "Enter your user credentials" TextInput #1:1 -value "\$Username" TextInput #1:2 -value "\$Password" FocusInput#1:2 -focus "true" BooleanInput #1:3 -check "false" PressInput Endscript </pre>
---------	--

## 5.2.7 Break

Use with	Startup, Terminal Launcher, Web, or Windows
Novell SecureLogin version	3.5 or later
Type	Action
Usage	Break
Arguments	None
Description	Use Break within the Repeat/EndRepeat commands to break out of a repeat loop.
Example 1	<p>Windows application definition</p> <p>This example reads the screen and the content is searched for the words 'log on'. If log on is found, the Repeat loop is broken and the application definition continues. If log on is not found, the application definition will check again.</p> <pre> Dialog   Class #32770   Title "Log on" EndDialog Repeat   ReadText #301 "?Text"   If ?Text Eq "Log on"     Break   EndIf Delay 100 EndRepeat </pre>

---

**Example 2****Terminal application definition**

This example reads the terminal emulator screen and the content is searched for a successful log on (in this case the application main menu appears). Once the user has logged on, the Repeat loop is broken and the application definition continues. If the log on is not successful, the application definition will check again. Terminal emulators use repeat loops for error handling and to break out of the loop as appropriate.

```
# Initial System Login
WaitForText "ogin:"
Type $Username
Type @E
WaitForText "assword:"
Type $Password
Type @E
Delay 500
# Repeat loop for error handling
Repeat
Check to see if password has expired
If -Text "EMS: The password has expired."
    ChangePassword $Password
    Type $Password
    Type @E
    Type $Password
    Type @E
EndIf
#User has an invalid Username and / or Password stored.
    If -Text "Log on Failed"        DisplayVariables "The
username and / or password stored by SecureLogin is invalid.
Please verify your credentials and try again. IT x453."
        Type $Username
        Type @E
        Delay 500
        WaitForText "assword:"
        Type $Password
        Type @E
        Delay 500
    EndIf#

Account is locked for some reason, possibly inactive.
If -Text "Account Locked" MessageBox "Your account has been
locked, possibly due to inactivity for 40 days. Please
contact the administrator on x453." EndIf # Main Menu, user
has logged on #successfully. If -Text "Application Selection"
Break
EndIf
Delay100
EndRepeat
```

---

## 5.2.8 Call

---

Use with	Startup, Terminal Launcher, Web, or Windows
Novell SecureLogin version	3.5 or later

---

Type	Flow control
Usage	Call <SubRoutine>
Arguments	<p>&lt;SubRoutine&gt;</p> <p>The name of the subroutine called. This must be identical to the name given in the Sub command.</p>
Description	<p>Use the Call command to call and run a subroutine. When a subroutine is called, the application definition begins executing from the first line of the subroutine. When it is completed, the application definition resumes executing from the command immediately following the Call command.</p> <p>Subroutines are useful when you would otherwise have to repeat the same lines of application definition over again.</p>
Example	<p>Terminal application definition</p> <p>This example looks for the word Username, if it is found on the screen the subroutine Log on is launched. If Wrong Password is found, the subroutine WrongPassword is launched.</p> <pre> Repeat If -Text "Username"     Call "Login" EndIf If -Text "Wrong Password"     Call "WrongPassword" EndIf EndRepeat #==Login Subroutine== Sub Login     Type \$Username     Type @E     Type \$Password     Type @E EndSub #==Wrong Password Subroutine== Sub WrongPassword     DisplayVariables "The password entered is incorrect. Please check your password and click OK to try again. IT x4532."     \$Password     Call Login EndSub </pre>

## 5.2.9 ChangePassword

Use with	Startup, Terminal Launcher, Web, or Windows
Novell SecureLogin version	3.5 or later
Type	Action
Usage	ChangePassword <Variable> [<Text>] "Random"

Arguments	<p><b>&lt;Variable&gt;</b></p> <p>A normal or runtime variable in which the password is stored.</p> <p><b>[Text]</b></p> <p>The text you want displayed in the change password dialog box.</p> <p><b>[Random]</b></p> <p>Random will invoke the random password generator.</p>
Description	<p>Use ChangePassword to change a single variable in scenarios where password expiry is an issue. Set the &lt;Variable&gt; to the new password.</p> <p>The flag for this command is Random.</p> <p>If Random is:</p> <ul style="list-style-type: none"> <li>♦ Set, the new password is generated automatically in compliance with the variable's password policy.</li> <li>♦ Not set, a dialog box prompts the user to enter a new password. The new password is tried against any variable password policies that are in place. See also <a href="#">Section 5.2.65, "RestrictVariable," on page 136</a>.</li> </ul>
Syntax examples	<pre>ChangePassword \$NewPassword ChangePassword ?NewPassword "Please enter a new password" ChangePassword ?NewPassword Random</pre>
Example	<p>Windows application definition</p> <p>This example detects the change password event. The application requires the current user name and password, and then a new password and confirmation of the new password. The application definition creates a backup of the old password in case the password change fails (which is detected by the message that is displayed), and then generates and enters a new password.</p> <pre># Change Password Dialog BoxDialog Class #32770 Title "Change Password" EndDialog Set \$PasswordBackup \$Password Type \$Password #1015 ChangePassword \$Password Random Type \$Password #1005 Type \$Password #1006 Click #1# Change Password Failed Dialog Box Dialog Class #32770 Title "Change Password Failed" EndDialog # Set the password back as the password change failed \$Password \$PasswordBackup MessageBox "The change password process failed. Please retry the password change at your next log on. IT x453."</pre>

## 5.2.10 Class

---

Use with	Startup, Windows
Novell SecureLogin version	3.5 or later
Type	Dialog specifier
Usage	Class <Window-Class>
Arguments	<b>&lt;Window-Class&gt;</b>  A string specifying the window class that this statement will match.
Description	<p>When a window is created, it is based on a template known as a window class. The <code>Class</code> command checks to see if the class of the newly created window matches its &lt;Window-Class&gt; argument.</p> <p>If the window:</p> <ul style="list-style-type: none"><li>◆ Matches the &lt;Window-Class&gt; argument, the application definition continues to the next line.</li><li>◆ Does not match the &lt;Window-Class&gt; argument, execution continues at the next dialog statement.</li></ul> <hr/> <p><b>NOTE:</b> Use the Novell Window Finder tool to determine the window class.</p> <hr/>
Example	<p>Windows application definition</p> <p>This example checks the dialog box generated by the application to determine if the Window Class is #32770. If true and its title is log on, that section of the application definition will execute. If false, the application definition will check the next Dialog block.</p> <pre># Logon Dialog Box Dialog Class "#32770" Title "Log on" EndDialog Type \$Username #1001 Type \$Password #1002 Click #1</pre>

---

## 5.2.11 ClearPlat

For each dialog block in an application definition, the chosen user ID is reset and you must select it again. Select it again by using a `SetPlat` command or by having the user select again from a list.

When an application first presents a login screen, Novell SecureLogin directs the user to select an appropriate user ID from a list. Novell SecureLogin enters the selected user ID's credentials into the application and submits them.



## Resolving issue of re-entering user ID details

If the login fails due to incorrect credentials, Novell SecureLogin prompts the user to change the credentials. Novell SecureLogin does not retain user ID details and prompts the user to re-enter them. However, this could result in changing the wrong credentials if the user selects the incorrect user ID.

To resolve this issue, use the SetPlat, ReLoadPlat and ClearPlat commands. ReloadPlat sets the current user ID to the one which was last chosen (for the given application) or leaves the user ID unset if a user ID has not been selected previously. ClearPlat resets the last chosen user ID.

See also [Section 5.2.63, “ReLoadPlat,” on page 133](#) and [Section 5.2.76, “SetPlat,” on page 148](#).

---

Use with	Startup, Terminal Launcher, Web, or Windows
Novell SecureLogin version	3.6.0 or later
Type	Action
Usage	<p>There are three main places where code needs to be added to use the <code>ClearPlat</code> command:</p> <p><b>Application startup</b> When an application first starts up, use <code>ClearPlat</code> to clear the previously chosen platform. (Do this in a Windows application by adding an extra dialog statement for the main window.)</p> <p><b>Change Credentials Canceled</b> Call <code>ClearPlat</code> if the user decides not to modify the chosen platform's credentials, thus giving them a chance to choose a different platform next time.</p> <p><b>Successful Logon</b> Call <code>ClearPlat</code> to allow the user to log on again with a different platform at a later stage.</p>
Arguments	None
Description	Use to reset the last chosen platform, causing subsequent calls to <code>ReLoadPlat</code> to do nothing.

---

---

**Example****Windows application definition**

```
#== BeginSection: Application startup ===
Dialog
Class "#32770"
Title "Password Test Application"
EndDialog
ClearPlat
# == EndSection: Application startup===
# ==== BeginSection: Log on ====
Dialog
Class "#32770"
Ctrl #1001
Title "Log on"
EndDialog
ReloadPlat
SetPrompt "Username =====>"
Type $Username #1001
SetPrompt "Password =====>"
Type $Password #1002
SetPrompt "Domain =====>"
Type $Domain #1003
Click #1
# ==== EndSection: Log on ====

## ====BeginSection: Log on successful ====
Dialog
Class "#32770"
Title "Log on successful"
EndDialog
ClearPlat
```

**Example  
(continued)**

```
Click #2
# ==== EndSection: Log on successful ====

# ==== BeginSection: Log on failure ====
Dialog
Class "#32770"
Title "Log on failure"
EndDialog
Click #2
ReloadPlat
OnException ChangePasswordCancelled Call
ChangeCancelled
ChangePassword $password
ClearException ChangePasswordCancelled
Type -raw \Alt+F
Type -raw L
# ==== EndSection: Log on Failure ====
# ==== BeginSection: Change Credentials Cancelled ====
Sub ChangeCancelled
ClearPlat
EndScript
EndSub
# ==== EndSection: Change Credentials
Canceled ==
```

---

## 5.2.12 ClearSite

---

Use with	Web Wizard
Novell SecureLogin version	6.0 or later
Type	Action
Usage	ClearSite "SiteName"
Arguments	"SiteName"  The name of the site to clear, as specified in the matching Site/EndSite block that will be reset to initial.
Description	Used to clear the 'matched' status for a given site. This allows initial sites to match again and causes recent and subsequent sites to fail to match.  The ClearSite command needs to have the complete URL specified in the line before the ClearSite command.
Examples	In this example? the user is redirected to the Google home page and any previous user information is cleared.  <pre>GotoURL "http://www.google.com"  ClearSite Login</pre>  In this example, the ClearSite command is used with as part of conditional statement and if a particular condition is true the user information is cleared.  <pre>Site "Login" -subsequent  MatchURL "here.now.com"  endsite  MessageBox "Would you like to login again?" -yesno ?Continue  If ?Continue eq "Yes"      Call LoginSub  Else      ClearSite Login  EndIf</pre>

---

## 5.2.13 Click

---

Use with	Java, Web, or Windows
Novell SecureLogin version	3.5 or later

---

Type	Action
Windows usage	Usage One: Click <#Ctrl-ID> [-Raw] [-Right] Usage Two: Click <# Ctrl-ID > [-Raw [-x < X Co-ordinate > -y <Y Co-ordinate >]] Usage Three: Click [-order] <#Order-ID>
Web usage	Click <#Number>
Arguments	<p>&lt;#Ctrl-ID&gt;</p> <p>The ID number of the control to be pressed.</p> <p>[-order]</p> <p>If the control ID's are not constant, utilize the -order argument to instruct Novell SecureLogin to type into a control based on the creation order and not the tab order. For more information on the -order argument usage, see <a href="#">"Example 4" on page 168</a>.</p> <p>&lt;#Order-ID&gt;</p> <p>For Windows application definitions, this parameter specifies which control based on the creation order in which to type the text.</p> <p><b>[-Raw]</b></p> <p>-Raw eliminates the mouse and sends a direct click.</p> <p>[-Right]</p> <p>-Right, used only with the -Raw flag, will send a right mouse click.</p> <p><b>&lt;X Co-ordinate&gt;</b></p> <p>X represents the horizontal co-ordinate relative to the client area of the application (not the screen).</p> <p><b>&lt;Y Co-ordinate&gt;</b></p> <p>Y represents the vertical coordinate relative to the client area of the application (not the screen).</p> <p><b>&lt;#Number&gt;</b></p> <p>The pound/hash symbol followed by the sequential number/control ID of the button to be pressed.</p> <p><b>Web specific</b></p> <p>The number of the button is determined by the Web page layout. See the <a href="#">Section 5.2.22, "DumpPage," on page 86</a>.</p> <p><b>Windows specific</b></p> <p>This is the control ID. Use the Windows Finder tool to discover the control ID.</p> <p><b>Java specific</b></p> <p>The index to use is put in an example application definition created by the Java wizard.</p>

Description	<p>When used with Windows applications, the <code>Click</code> command sends a click instruction to the specified <code>&lt;#Ctrl-ID&gt;</code>.</p> <hr/> <p><b>NOTE:</b> If the button to be clicked does not have a control ID, the Type <code>"N"</code> command will often click the default button in a Windows application.</p> <hr/> <p>You can set the <code>-Raw</code> flag if the button or control does not respond to the <code>Click</code> command. The <code>-Raw</code> flag causes Novell SecureLogin to emulate the mouse and send a direct click message to the control. Using the <code>-Right</code> flag with the <code>-Raw</code> flag sends a right-click to the control.</p> <p>Setting the <code>&lt;#Ctrl-ID&gt;</code> to 0 (zero) sends the click instruction to the window on which the application definition is running.</p> <p>If <code>-Raw</code> is specified, then you can set the X coordinate and the Y coordinates. These coordinates are relative to the client area of the application, not the screen.</p> <hr/> <p><b>NOTE:</b> The borders of Windows Vista windows are substantially wider than those of Windows XP windows. Consequently, if your application definition will be used on both operating systems, you should use coordinates towards the top left of a Vista button or the bottom right of an XP button to ensure the same button is clicked in both operating systems.</p> <hr/> <p>When used with Web application definitions, the <code>Click</code> command takes a single argument, which is the sequential number on the page of the button to be pressed. Click #3 will click the third button on the page. Keep in mind that, due to Web page layout and design, the sequential order of the buttons may not be obvious, and that you may have to use the <code>DumpPage</code> command to discover the field layout (see <a href="#">Section 5.2.22, "DumpPage," on page 86</a>).</p>
Syntax examples	<pre>Click #1 Click #1 -Raw -Right Click -X 12 -Y 24 Click -order #1</pre>
Example 1	<p>Windows application definition</p> <p>This example detects the login dialog box, the user name and password are entered, and button number 1 (in this case the logon button) is clicked.</p> <pre># Logon Dialog Box Dialog Class #32770 Title "Log on" EndDialog Type \$Username #1001 Type \$Password #1002 Click #1</pre>
Example 2	<p>Web application definition</p> <p>This example enters the user name and password, and then the logon button is clicked.</p> <pre>Type \$Username Type \$Password Password Click #1</pre>

---

Example 3	<p>Windows application definition</p> <p>This example uses the Java application, so there is no control ID. Instead, the Click command is told to click a particular place on the window.</p> <pre># Logon Dialog Box Dialog Class #32770 Title "Log on" End Dialog Type \$Username Type \$Password Click -X 12 -Y 24</pre>
Example 4	<p>Windows application definition</p> <p>This example shows the use of the <code>-order</code> switch and demonstrates a possible 'order' of the parameter.</p> <pre># Logon Dialog Box Dialog Class #32770 Title "Log on" EndDialog Type \$Username #1001 Type #Password #1002 Click -order #1</pre>

---

## 5.2.14 ConvertTime

---

Use with	Startup, Terminal Launcher, Web, or Windows
Novell SecureLogin version	3.0.4 or later
Type	Variable manipulator
Usage	ConvertTime <Time> <String Time>
Arguments	<p>&lt;String Time&gt;</p> <p>The output variable.</p>
Description	Use to convert a numeric time value, for example, ?CurrTime(system), into a legible format and store it in <String Time>.
Example	<p>Windows application definition</p> <p>This example converts the time to a readable format and displays it in a dialog box.</p> <pre># Logon Dialog Box Dialog Class #32770 Title "Log on" End Dialog ConvertTime ?CurrTime(system) ?Time MessageBox ?Time</pre>

---

## 5.2.15 Ctrl

---

Use with	Startup, Windows, Java
Novell SecureLogin version	3.5 or later
Type	Dialog specifier
Usage	Ctrl <#Ctrl-ID> [<Regular Expression>]
Arguments	<p>&lt;#Ctrl-ID&gt;</p> <p>The ID number of the control to check.</p> <p>[&lt;RegEx&gt;]</p> <p>The regular expression.</p>
Description	<p>Use the Ctrl command to determine if a window or its children (any descendants) contains the control expressed in the &lt;#Ctrl-ID&gt; argument. The control ID number is a constant that is established at the time a program is compiled.</p> <p>Third party software control ID numbers may not be consistent from one version to the next. Use the Novell Window Finder tool to determine the control ID.</p> <p>Using the [&lt;RegEx&gt;] argument adds a further check that allows the application definition to skip to the next command. If the text on the specified &lt;#Ctrl-ID&gt; does not conform to the [&lt;RegEx&gt;], the application definition will skip to the next dialog statement as though the &lt;#Ctrl-ID&gt; did not exist.</p>
Syntax examples	<pre>Ctrl #1 Ctrl #1 "OK"</pre>
Example	<p>Windows application definition</p> <p>This example tests the dialog box to see if it contains the correct control IDs with the correct values. If any of the control IDs are missing, or the text does not match, the application definition passes on to the next dialog block.</p> <pre># Logon Dialog Box Dialog Ctrl #1 "OK" Ctrl #2 "Cancel" Ctrl #3 "Help" Title "Log on" EndDialog  Type \$Username Type "\T" Click #1</pre>

---

## 5.2.16 DebugPrint

---

Use with	All
Novell SecureLogin version	6.0 or later

---

Type	Action
Usage	DebugPrint <Data>
Arguments	<p>&lt;Data&gt;</p> <p>The text displayed to the user.</p> <p>Data can be several strings, variables, or a combination of both..</p>
Description	Use the DebugPrint command to display the text specified in the <Data> variable on a Debug console. The command can take any number of text arguments, including variables (for example, DebugPrint "The user " \$Username " has just logged onto the system").
Syntax examples	<pre>DebugPrint "Caught the login dialog" DebugPrint "Setting platform to " ?Platform</pre>
Example	<p>Windows application definition</p> <p>This example displays the the text specified in the ?ServerName variable on the Debug console.</p> <pre># Logon Dialog Dialog Class "#32770" Title "Log on" EndDialog ReadText #1003 ?ServerText RegSplit "Server: (.*)" ?ServerText ?ServerName DebugPrint "Setting the platform to " ?ServerName SetPlat ?ServerName Type \$Username #1001 Type \$Password #1002 Click #1</pre>

## 5.2.17 Decrement

Use with	All
Novell SecureLogin version	3.5 or later
Type	Variable manipulator
Usage	Decrement <Variable>
Arguments	<p>&lt;Variable&gt;</p> <p>The name of the variable to decrease in value.</p>



Description	<p>Use the <code>Decrement</code> command to subtract from a specified variable. For example, you can use <code>decrement</code> to count the number of passes a particular application definition has made.</p> <p>Once the number of instances is equal to the specified number, you can instruct the application definition to run another task or end the application definition. This is useful when configuring an application whose login panel is similar to other windows within the application, or to easily control the number of attempts a user can have to access an application.</p> <p>Also see <a href="#">Section 5.2.42, "Increment," on page 102</a></p>
Syntax examples	<code>Decrement ?RunCount</code>
Example	<p>Windows application definition</p> <p>Each time the application definition is run, a variable is incremented. This example counts the number of times the dialog box is displayed. If the dialog box is displayed more than three times, the application is closed. If the login is successful, the count is reset.</p> <pre># Logon Dialog Box Dialog Class #32770 Title "Log on" EndDialog  Decrement ?RunCount If ?RunCount Gt "3"   MessageBox "Log on has been attempted too many times. The   application will be closed."   KillApp "app.exe" Else   Type \$Username #1001   Type \$Password #1002   Click #1 EndIf  # Logon Successful Message Dialog Ctrl #1 Title "Logon Successful" EndDialog  Set ?RunCount "0"</pre>

## 5.2.18 Delay

Use with	All
Novell SecureLogin version	3.5 or later
Type	Action
Usage	<code>Delay &lt;Time Period&gt;</code>

Arguments	<p><b>&lt;Time Period&gt;</b></p> <p>A period of time, expressed in milliseconds (1/1000 of a second), during which application definition execution is paused.</p>
Description	<p>Use the <code>Delay</code> command to delay the execution of the application definition for the time specified in the <code>&lt;Time Period&gt;</code> argument.</p> <p>The time specified in the <code>&lt;Time Period&gt;</code> argument is noted in milliseconds (for example, <code>Delay 5000</code> creates a 5-second pause). You can use the <code>Delay</code> command to accommodate an introduction screen or another custom feature.</p>
Example	<p>Windows application definition</p> <p>This example detects the login box, then the application definition waits half a second before acting upon it to make sure that the box is complete.</p> <pre># Logon Dialog Box Dialog Class #32770 Title "Log on" EndDialog  Delay 500 Type \$Username #1001 Type \$Password #1002 Click #1</pre>

## 5.2.19 Dialog/EndDialog

Use with	Java, Windows
Novell SecureLogin version	3.5 or later
Type	Dialog specifier
Usage	Dialog/EndDialog
Arguments	None
Description	<p>Use the <code>Dialog/EndDialog</code> command to identify the beginning and end of a dialog specification block respectively. You can use these commands to construct a dialog specification block, which consists of a series of dialog specification statements (for example <code>Ctrl</code>, <code>Title</code>, and so on).</p> <p>When a dialog block is executed, each of the dialog specification statements is executed in sequence. If any statement within the dialog block is not found, the entire dialog block is considered false, and the application definition execution proceeds to the next dialog block, if any. You need to specify as much information in the dialog block to make the dialog box (for example, <code>Log on</code>, <code>Change Password</code>, and so on) unique.</p> <p>The portion of the application definition that follows the <code>EndDialog</code> command is called the application definition body. Another dialog block, or the end of the application definition, terminates the application definition body.</p>

Example	<p>Windows application definition</p> <p>This example tests the dialog box in order to determine its identity. If it is determined to be the login box, the application definition will parse the Type and Click commands to complete the login process.</p> <pre> # Logon Dialog Box Dialog Ctrl #1 "OK" Title "Log on" Parent Title "Application 1" EndParent EndDialog  Type \$Username #1001 Type \$Password #1002  Click #1 </pre>
---------	---

## 5.2.20 DisplayVariables

Use with	All
Novell SecureLogin version	3.5 or later
Type	Action
Usage	DisplayVariables [ <b>&lt;User Prompt&gt;</b> ] [ <b>&lt;Variable&gt;</b> [ <b>&lt;Variable&gt;</b> ] ...]
Arguments	<p><b>[&lt;User Prompt&gt;]</b></p> <p>Optional, customized text displayed in the Enter Novell SecureLogin Variables dialog box. This message can be defined in a runtime variable (see example 2).</p> <p><b>[&lt;Variables&gt;]</b></p> <p>The name of the variables for which you want the user prompted. If not specified, Novell SecureLogin will prompt for all variables that are used by the application definition.</p>

Description	<p>Use the <code>DisplayVariables</code> command to display a dialog box that lists the user's stored variables (for example, <code>\$Username</code> and <code>\$Password</code>) for the current application.</p> <p><b>About editing variables</b> The user can edit the variables from this dialog box. For example, if the login process is unsuccessful due to an incorrect user name or password, the <code>DisplayVariables</code> command prompts the user to edit the stored user name or password values. The login process proceeds as normal from that point. You can also specify a particular variable to display.</p> <p>If the <code>&lt;Variables&gt;</code> parameter is specified, <code>DisplayVariables</code> prompts only for the variables specified. Enter the replacement text in quotation marks after the <code>DisplayVariables</code> command. This replaces the default prompt text in the Enter Novell SecureLogin Variables dialog box.</p> <p>If there are no variables stored for the user, the first time Novell SecureLogin attempts to single sign-on to the application, the prompt will not be customized.</p> <p>Once there are variables stored for the user, the prompt will be customized when the application definition is run. The <code>SetPrompt</code> command can also be used to customize the prompt text in the dialog box.</p> <hr/> <p><b>NOTE:</b> You can use the <code>OnException EnterVariablesCancelled</code> command to prevent a user from canceling the <code>DisplayVariables</code> prompt.</p>
Syntax examples	<pre>DisplayVariables DisplayVariables "Please enter your details" DisplayVariables "Please enter a new password" \$Password DisplayVariables "Please enter your username and password" \$Username \$Password DisplayVariables "" \$Username \$Password</pre>
Example 1	<p>Windows application definition</p> <p>This example detects the Wrong Password dialog box, and Novell SecureLogin prompts the user to enter a new user name and password. Once specified, Novell SecureLogin enters them into the dialog box, and the user clicks <i>OK</i>.</p> <pre># Wrong Password Dialog Box Dialog Class #32770 Title "Wrong Password" EndDialog DisplayVariables "Enter a new username and password"?\$Username \$Password Type \$Username #1001 Type \$Password #1002 Click #1</pre>

Example 2	<p>Windows application definition</p> <p>This examples passes the message in as a variable.</p> <pre> Dialog Class "Notepad" Title "Untitled - Notepad" EndDialog Set ?Vars "\"\$Username" Set ?Msg "This is a DisplayVariables message" DisplayVariables ?Vars DisplayVariables ?Msg \$Password DisplayVariables "testing" ?Vars DisplayVariables "testing" \$Password \$Username </pre>
-----------	---

## 5.2.21 Divide

Use with	Startup, Terminal Launcher, Web, or Windows
Novell SecureLogin version	3.0 or later
Type	Variable manipulator
Usage	Divide <Variable1> <Variable2> [?Result]
Arguments	<p><b>&lt;Variable1&gt;</b></p> <p>The dividend, the first argument, the number that is divided by the second argument. Also this argument contains the result if the optional [?Result] argument is not passed in. If used without the [?Result] argument, &lt;Variable1&gt; must be a Novell SecureLogin variable, either?Variable1 or \$Variable1. Otherwise &lt;Variable1&gt; can be any numeric value.</p> <p><b>&lt;Variable2&gt;</b></p> <p>The divisor, the second argument, the number by which the first argument is divided. &lt;Variable2&gt; can be a Novell SecureLogin variable or a numeric value.</p> <p>[?Result]Optional, the quotient, the result of the equation.</p>
Description	<p>Use to divide one number by another. The numbers can be written into the application definition or they can be variables. The result can be output to another variable or to one of the original numbers.</p> <hr/> <p><b>NOTE:</b> This is an integer arithmetic that is 5/2, not 2.5.</p> <hr/>
Syntax examples	<pre> Divide "1" "2" ?Result Divide ?LoginAttempts ?LoginFailures Divide ?LoginAttempts ?LoginFailures ?Result Divide ?LoginAttempts "3" Divide ?LoginAttempts "3" ?Result </pre>

Example	<p>Windows application definition</p> <p>This example read the values of control IDs 103 and 104 into variables. From there they are divided, and typed into control ID 1.</p> <pre>ReadText #103 ?Number1 ReadText #104 ?Number2 Divide ?Number1 ?Number2 ?Result Type ?Result #1</pre>
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## 5.2.22 DumpPage

Use with	Advanced Web application definition
Novell SecureLogin version	3.5 or later
Type	Action
Usage	DumpPage <Variable>
Arguments	<p>&lt;Variable&gt;</p> <p>The string variable to receive the page information.</p>
Description	<p>Use the <code>DumpPage</code> command to provide information about the current Web page. Use for debugging Web page application definitions.</p>
Example	<pre>DumpPage ?dump MessageBox ?dump</pre>

## 5.2.23 EndScript

Use with	Startup, Terminal Launcher, Web, or Windows
Novell SecureLogin version	3.5 or later
Type	Action
Usage	EndScript
Arguments	None
Description	<p>Use the <code>EndScript</code> command to immediately terminate execution of the application definition.</p>

Example	<p>Windows application definition</p> <p>This example detects the login box, then Novell SecureLogin enters the user name and password, and the user clicks OK. If the Incorrect Password message is detected, Novell SecureLogin displays a message that the password was incorrect, and terminates the application definition.</p> <pre> Dialog Title "Logon Failure" Ctrl #1 EndDialog  ReadText #65535 ?ErrorMsg If "Incorrect Password" -In ?ErrorMsg MessageBox "You have entered an incorrect password" EndScript EndIf </pre>
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## 5.2.24 Event/Event Specifiers

Use with	Windows
Novell SecureLogin version	3.5 or later
Type	Dialog specifier
Usage	Event <Event Specifier>
Arguments	<p><b>&lt;Event Specifier&gt;</b></p> <p>The application event to monitor. This corresponds to a Windows event, which usually begins with WM_.</p> <p>For example, WM_COPYDATA, WM_GETOBJECT, WM_GETTEXT</p> <p>For detailed information on Windows events, see the <a href="http://msdn.microsoft.com">Microsoft Developer network Web site. (http://msdn.microsoft.com)</a>.</p> <p>Microsoft's Spy++, or similar Windows message spy tools, are also useful for trapping event names in specific windows. Information on Spy ++ is also available on the MSDN Web site.</p>
Description	<p>Application definitions generally execute at the point when an application window is created. This corresponds to the WM_CREATE message that is received from an application window at start up. By adding the Event specifier to a dialog block, you can override this behavior, such that an application definition only executes when (and only when) the specified message is generated. If no Event specifier is given, it is equivalent to Event WM_CREATE.</p> <p>You can only apply the Event specifier within a Dialog and EndDialog statement block. Only one Event may be specified per Dialog block. If there is a requirement to monitor for multiple events, each must be specified within their own Dialog block. For more information, see MSDN or other documentation on the Win32 messaging system.</p>

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Syntax examples	<pre> Dialog Class "someclass" Event WM_ACTIVATE EndDialog MessageBox "Caught the WM_ACTIVATE message" </pre>
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## 5.2.25 FocusInput

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Use with	Startup, Terminal Launcher, Web or Windows and advanced application definitions created using the Web Wizard.
Novell SecureLogin version	3.5.x or later
Type	Action
Usage	FocusInput #FormID:FieldID [-focus "focus"]
Arguments	<p>#FormID:FieldID</p> <p>The ID that was given to the matched field in the Site block using <code>MatchField</code> command. The FormID and FieldID must be unsigned integers.</p> <p>-focus "focus"</p> <p>Focuses the input field based upon the Boolean value of "focus". The Boolean value can be either "true" or "false".</p>
Description	Used to focus on an input field based upon the Boolean value of "focus".
Example	<p>In this example the value of field #1:2 is being checked by the application definition.</p> <pre> # === Logon Application Definition #2 == # === Google Initial Logon ==== #===== Site Login -userid "Google Logon" -initial MatchDoimain "www.google.com" MatchField #1:1 -name "Email" -type "text" MatchField #1:2 -name "Passwd" -type "password" MatchField #1:3 -name "Cookie" -type "check" EndSite SetPrompt "Enter your user credentials" TextInput #1:1 -value "\$Username" TextInput #1:2 -value "\$Password" FocusInput #1:2 -focus "true" BooleanInput #1:3 -check "false" PressInput Endscript </pre>

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## 5.2.26 GenerateOTP

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Use with	Startup, Terminal Launcher, Web, or Windows
Novell SecureLogin version	3.5.0 or later

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Type	Action
Usage	GenerateOTP -mode <string>-challenge <string>
Arguments	<p><b>&lt;result&gt;</b></p> <p>A variable that receives the value of the one-time password (OTP) that is generated.</p> <p><b>-mode</b></p> <p>Specifies the type of OTP that is dynamically generated. The default value for mode is set to AISC-SKI for smartcard OTP. Setting this to AISC-SKI makes SecureLogin use the Novell algorithm to generate an OTP based on the user's smart card. This setting is deprecated and can be removed.</p> <p><b>-challenge</b></p> <p>When the OTP generated is based on a challenge/response or asynchronous mode, the challenge needs to be passed to the <code>GenerateOTP</code> command as an argument, normally by means of a script that reads the challenge from the screen.</p>
Description	<p>OTP is an authentication method specifically designed to avoid the security exposures inherent in traditional fixed and static passwords.</p> <p>OTPs rely upon a predefined relationship between the user and the authenticating server. The encryption key is shared between the user's token generator and the server, with each performing the pseudo-random code calculation at user logon. If the codes match, the user is authenticated.</p> <p>The <code>GenerateOTP</code> command incorporates OTP token generation functionality embedded in Novell's smartcard technology.</p> <p>Novell's soft tokens can be generated in synchronous and asynchronous modes which now allows soft tokens to be loaded onto mobile devices such as PDAs or be sent to cell phones as SMS text messages.</p> <p><b>Synchronous mode:</b> Synchronous authentication of 'Novell's timeplus-event authentication replaces static alphanumeric passwords with a pseudo-random code that is dynamically generated at configured time intervals, generally around once a minute. The pseudo-random code is based on a shared encryption key and the current time.</p> <p><b>Asynchronous mode:</b> Asynchronous authentication or challenge response authorization replaces static alphanumeric passwords with a pseudo-random code that is dynamically generated based on a shared encryption key, the current time and a challenge/response combination. In Asynchronous mode the challenge must be passed to the <code>GenerateOTP</code> command as an argument.</p> <p>The application definition asynchronous example shows a typical command structure to enable OTP for use with Novell's smart card technology.</p> <p>The application definition asynchronous example shows a typical command structure to enable OTP for use with Novell's smart card technology.</p>

Example	<p>In Novell SecureLogin version 6.0, the <code>GenerateOTP</code> command was enhanced to integrate with smart cards.</p> <p>In Synchronous mode the <code>GenerateOTP</code> command requires the administrator to pass the <code>-mode</code> variable, <code>AISC-SKI</code>, to the command.</p> <p>In this instance <code>AISC-SKI</code> is the Novell smart card and <code>SKI</code> is the name of the applet used on the smart card.</p> <p>An example application definition enabling synchronous OTP encryption key distribution for use with smart cards is as follows:</p> <pre>Dialog Title "Test App" EndDialog GenerateOTP -mode "AISC-SKI" ?OtpResult Type ?OtpResult #14</pre> <p>In Asynchronous mode the challenge must be passed to the <code>GenerateOTP</code> command as an argument. This requires a script that reads the challenge variable from the screen.</p> <p>An example application definition enabling asynchronous OTP encryption key distribution for use with smartcards is as follows:</p> <pre>Dialog Title "Test App" EndDialog ReadText #12 ?tmp GenerateOTP -mode "AISC-SKI" -challenge ?tmp ?Otp Type ?Otp #14</pre> <p>It is assumed that a call without a challenge passed in is synchronous. The <code>-mode</code> parameter, instead of being passed in via the script, can also be created as a single sign-on variable in the script platform.</p> <p>If the <code>-mode</code> parameter is not passed in as a parameter to the <code>GenerateOTP</code> command, Novell SecureLogin will check for a variable named <code>mode</code>. Values passed into the command via the script will override values defined as variables. This is for future integration with Novell SecureLogin for Mobiles.</p> <hr/> <p><b>NOTE:</b> It is assumed that the <code>acomx.dll</code> is present on the machine and in the path. If not, then additional code may be required to specify the location of this library file.</p> <hr/> <p>The smartcard is assumed to be in the card reader at OTP generation time and a single card reader is also assumed.</p> <p>If the user's smart card has not been authenticated the user will be prompted to enter a PIN to unlock the card. This is required only once as the PIN is normally cached.</p>
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## 5.2.27 GetCheckBoxState

Use with	Advanced Web, Windows
Novell SecureLogin version	3.5 or later

Type	Action
Usage	GetCheckBoxState <#Item Number> <Variable>
Arguments	<p>&lt;Item Number&gt;</p> <p>The ID of the check box.</p> <p>&lt;Variable&gt;</p> <p>The target variable for the status of the specified check box. Value returned is Checked or Unchecked. Partially selected tristate check boxes will be returned as Unchecked. The variable can be a question mark (?) or a dollar sign (\$) variable.</p>
Description	Use the <code>GetCheckBoxState</code> command to return the current state of the specified check boxes.
Example	<pre>GetCheckBoxState #25 ?state1 GetCheckBoxState #26 ?state2 MessageBox ?state1 MessageBox ?state2</pre>

## 5.2.28 GetCommandLine

Use with	Startup, Windows
Novell SecureLogin version	3.0.4 or later
Type	Action
Usage	GetCommandLine<Variable>
Arguments	<p>&lt;Variable&gt;</p> <p>This variable defines where to store the captured command line.</p>
Description	<p>Use the <code>GetCommandLine</code> command to capture the full command line of the program that is loaded and save it to the specified variable.</p> <hr/> <p><b>NOTE:</b> You can use the <code>GetCommandLine</code> to detect and differentiate backend systems and databases for use with multiple logons in the SAP application.</p> <hr/>
Example	<p>Windows application definition</p> <p>This example reads the command line of the application, and then tests the line to see if it is Notepad.exe. If it is, Notepad is closed. If it is not, the application definition ends.</p> <pre>GetCommandLine ?Text If ?Text Eq "C:\Winnt\Notepad.exe"    KillApp Notepad.exe EndIf</pre>

## 5.2.29 GetEnv

Use with	All
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Novell SecureLogin version	3.5 or later
Type	Action
Usage	GetEnv <EnvVar> <Variable>
Arguments	<p>&lt;EnvVar&gt;</p> <p>This is the environment variable name you wish to retrieve.</p> <p>&lt;Variable&gt;</p> <p>This variable defines where to store the retrieved environment variable data.</p>
Description	Use the GetEnv command to read the value of an environment variable and saves it in the specified variable.
Example	<p>Windows application definition</p> <pre>GetEnv "SESSIONNAME" ?SessionName If ?SessionName eq "console" MessageBox "Running from Citrix Server Console" EndIf</pre>

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## 5.2.30 GetHandle

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Use with	Windows
Novell SecureLogin version	6.1.0 or later
Type	Action
Usage	GetHandle <Variable>
Arguments	<p>&lt;Variable&gt;</p> <p>This variable defines where to store the captured handle.</p>
Description	<p>Use GetHandle to capture the unique handle of the window that the Windows application definition script is activated on.</p> <p>GetHandle is used to retrieve the handle so that the value is passed to TLaunch.exe to inform the terminal launcher what window to interact with, or to pass the value to any other application.</p>
Example 1	<p>Windows application definition</p> <pre>GetHandle ?winHandle MessageBox ?winHandle</pre>

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Example 2	<p>Windows application definition</p> <pre> GetReg "HKLM\Software\Microsoft\Windows\CurrentVersion\App Paths\SLProto.exe\Path" ?SLLocation If ?SLLocation eq "&lt;NOTSET&gt;" EndScript EndIf  GetHandle ?PuttyHWND Strcat ?TLaunch ?SLLocation "tlaunch.exe" Strcat ?TLaunchHWND "/hwnd" ?PuttyHWND Run ?TLaunch "/auto" "/ePutty" "/l" "/pPutty - Detection and Login" "/t" "/q" "/s" ?TLaunchHWND </pre>
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### 5.2.31 GetIni

Use with	Windows, Web, Terminal, Java
Novell SecureLogin version	3.5 or later
Type	Action
Usage	GetIni <ini file> <section> <key> <variable>
Arguments	<p><b>&lt;Ini File&gt;</b></p> <p>This is the file name from which you wish to read the section or key.</p> <p><b>&lt;Section&gt;</b></p> <p>Name of the section that contains the key name.</p> <p><b>&lt;Key&gt;</b></p> <p>Name of the key to read.</p> <p><b>&lt;Variable&gt;</b></p> <p>This variable defines where to store the retrieved environment variable data.</p>
Description	Use the GetIni command to read data from INI file.
Example	<p>Windows application definition</p> <pre> GetIni "C:\Program Files\Lotus\Notes\Notes.ini" "Notes" "KeyFileName" ?NotesDefaultIDFileSetPlat </pre>

### 5.2.32 GetMD5

Use with	Windows
Novell SecureLogin version	6.0 or later
Type	Action
Usage	GetMD5<Value>

Arguments	<p><b>&lt;Value&gt;</b></p> <p>Returns the MD5 hash value.</p>
Description	<p>Use the <code>GetMD5</code> command to generate an MD5 hash value of the current process the script is running for. <code>GetMD5</code> will only work with Win32 scripts.</p> <p>Message-Digest algorithm 5 (MD5) is employed in Novell SecureLogin and can be used to check the integrity of files against a known hash value.</p> <p>MD5 hash values are widely used in software to provide assurance that a particular file has not been altered. The administrator can compare a published MD5 sum with the checksum of another file to recognize corrupt or incomplete files, particularly for large executable files.</p>
Example	<p>In a Windows application definition the MD5 hash value is stored as a variable which is then passed in as the argument to the command, which could be a <code>?tmp</code> or <code>\$hash_value</code> type variable.</p> <pre>GetMD5 ?tmp</pre> <p>or</p> <pre>GetMD5 \$hash_value</pre> <p>The MD5 hash value would normally be obtained with the Window Finder tool on a window from the application, and also the MD5 hash from Window Finder. This MD5 value would then be put in a script and the <code>GetMD5</code> command would be used to compare the two MD5 hash values. If the MD5 hash values do not match, the executable file may have been altered.</p>

### 5.2.33 GetReg

Use with	All
Novell SecureLogin version	3.5 or later
Type	Action
Usage	<code>GetReg &lt;RegEntry&gt; &lt;Variable&gt;</code>
Arguments	<p><b>&lt;RegEntry&gt;</b></p> <p>This is the registry entry to read.</p> <p><b>&lt;Variable&gt;</b></p> <p>This variable defines where to store the retrieved environment variable data.</p>
Description	<p>Use the <code>GetReg</code> command to read data from the registry and save it in the specified variable.</p> <p>The following is format for the registry entry input: <code>HIVE\KEY\Value</code></p> <p>Valid hives are:</p> <pre>"HKCR" "HKEY_CLASSES_ROOT" "HKCC" "HKEY_CURRENT_CONFIG" "HKCU" "HKEY_CURRENT_USER" "HKLM" "HKEY_LOCAL_MACHINE" "HKU" "HKEY_USERS"</pre>

Example	Windows application definition  <pre>GetReg "HKLM\Software\ABCCorp\ProductID"?ProductID If ?ProductID noteq "xxxxxxxxx" #Not corporate desktop EndScript EndIf</pre>
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## 5.2.34 GetDirectoryStatus

Use with	All
Novell SecureLogin version	7.0 or later
Type	Variable manipulators
Usage	GetDirectoryStatus <?StatusVariable>
Arguments	<b>&lt;?StatusVariable&gt;</b>  The target variable to which the value of the primary status is copied.  The value returned is either online or offline.
Description	Use the <code>GetDirectoryStatus</code> command to find out whether Novell SecureLogin can connect to the directory or not.  The status is online if the network is up, Novell SecureLogin connects to the directory, and the user is working in online mode.  The status is online if either the network is down, the network is up but the directory is unavailable, or the user chooses to work offline mode.
Example	<pre>GetDirectoryStatus ?status If ?status eq "online" #online instructions EndIf If ?status eq "offline" #offline instructions EndIf</pre>

## 5.2.35 GetSessionName

Use with	Terminal Emulator
Novell SecureLogin version	3.5 or later
Type	Action
Usage	GetSessionName <?Variable>
Arguments	<b>&lt;Variable&gt;</b>  The target variable that the session name is copied into.

Description	Use the <code>GetSessionName</code> command to find the current HLLAPI session name that is used to connect and returns it to the specified variable.
Example	Windows application definition  <code>GetSessionName ?Session_name</code>

## 5.2.36 GetText

Use with	Web, Terminal Launcher
Novell SecureLogin version	3.0 or later
Type	Action
Usage	<code>GetText &lt;Variable&gt;</code>
Arguments	<b>&lt;Variable&gt;</b>  This variable defines where to store the captured text.
Description	<p>Use the <code>GetText</code> command to get all of the text from the screen and save it to the specified variable. It is used in large Web application definitions that contain several <code>If -Text</code> statements.</p> <p>In Netscape, each <code>If -Text</code> statement screen scan to find the specified text caused the screen to flicker. However, using <code>GetText</code> (for example <code>If ?Text -in ?FromGetText</code>), the application definition can contain multiple <code>If -Text</code> commands with only one scan of the screen.</p>
Example	<p>Web application definition</p> <p>This example copies the text content of the Web page to the <code>?Text</code> variable. Novell SecureLogin tests for the presence of the word 'Logon'. If Logon exists, Novell SecureLogin enters the credentials and submits them automatically.</p> <pre>GetText ?Text If "Log on" -In ?Text Type \$Username Type \$Password Password EndIf</pre>

## 5.2.37 GetURL

Use with	Web
Novell SecureLogin version	3.0 or later
Type	Action
Usage	<code>GetURL &lt;Variable&gt;</code>
Arguments	<b>&lt;Variable&gt;</b>  This variable defines where to store the captured URL.



Description	Use the <code>GetURL</code> command to capture the URL of the site that is loaded and save it to the specified variable.
Example	<p>Web application definition</p> <p>This example copies the URL of the Web site to the <code>?URL</code> variable and tests the URL to see if it matches text being searched for. If it does, Novell SecureLogin pops up a message box and redirects the user to the intranet.</p> <pre> GetURL ?URL If "Log off" -In ?URL MessageBox "You have chosen to log off the application. You will now be redirected to the intranet home page." GoToURL "http://Intranet" EndIf </pre>

## 5.2.38 GoToURL

Use with	Web
Novell SecureLogin version	3.5 or later
Type	Action
Usage	<code>GoToURL &lt;URL&gt; [&lt;-frame&gt;]</code>
Arguments	<p><b>&lt;URL&gt;</b></p> <p>The URL to which the browser will navigate.</p> <p><b>&lt;-frame&gt;</b></p> <p>Opens the URL in the frame which started the application definition.</p>
Description	<p>Use the <code>GoToURL</code> command to make the browser navigate to the specified URL. By default the command opens the new Web page in the main window, rather than the frame that started the application definition.</p> <p>When using the <code>-frame</code> option on a framed Web page, the URL redirect occurs only in the current frame rather than the parent window.</p> <p>You must include <code>http://</code>.</p>
Example	<p>Web application definition</p> <p>This example detects an incorrect password message, displays a message box informing the user, and then browses the Novell Web site.</p> <pre> If -Text "Incorrect Password" MessageBox "You have entered an incorrect password" GoToURL "http://www.Novell.com" EndIf </pre>

## 5.2.39 Highlight

Use with	Startup, Terminal Launcher, Web, or Windows
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Novell SecureLogin version	3.5 or later
Type	Action
Description	<p>Use the <code>Highlight</code> command to set the focus of the Web page on a field.</p> <p>The command is useful for pages that do not have any control selected after loading or for any fields that change the behavior after gaining focus.</p> <p>It functions similar to the <a href="#">SetFocus</a> command in Windows scripts.</p>
Example	<p>Web application definition</p> <pre>If -Text "Logon" Highlight #1 Type \$Username #1 Highlight #2 Type \$Password #2 Type "\N" EndIf</pre>

## 5.2.40 If/Else/EndIf

Use with	Startup, Terminal Launcher, Web, or Windows
Novell SecureLogin version	3.5 or later
Type	Flow control
Usage 1	<pre>If &lt;Value1&gt; &lt;Gt Lt&gt; &lt;Value2&gt; #Do This [Else] #Do This EndIf</pre>
Usage 2	<pre>If &lt;Value1&gt; &lt;Eq NotEq&gt; &lt;Value2&gt; [-I -S] #Do This [Else] #Do This EndIf</pre>
Usage 3	<pre>If &lt;Value1&gt; &lt;-In -NotIn&gt; &lt;Value2&gt; [-I -S] #Do This [Else] #Do This EndIf</pre>
Usage 4	<pre>If -Text [-Frame] &lt;Text&gt; #Do This [Else] #Do This EndIf</pre>

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Usage 5	<pre>If -Exist -NotExist &lt;Variable&gt; #Do This [Else] #Do This EndIf</pre>
Arguments	<p><b>&lt;Value1&gt;</b></p> <p>The left side of the expression for evaluation.</p> <p><b>&lt;Value2&gt;</b></p> <p>The right side of the expression for evaluation.</p> <p><b>&lt;Text&gt;</b></p> <p>The text for which you are searching.</p>
Description	<p>Use the <code>If</code> command to establish a block to execute if the expression supplied is true. The <code>Else</code> command works inside an <code>If</code> block. The <code>Else</code> command is executed if the operator in the <code>If</code> block is false. Use the <code>EndIf</code> command to terminate the <code>If</code> block.</p> <p><b>Text comparison operators supported</b> The text comparison operators supported by the <code>If</code> command are:</p> <ul style="list-style-type: none"> <li>♦ <code>Eq</code>: True if the left side is equal to the right side.</li> <li>♦ <code>NotEq</code>: True if the left side is not equal to the right side.</li> <li>♦ <code>-In</code>: True if the left side is a substring of the right side.</li> <li>♦ <code>-NotIn</code>: True if the left side is not a substring of the right side.</li> <li>♦ <code>-SiteDeparted</code>: Checks if the current document is still active or not.</li> </ul> <p>When using these text comparison operators, you may optionally specify whether the comparison is to take into account the case of the strings being compared. If <code>-I</code> is specified, the comparison is case insensitive. If <code>-S</code> is specified, then the comparison is case sensitive. By default the <code>Eq</code> and <code>NotEq</code> operators are not case sensitive, while the <code>-In</code> and <code>-NotIn</code> operators are case sensitive.</p> <p>An operator is also supplied to directly query the application for a particular string:-  <b>Text</b>: Evaluates to true if the specified text is found in the application windows of the application. For Internet Explorer application definitions, you can supply an optional <code>-Frame</code> argument, which restricts the command to look for the specified text in the current frame.</p> <p><b>Numerical comparison operators supported</b> Two numerical comparison operators are supported by the <code>If</code> command, <code>Gt</code> and <code>Lt</code>. The command evaluates to true if the left side is greater than or less than (respectively) the right side. This is a numerical comparison, so the left and right sides must be numbers.</p> <p>An operator is supplied to check for the existence of a stored variable:</p> <ul style="list-style-type: none"> <li>♦ <code>-Exists</code>: True if the specified variable exists.</li> <li>♦ <code>-NotExist</code>: True if the specified variable does not exist.</li> </ul>

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**Syntax examples**

```
If $Number NotEQ "1"
MessageBox "NotEQ 1"
Else
MessageBox "Eq 1"
EndScript
EndIf

If ?Value1 Gt ?Value2
If -Text "Log on"
If -Exists $RunBefore
If "Log on" -In ?Text
```

**Example 1****Web application definition**

This example tests for an incorrect password. If it is found, an incorrect password message box is displayed. If the error message is not found, Novell SecureLogin logs in as normal.

```
If -Text "Incorrect Password"
DisplayVariables "You have an incorrect password. Please
verify it and retry log on."
EndScript
Else
Type $Username
Type $Password Password
EndIf
```

**Example 2****Windows application definition**

Each time the application definition is run, a variable is incremented. This example counts the number of times the dialog box is displayed. If it is displayed more than three times, the application is closed. If the log on is successful, the count is reset.

```
# Logon Dialog Box
Dialog
    Class #32770
    Title "Log on"
EndDialog

ReadText #1001 ?Username

If -Exists $Username
Else
    Set $Username ?Username
EndIf
Increment ?RunCount
If ?RunCount Gt "3"
MessageBox "Log on has been attempted too many times. The
application will be closed."
KillApp "app.exe"

Else

    Type $Username #1001

    Type $Password #1002

    Click #1

EndIf
```

---

	<pre> # Logon Successful Dialog Box Dialog     Ctrl #1     Title "Log on successful" EndDialog  Set ?RunCount "0" </pre>
Example 3	<p><b>Web application definition</b></p> <p>This example copies the text content of the Web page to ?WebText. The variable is then tested to see if 'Log on' is present. If it is, Novell SecureLogin performs the login process. If it is not present, the application definition is terminated.</p> <pre> GetText ?WebText If "Log on" -In ?WebText     Type \$Username     Type \$Password Password Else     EndScript EndIf </pre>
Example 4	<p><b>Startup</b></p> <p>This example tests, upon Novell SecureLogin loading, to see if Novell SecureLogin has been run by the user. If it has not, Novell SecureLogin sets the variable so that the message is only displayed once, and then displays a welcome message along with the option for further details on Novell SecureLogin.</p> <pre> If -NotExist \$LoadedBefore     EndScript Else     MessageBox -YesNo ?Result "Welcome to SecureLogin Single     Sign-On, a new password management tool that will save you     the hassle of remembering your passwords. Would you like more     details on how to use SecureLogin and what it can do for     you?"     Set \$LoadedBefore "Yes"     If ?Result Eq "Yes"         GoToURL "http://www.Novell.com/securelogin.htm"     EndIf EndIf </pre>

## 5.2.41 Include

Use with	All
Novell SecureLogin version	3.0 or later
Type	Flow control
Usage	Include <Platform-Name>
Arguments	<p>&lt;Platform-Name&gt;</p> <p>The name of the application definition to include.</p>

Description	Use the <code>Include</code> command to share commonly-used application definition commands by multiple applications. The application definition identified by <code>&lt;Platform-Name&gt;</code> is included at execution time into the calling application definition. The application definition included with the <code>Include</code> command must comprise commands supported by the calling application.
Example	<p>Windows application definition</p> <p>This example detects the login dialog, the Notepad.exe application definition is executed, and then the user's credentials are entered.</p> <pre># Logon Dialog Box Dialog Class #32770 Title "Log on" EndDialog  Include "Notepad.exe" Type \$Username #1001 Type \$Password #1002 Click #1</pre>

## 5.2.42 Increment

Use with	All
Novell SecureLogin version	3.5 or later
Type	Variable manipulator
Usage	Increment <b>&lt;Variable&gt;</b>
Arguments	<p><b>&lt;Variable&gt;</b></p> <p>The name of the variable to increase in value.</p>
Description	<p>Use the <code>Increment</code> command to add to a specified variable. For example, you can use increment to count the number of passes a particular application definition has made.</p> <p>Once the number of instances is equal to the specified number, you can instruct the application definition to run another task or end the application definition. This is useful when configuring an application whose login panel is similar to other windows within the application, or to easily control the number of attempts a user can have to access an application.</p> <p>Also see <a href="#">Section 5.2.17, "Decrement," on page 80</a></p>
Syntax examples	Increment ?RunCount

Example	<p>Windows application definition</p> <p>Each time the application definition is run, a variable is incremented. This example counts the number of times the dialog box is displayed. If the dialog box is displayed more than three times, the application is closed. If the log on is successful, the count is reset.</p> <pre> # Logon Dialog Box Dialog   Class #32770   Title "Log on" EndDialog  Increment ?RunCount If ?RunCount Gt "3"   MessageBox "Log on has been attempted too many times. The application will be closed."   KillApp "app.exe" Else   Type \$Username #1001   Type \$Password #1002   Click #1 EndIf  # Logon Successful Message Dialog   Ctrl #1   Title "Log on successful" EndDialog  Set ?RunCount "0" </pre>
---------	--

## 5.2.43 KillApp

Use with	All
Novell SecureLogin version	3.5 or later
Type	Action
Usage	<p>KillApp &lt;Process-Name&gt;</p> <p>KillApp &lt;-Title&gt;</p>
Arguments	<p>&lt;Process-Name&gt;</p> <p>The name of the process to terminate.</p> <p>-title "Application title"</p> <p>The title of the process to terminate.</p>
Description	Use the KillApp command to terminate an application.

---

**Example 1****Windows application definition**

Each time the application definition is run, a variable is incremented. This example counts the number of times the dialog box is displayed. If the dialog box is displayed more than three times, the application is closed. If the log on is successful, the count is reset.

```
# Logon Dialog Box
Dialog
    Title "Log on"
    Class #32770
EndDialog
Increment ?RunCount
If ?RunCount Gt "3"
    MessageBox "Log on has been attempted too many times. The
application will be closed."
KillApp "app.exe"
Else
    Type $Username #1001
    Type $Password #1002
    Click #1
EndIf
# Logon Successful Message
Dialog
    Title "Log on successful"
    Ctrl #1
EndDialog
Set ?RunCount "0"
```

**Example 2****Windows application definition**

Same application definition as used in Example 1, however, the KillApp process is specified by title.

```
Dialog
    Title "Login Simple"
    Class #32770
EndDialog
Increment ?RunCount

If ?RunCount Gt "3"
    MessageBox "Log on has been attempted too many times. The
application will be closed."
    KillApp -title "Login Simple"
Else
    Type $Username #1001
    Type $Password #1002
    Click #1
EndIf

# Logon Successful Message
Dialog
    Title "Login - Simple Successful"
    Ctrl #1
EndDialog
Set ?RunCount "0"
```

---



## 5.2.44 Local

---

Use with	All
Novell SecureLogin version	3.5 or later
Type	Variable manipulator
Usage	Local <?Variable>
Arguments	<?Variable>  The runtime variable to declare as local.
Description	<p>Use the <code>Local</code> command to declare that a runtime variable will only exist for the lifetime of the application definition. Local runtime variables are used in the same way as normal runtime variables and are still written as <code>?Variable</code>.</p> <p>Declare local runtime variables as local by using the <code>Local</code> command, followed by the variable name. When runtime variables are declared local, you cannot set them back again. You can declare a runtime variable local at any time in an application definition.</p> <p>Using local runtime variables increases the performance of Novell SecureLogin, although only slightly. Local runtime variables are used to run application definitions multiple times without storing the runtime variables between each run of the application definition.</p> <p>Local runtime variables are also used to prevent runtime variables from overwriting each other, which could happen if two instances of an application definition are running at the same time. For example, use the <code>Local</code> command if two instances of Terminal Launcher are running, each instance running the same application definition but attached to different emulator sessions.</p>
Example	<p>Windows application definition</p> <p>This example declares a variable as local, and then uses it to count the number of times a dialog box is displayed. If the dialog box is displayed too many times, Novell SecureLogin will alert the user, then close the application.</p> <pre># Invalid Logon Message Dialog Class #32770 Title "Logon Failure" EndDialog Local ?RunCount Increment ?RunCount If ?RunCount Gt "5" MessageBox "Closing application" KillApp "PasswordText.exe" EndIf Type \$Username Type \$Password</pre>

---

## 5.2.45 MatchDomain

---

Use with	Advanced application definitions created using the Web Wizard.
Novell SecureLogin version	3.5.x or later
Type	Action
Usage	MatchDomain "Domain"
Arguments	Domain  The domain name or address to be matched.
Description	<p>Use MatchDomain inside a Site block to filter a site based on its domain. If the domain doesn't match, the Site block fails to match.</p> <p>The domain matched is a normally a low level domain name such as www.yahoo.com and not www.yahoo.com/mymail/login</p>
Example	<p>In this example the site www.google.com is being matched by the application definition.</p> <pre># === Logon Application Definition #2 == # === Google Initial Logon === #===== Site Login -userid "Google Log On" -initial MatchDomain "www.google.com" MatchField #1:1 -name "Email" -type "text" MatchField #1:2 -name "Passwd" -type "password" MatchField #1:3 -name "Cookie" -type "check" EndSite SetPrompt "Enter your user credentials" TextInput #1:1 -value "\$Username" TextInput #1:2 -value "\$Password" FocusInput#1:2 -focus "true" BooleanInput #1:3 -check "false" PressInput Endscript</pre>

---

## 5.2.46 MatchField

---

Use with	Advanced application definitions created using the Web Wizard.
Novell SecureLogin version	3.5.x or later
Type	Action
Usage	MatchField #FormID:FieldID [-optional] [-name "name"] [-type "type"] [-value "value"] [-defaultValue "defaultValue"]

---

Arguments	<p data-bbox="475 199 651 226">#FormID:FieldID</p> <p data-bbox="475 252 1360 336">The ID to be given to the matched option within the field, building from the #FormID of the associated form. The FormID and FieldID must be unsigned integers. The combined #FormID:FieldID must be unique within the site block.</p> <p data-bbox="475 361 570 388">-optional</p> <p data-bbox="475 413 1360 466">Specifies that matching this field is not required to successfully match the parent form.</p> <p data-bbox="475 491 626 518">-name "name"</p> <p data-bbox="475 543 789 571">Match against the field name.</p> <p data-bbox="475 596 599 623">-type "type"</p> <p data-bbox="475 648 1130 676">Match against the field type. Type can be one of the following:</p> <ul data-bbox="503 701 690 1213" style="list-style-type: none"> <li>◆ Button</li> <li>◆ Checkbox</li> <li>◆ File</li> <li>◆ Image</li> <li>◆ Hidden</li> <li>◆ Password</li> <li>◆ Radio</li> <li>◆ Reset</li> <li>◆ Submit</li> <li>◆ Text</li> <li>◆ TextArea</li> <li>◆ Select-multiple</li> <li>◆ Select-one</li> </ul> <p data-bbox="475 1239 623 1266">-value "value"</p> <p data-bbox="475 1291 789 1318">Match against the field value.</p> <p data-bbox="475 1344 769 1371">-defaultValue "defaultValue"</p> <p data-bbox="475 1396 881 1423">Match against the field's default value.</p>
Description	<p data-bbox="475 1442 1360 1526">Use MatchField to filter a form based on the presence of a particular field. If the field fails to match and it is not specified as optional, then the parent form will fail to match.</p>

Example	<p>This example would locate the Web page fields Email, Password and Cookie within the Web site www.google.com .com matched by the application definition.</p> <pre> # === Logon Application Definition #2 == # === Google Initial Logon === #===== Site Login -userid "Google Log On" -initial MatchForm #1 -name "log on" MatchDomain "www.google.com" MatchField #1:1 -name "Email" -type "text" MatchField #1:2 -name "Passwd" -type "password" MatchField #1:3 -name "Cookie" -type "check" MatchField #1:4 -name "SAVEOPTION" -type "checkbox" -value "YES" MatchField #1:5 -name "Submit2" -type "submit"  EndSite SetPrompt "Enter your user credentials" TextInput #1:1 -value "\$Username" TextInput #1:2 -value "\$Password" FocusInput#1:2 -focus "true" BooleanInput #1:3 -check "false" BooleanInput #1:4 -check "false"  PressInput Endscript </pre>
---------	---

## 5.2.47 MatchForm

Use with	Advanced application definitions created using the Web Wizard.
Novell SecureLogin version	3.5.x or later
Type	Action
Usage	MatchForm #FormID [-optional] [-name "name"] [-action "action"] [-method "method"] [-target "target"]

Arguments	<p><b>#FormID</b></p> <p>The ID to be given to a matching form. The ID must be an unsigned integer prefixed with # and unique within the site block.</p> <p>-optional</p> <p>Specifies that matching this form is not required to successfully match site.</p> <p>-name "name"</p> <p>Specifies the form name to match against. The form name is an optional value given to a form by the creator of the Web site.</p> <p>-action "action"</p> <p>Specifies the form action to match against. The URL to which the form content is sent for processing.</p> <p>-method "method"</p> <p>Specifies the form method to match against. The method or how to send the form data to the server.</p> <p>-target "target"</p> <p>Specifies the form target to match against. The window or frame at which to the form targets its contents.</p>
Description	Use MatchForm to filter a site based on the presence of a particular form. If the form fails to match and it is not specified as optional, then the site will fail to match.
Example	<p>In this example the form named 'log on' within the Web site www.google.com .com is being matched by the application definition.</p> <pre># === Logon Application Definition #2 == # === Google Initial Logon ==== #===== Site Login -userid "Google Log On" -initial MatchForm #1 -name "log on" MatchDomain "www.google.com" MatchField #1:1 -name "Email" -type "text" MatchField #1:2 -name "Passwd" -type "password" MatchField #1:3 -name "Cookie" -type "check" EndSite SetPrompt "Enter your user credentials" TextInput #1:1 -value "\$Username" TextInput #1:2 -value "\$Password" FocusInput#1:2 -focus "true" BooleanInput #1:3 -check "false" PressInput Endscript  The form name may be a "null"  MatchForm #1 -name ""</pre>

## 5.2.48 MatchOption

Use with	Advanced Web application definitions created using the Web Wizard.
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Novell SecureLogin version	3.5.x or later
Type	Action
Usage	MatchOption #FormID:FieldID:OptionID [-optional] [-text "text"] [-value "value"]
Arguments	<p>#FormID:FieldID:OptionID</p> <p>The ID to be given to the matched option within the field, building from the #FormID:FieldID of the associated selection field. The FormID, FieldID and OptionIDs must be unsigned integers. The combined #FormID:FieldID:OptionID must be unique within the site block.</p> <p>-optional</p> <p>Specifies that matching this option is not required to successfully match the parent field.</p> <p>-text "text"</p> <p>Specifies the text string for this particular option.</p> <hr/> <p><b>NOTE:</b> The text is what is displayed to the user.</p> <hr/> <p>-value "value"</p> <p>Specifies the value for this particular option.</p> <hr/> <p><b>NOTE:</b> The value is what is passed to the server when a form is submitted.</p> <hr/>
Description	<p>Use the MatchOption command to filter a field based on the presence of a particular option.</p> <p>An option is an item within a specific combo box or list box. If the option is not found, and it is not specified as optional, then the parent field will also fail to match.</p>
Example	<p>In this example the form named 'log on' within the secure Web site www.lotto.com is being matched by the application definition.</p> <pre># === Logon Application Definition #4 == # === Lotto User Initial Logon === #===== Site Login -userid "Member Log In" -initial MatchForm #1 -name "log in" MatchDomain "https://site10.Lotto.com" MatchField #1:1 -name "Member ID" -type "text" MatchField #1:2 -name "Passwd" -type "password" MatchOption #1:3 -name "Secure" -type "text" EndSite SetPrompt "Enter your user credentials" TextInput #1:1 -value "\$Username" TextInput #1:2 -value "\$Password" FocusInput #1:2 -focus "true" BooleanInput #1:3 -check "true" PressInput Endscript</pre>

## 5.2.49 MatchReferer

---

Use with	Advanced Web application definitions created using the Web Wizard.
Novell SecureLogin version	3.5.x or later
Type	Action
Usage	MatchReferer "Referer"
Arguments	<p>MatchReferer</p> <p>Used inside a site block, MatchReferer is used to filter a site based on a referer. If the site referer does not match, the site block fails to match.</p> <p>"Referer"</p> <p>The site referer which is to be matched. If PageA.htm includes a link to PageB.htm, then the referer is "PageA.htm".</p>
Description	Use MatchReferer inside a Site/EndSite block to match or filter a site based on a referer.
Example	<p>In this example the referring HTML page <code>www.lotto.com/index.html</code> is being matched by the application definition.</p> <pre># === Logon Application Definition #5 == # === Lotto User Initial Logon ==== #===== Site Login -userid "Member Log On" -initial MatchForm #1 -name "log on" MatchReferer "www.lotto.com/index.html" MatchDomain "https://site10.lotto.com" MatchField #1:1 -name "Member ID" -type "text" MatchField #1:2 -name "Passwd" -type "password" MatchOption #1:3 -name "Secure" -type "text" EndSite SetPrompt "Enter your user credentials" TextInput #1:1 -value "\$Username" TextInput #1:2 -value "\$Password" FocusInput #1:2 -focus "true" BooleanInput #1:3 -check "true" PressInput Endscript</pre>

---

## 5.2.50 MatchRegex

---

Use with	All
Novell SecureLogin version	7.0 or later
Type	Action
Usage	MatchRegex <RegEx> <Input-String>

---

Arguments	<b>&lt;RegEx&gt;</b>
	The regular expression
	<b>&lt;Input-String&gt;</b>
	The string to match against.
Description	<p>Use the <code>MatchRegex</code> command to test whether a regular expression matches against the specified string or not. Can be used inside a <code>Site–EndSite</code> or <code>Dialog–EndDialog</code> block for example.</p> <p>For more information regarding regular expressions see the <a href="http://www.boost.org/doc/libs/1_33_1/libs/regex/doc/syntax_perl.html">Boost C++ Libraries Web site (http://www.boost.org/doc/libs/1_33_1/libs/regex/doc/syntax_perl.html)</a></p>
Example	<p>This example matches against any Web page on the <code>www.google.com</code> domain that has a text box, a password box and text somewhere on the page that matches against the “Welcome \w+ to Gmail” regular expression (“Welcome Nick to Gmail” for example).</p> <pre> Site "Gmail: Email from Google" MatchForm #1 MatchDomain "www.google.com" MatchField #1:10 -type "text" MatchField #1:11 -type "password" GetText ?PageText MatchRegex "Welcome \w+ to Gmail" ?PageText EndSite MessageBox "Matched" </pre>

## 5.2.51 MatchTitle

Use with	Advanced Web application definitions created using the Web Wizard.
	<b>NOTE:</b> <code>-regex</code> parameter is not supported in SecureLogin versions prior to 7.0.
Novell SecureLogin version	3.5 or later
Type	Action
Usage	<code>MatchTitle [-regex] "URL"</code>
Arguments	<p><code>MatchTitle</code></p> <p>Used inside a site block, <code>MatchTitle</code> is used to filter a site based on its title. If the site title does not match, the site block fails to match.</p> <p>"Title"</p> <p>The site title which is to be matched.</p> <p><code>-regex</code></p> <p>You may also use regular expressions to match part of a Title.</p> <p>For more information regarding regular expressions see the <a href="http://www.boost.org/doc/libs/1_33_1/libs/regex/doc/syntax_perl.html">Boost C++ Libraries Web site (http://www.boost.org/doc/libs/1_33_1/libs/regex/doc/syntax_perl.html)</a></p>



Description	Use <code>MatchTitle</code> inside a <code>Site</code> block to match or filter a site based on a HTML page title.
Example	<p>In this example the HTML page with the title 'The New York Times &gt; Log In' within the Web site <code>www.nytimes.com</code> is matched by the application definition.</p> <pre># ===== # Login Script #1 - The New York Times &gt; Log In # ===== # === Initial Login === Site Login -userid "nytimes.com #1" -initial MatchURL "http://www.nytimes.com/auth/login" MatchDomain "www.nytimes.com" MatchTitle "The New York Times &gt; Log In" MatchForm #1 -name "login" MatchField #1:1 -name "USERID" -type "text" MatchField #1:2 -name "PASSWORD" -type "password" MatchField #1:3 -name "SAVEOPTION" -type "checkbox" -value "YES" MatchField #1:4 -name "Submit2" -type "submit" EndSite</pre> <p>If the title to match is The New York Times &gt; Log In, then</p> <pre>MatchTitle -regex "Times &gt; Log In"</pre>

## 5.2.52 MatchURL

Use with	Advanced Web application definitions created using the Web Wizard.
	<hr/> <p><b>NOTE:</b> <code>-regex</code> parameter is not supported in SecureLogin versions prior to 7.0.</p> <hr/>
Novell SecureLogin version	3.5 or later
Type	Action
Usage	<code>MatchURL [-regex] "URL"</code>
Arguments	<p><code>MatchURL</code></p> <p>Used inside a <code>Site</code> block, <code>MatchURL</code> is used to filter a site based on its URL. If the URL doesn't match, the <code>Site</code> block fails to match.</p> <p>"URL"</p> <p>The site URL which is to be matched. This need not be the URL listed in the navigation field of the Web browser as the given page may not have been loaded from there.</p> <p><code>-regex</code></p> <p>You may also use regular expressions to match part of a URL, such as the domain only.</p> <p>For more information regarding regular expressions see the <a href="http://www.boost.org/doc/libs/1_33_1/libs/regex/doc/syntax_perl.html">Boost C++ Libraries Web site</a>. (<a href="http://www.boost.org/doc/libs/1_33_1/libs/regex/doc/syntax_perl.html">http://www.boost.org/doc/libs/1_33_1/libs/regex/doc/syntax_perl.html</a>) :</p>

Description	<p>Use MatchURL inside a Site block to match or filter a HTML page within a site based on its URL.</p> <p>The URL can be a complex Web address or a secure Web site.</p>
Example	<p>In this example the URL “https://www.nytimes.com/auth/login” is matched.</p> <pre># === Initial Login === Site Login -userid "nytimes.com #1" -initial MatchURL "https://www.nytimes.com/auth/login" MatchDomain "www.nytimes.com" MatchTitle "The New York Times &gt; Log In" MatchForm #1 -name "login" MatchField #1:1 -name "USERID" -type "text" MatchField #1:2 -name "PASSWORD" -type "password" MatchField #1:3 -name "SAVEOPTION" -type "checkbox" -value "YES" MatchField #1:4 -name "Submit2" -type "submit" EndSite</pre> <p>If the URL to match is “http://www.nytimes.com/auth/login?URI=http://”, then:</p> <pre>MatchURL -regex "nytimes.com"</pre>

## 5.2.53 MessageBox

Use with	Startup, Terminal Launcher, Web, or Windows
Novell SecureLogin version	3.5 or later
Type	Action
Usage	<pre>MessageBox&lt;Data&gt; [-Background] [-DefaultNo] [-YesNo &lt;?Variable&gt;] [-YesNoCancel &lt;?Variable&gt;]</pre>

Arguments	<p><b>&lt;-YesNo&gt;</b></p> <p>The -YesNo flag allows the user to select Yes or No within the message box, rather than being limited to an OK button only.</p> <p><b>&lt;-YesNoCancel&gt;</b></p> <p>The -YesNoCancel flag allows the user to select Yes, No, or Cancel when a message box is displayed.</p> <p><b>&lt;?Variable&gt;</b></p> <p>This runtime variable is required with the -YesNo / -YesNoCancel flag to store the result of the user action.</p> <p><b>&lt;-Background&gt;</b></p> <p>When specified, this parameter allows the user to open an application and work in that application, without having to respond to the MessageBox. If this parameter is not used, the MessageBox remains the active window. In Web applications, you must respond to the MessageBox before you can continue with any other work.</p> <p><b>&lt;-DefaultNo&gt;</b></p> <p>This optional parameter is used only with the -YesNo and -YesNoCancel flags. When the -DefaultNo parameter is set, the No button has the default focus rather than the Yes button.</p> <p><b>&lt;Data&gt;</b></p> <p>The text displayed to the user. &lt;Data&gt; can be several strings, variables, or a combination of both.</p>
Description	<p>Use the <code>MessageBox</code> command to display a dialog box that contains the text specified in the &lt;Data&gt; variable. The application definition is suspended until the user reacts to this message. The MessageBox can take any number of text arguments, including variables (for example, <code>MessageBox "The user " \$Username " has just logged onto the system"</code>).</p> <p>You can set the -YesNo flag when calling a MessageBox. If the -YesNo flag is set, the MessageBox prompts the user with a box that has a Yes and a No button, rather than an OK button.</p> <p>Use a runtime &lt;?Variable&gt; to capture the MessageBox result immediately after the flag. The variable value is set to Yes, No, or Cancel.</p>
Syntax examples	<pre> MessageBox "Application definition completed successfully"  MessageBox "Do you wish to continue?" -YesNo ?Result  MessageBox "Do you wish to continue?" -YesNoCancel ?Result -Background -DefaultNo </pre>

Example 1	<p data-bbox="472 193 797 226">Windows application definition</p> <p data-bbox="472 247 1351 331">This example detects the change password dialog box. A message box is displayed prompting the user whether or not they would like to change their password, and to inform them it was successful.</p> <pre data-bbox="472 359 1351 968"> # Change Password Dialog Box Dialog Class #32770 Title "Change Password" EndDialog  MessageBox -YesNo ?Result "Your password has expired, would you like to change it now?"  If ?Result Eq "Yes" Type \$Username #1015 Type \$Password #1004 ChangePassword \$Password Random Type \$Password #1005 Type \$Password #1006 Click #1 MessageBox "Password changed successfully" Else Click #2 MessageBox "You chose not to change your password" EndIf </pre>
Example 2	<p data-bbox="472 989 943 1022">Terminal Launcher test application definition</p> <p data-bbox="472 1043 1351 1127">Use message boxes when troubleshooting application definitions. This example displays a message box before each step in the application definition to allow the writer to see where the application definition execution is failing.</p> <p data-bbox="472 1148 1351 1211">The WaitForText cuts off the first character because it finds both Password and password, and responds to all password entry points.</p> <pre data-bbox="472 1232 1351 1665"> MessageBox "Beginning wait for logon prompt" WaitForText "ogin:" MessageBox "Logon detected, now entering user name" Type \$Username MessageBox "User name entered, now simulating Enter" Type @E MessageBox "Enter has been simulated, now waiting for password" Password"WaitForText "assword:" MessageBox "Password detected, now entering password" Type \$Password MessageBox "Password entered, now simulating Enter" Type @E MessageBox "Sequence completed, the user should now be logged on" </pre>

## 5.2.54 Multiply

Use with	All
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Novell SecureLogin version	3.0 or later
Type	Variable manipulator
Usage	Multiply <Variable1> <Variable2> [?Result]
	<b>NOTE:</b> You must use integer arithmetic.
Arguments	<p><b>&lt;Variable1&gt;</b></p> <p>The multiplicand, the first argument, is the number multiplied by the second argument. Also this argument contains the result if the optional [?Result] argument is not passed in. If used without the [?Result] argument, &lt;Variable1&gt; must be a Novell SecureLogin variable, either ?Variable1 or \$Variable1. Otherwise &lt;Variable1&gt; can be any numeric value.</p> <p><b>&lt;Variable2&gt;</b></p> <p>The multiplier, the second argument, is the number by which the first number is multiplied. &lt;Variable2&gt; can be a Novell SecureLogin variable or numeric value.</p> <p>[?Result]</p> <p>Optional, the product, or result of the equation.</p>
Description	Use to multiply one number by another. You can write the numbers into the application definition or use variables. The results can be output to another variable or to one of the original numbers.
Syntax examples	<p>Multiply "1" "2" ?Result</p> <p>Multiply ?LoginAttempts ?LoginFailures</p> <p>Multiply ?LoginAttempts ?LoginFailures</p> <p>?Result</p> <p>Multiply ?LoginAttempts "3"</p> <p>Multiply ?LoginAttempts "3" ?Result</p>
Example	<p>Windows application definition</p> <p>This example reads the values of control IDs 103 and 104 into variables. From there they are multiplied, and typed into control ID 1.</p> <pre> ReadText #103 ?Number1 ReadText #104 ?Number2 Multiply ?Number1 ?Number2 ?Result Type ?Result #1 </pre>

## 5.2.55 OnException/ClearException

Use with	All
Novell SecureLogin version	3.0.4 or later
Type	Flow control

Usage	<hr/> OnException <Exception Name> Call <SubRoutine>
	ClearException <Exception Name>
Arguments	<Exception Name>  The name of the exception on which you wish to act. The following exceptions are supported: <ul style="list-style-type: none"> <li>♦ <b>AAVerifyCancelled:</b> When a user <i>cancel</i>s the re-authentication process (support will depend on the Advanced Authentication product being used).</li> <li>♦ <b>AAVerifyFailed:</b> When the AAVerify re-authentication command fails.</li> <li>♦ <b>ChangePasswordCancelled:</b> When a user <i>cancel</i>s on the <i>Change Password</i> dialog.</li> <li>♦ <b>EnterVariablesCancelled:</b> When a user cancels the automatic variable prompt box or the display variables prompt box.</li> <li>♦ <b>GenerateOTPCancelled:</b> When a user cancels the GenerateOTP dialog.</li> <li>♦ <b>GenerateOTPFailed:</b> When the GenerateOTP command fails.</li> <li>♦ <b>PickListCancelled:</b> When a user cancels the pick list choice dialog.</li> <li>♦ <b>RunFailed:</b> When the program specified by the Run command fails to launch.</li> <li>♦ <b>SelectLoginCancelled:</b> When a user cancels the dialog box listing the login credential set.</li> </ul> <SubRoutine>  The name of the subroutine you want to run when the exception condition is true.
Description	Use the OnException command to detect when certain conditions are met. Currently, this is when Cancel is clicked on either of two dialog boxes. When the condition is met, a subroutine is run. Use the ClearException command to reset the exceptions value.
Syntax examples	OnException ChangePasswordCancelled Call Display Error ClearException ChangePasswordCancelled <hr/>

---

**Example 1****Windows application definition**

In this example the login failed because the user has invalid credentials stored. This provides the user with an opportunity to verify their user name and password, but what happens if the user clicks Cancel? If the user clicks Cancel, the exception is executed and forces the user to enter their credentials.

```
# Logon Failed Dialog Box
Dialog
    Class #32770
    Title "Log on failed"
EndDialog
OnException EnterVariablesCancelled Call Variables Cancelled
DisplayVariables "Please verify your user name and password
and try again. IT x4532"
ClearException EnterVariablesCancelled

Type $Username #1001
Type $Password #1002
Click #1
Sub VariablesCancelled
    OnException EnterVariablesCancelled Call Variables
Cancelled
Display Variables "You cannot cancel this verification dialog
box. Please verify your user name and password when prompted
and click OK to try again."
    ClearException EnterVariablesCancelled
EndSub
```

**Example 2****Windows application definition**

This example prompts the user to change their password. Novell SecureLogin must handle password changes so the password is updated both in the application and in the user's 3DES encrypted store (in the directory against their user object).

```
# Change Password Dialog Box
Dialog
    Class #32770
    Title "Change Password"
EndDialog

Type $Username #1005
Type $Password #1006
OnException ChangePasswordCancelled Call ForceChangePwd
ChangePassword $Password "Please enter a new password for the
Human Resources? application. IT x4532"
Type $Password #1007
Type $Password #1008
ClearException ChangePasswordCancelled

Sub ForceChangePwd
    OnException ChangePasswordCancelled Call ForceChangePwd
    ChangePassword $Password "You must enter a new password
and cannot Cancel.?
IT x432"
    Type $Password #1007
    Type $Password #1008
    ClearException ChangePasswordCancelled
EndSub
```

---

---

**Example 3****Windows application definition**

This example demonstrates the OnException usage of AAVerifyCancelled and AAVerifyFailed.

```
#
# Login - Simple
#
Dialog
    Title "Login - Simple"
    Class "#32770"
    Ctrl #1001
    Ctrl #1002
    Ctrl #1 "&Login"
    Ctrl #2 "Cancel"
    Ctrl #1027 "Username:"
    Ctrl #1028 "Password:"
    Ctrl #1009
EndDialog
    OnException AAVerifyCancelled Call
CancelSimpleLoginDialogCancelled
    OnException AAVerifyFailed Call
CancelSimpleLoginDialogFailed
    AAVerify -method "smartcard"
    Type $Username #1001
    Type $Password #1002
    Click #1
#
# Cancel the Simple Login Window - AAVerify cancelled
#
Sub CancelSimpleLoginDialogCancelled
    Click #2
    EndScript
EndSub
#
# Cancel the Simple Login Window - AAVerify failed
#
Sub CancelSimpleLoginDialogFailed
    Click #2
    MessageBox "Your re-authentication failed. Login
canceled"
    EndScript
EndSub
```

---



---


**Example 4****Windows application definition**

This example demonstrates the OnException usage of GenerateOTPCancelled and GenerateOTPFailed.

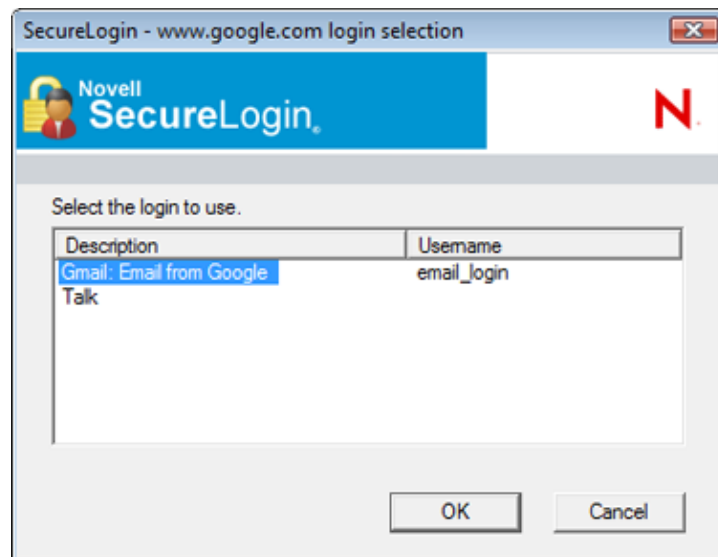
```
#
# Login - Simple
#
Dialog
    Title "Login - Simple"
    Class "#32770"
    Ctrl #1001
    Ctrl #1002
    Ctrl #1 "&Login"
    Ctrl #2 "Cancel"
    Ctrl #1027 "Username:"
    Ctrl #1028 "Password:"
    Ctrl #1009
EndDialog
    OnException GenerateOTPCancelled Call
CancelSimpleLoginDialogCancelled
    OnException GenerateOTPFailed Call
CancelSimpleLoginDialogFailed
    GenerateOTP -mode "AISC-SKI" ?OtpResult
    Type $Username #1001
    Type ?OtpResult #1002
    Click #1
#
# Cancel the Simple Login Window - GenerateOTP cancelled
#
Sub CancelSimpleLoginDialogCancelled
    Click #2
EndScript
EndSub
#
# Cancel the Simple Login Window - GenerateOTP failed
#
Sub CancelSimpleLoginDialogFailed
    Click #2
    MessageBox "Your generation of your password failed.
Login cancelled"
EndScript
EndSub
```

---

This example demonstrates the OnException usage of `SelectLoginCancelled`. In the following example, we create another credential set of Gmail and later create a linked credential set.

1. Enable the first account for single sign-on. In this example, Gmail.
2. In the notification area, right-click the Novell SecureLogin  icon, then select *New Login*. The Add New Login Wizard Welcome page is displayed.
3. Select the application for which you want to add another login. In this example, Gmail.
4. Click *Next*.
5. In the *Description* field, specify a descriptive name for the login. For example, Talk.
6. Click *Finish*.
7. Start the application.

The <name of the application; in this example, `www.google.com`> login selection dialog box is displayed.



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

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

Dialog

Title "Login - Simple"

EndDialog

OnException SelectLoginCancelled Call CannotCancel

SetPlat Login1

Type \$username #1001

Type \$password #1002

Sub CannotCancel

MessageBox "You cannot cancel selecting to use a credential set, closing application."

#Send ALT+F4 to close application

type \ALT+\|115

EndScript

EndSub

## 5.2.56 Parent/EndParent

---

Use with	Windows
Novell SecureLogin version	3.5 or later
Type	Dialog specifier
Usage	ParentEnd  Parent
Arguments	None
Description	<p>Use the <code>Parent</code> command to begin a parent block in which the statements act upon a window's parent. The commands that follow the <code>Parent</code> command function identically to commands used in a dialog block; if they equate to false, then the application definition ends.</p> <p>For example, the command <code>Title</code> in a parent block returns false if the title of the parent does not match the one specified in the command. However, if a command in a parent block returns a false result, the execution does not skip to the next parent block, as it would in a dialog block. Instead, the parent block proceeds to the next dialog block or the application definition terminates if no further dialog blocks exists.</p> <p>The <code>Parent</code> command is particularly useful in applications where the dialog box (for example, a login dialog box) is the child of an open window, typically in the background. If you are unable to single sign-on to an application after enabling it with the wizard, you typically need to specify parent blocks.</p> <p>You can also use the <code>Parent</code> command to execute commands on a dialog's parent. For example, it is possible to get an application definition to click a button on the parent window. An example is shown below.</p> <p><b>EndParent command</b> Use the <code>EndParent</code> command to terminate a parent block and set the subject of the application definition back to the original window. You can nest the <code>Parent</code> command, thereby allowing the parent block to act on the parent of the parent.</p>

---

**NOTE:** If you use the wizard or try to enable an application and it does not seem to work, try using the `Parent` command. It is able to handle windows that are within windows.

---

Example 1	<p>Windows application definition</p> <p>This example specifies the dialog box that is used for log on. In this case, the parent of the login box has a class of "Centura:MDIFrame".</p> <pre> # Logon Dialog Box Class "Centura:Dialog"     Ctrl #4098     Ctrl #4100     Title "Log on"     Parent Class "Centura:MDIFrame"     EndParent  EndDialog  Type \$Username #4098 Type \$Password #4100 Click #4101 </pre>
Example 2	<p>Windows application definition</p> <p>This example is used to click a button on the login window's parent.</p> <pre> # Logon Dialog Box Dialog     Class #32770     Title "Log on" EndDialog  Type \$Username #1001 Type \$Password #1002 Parent Click #1 EndParent </pre>

## 5.2.57 PickListAdd

Use with	All
Novell SecureLogin version	3.5 or later (see note under Description below)
Type	Action
Usage	PickListAdd <Display-Text> [<Return-Value>]
Arguments	<Display-Text>
	The text displayed in the pick list for the specified option.
	<Return-Value>
	The value returned from the pick list. If not specified, the return value is the display text.

Description	<p>Use the <code>PickListAdd</code> command to allow users with multiple accounts for a particular system to choose the account to which they will log on.</p> <p>You can also use <code>PickListAdd</code> command to choose from multiple sessions on one mainframe account. Use the <code>PickList</code> to build a list of databases, phone numbers, or any list from which a user can choose. You can then set variables or take action accordingly.</p> <p><code>PickListAdd</code> is always used with the <code>PickListDisplay</code> and is typically also used in conjunction with the <code>SetPlat</code> command.</p> <hr/> <p><b>NOTE:</b> Change in usage from Novell SecureLogin 6.1 on. Setting variables after adding them to the list no longer results in the new value appearing in the list. For example:</p> <pre>PickListAdd ?Y Set ?Y "Text" PickListDisplay ...</pre> <p>will display the value &lt;not set&gt;</p> <hr/>
Example 1	<p>Java or Windows application definition</p> <p>In this example, the user has to pick which of three accounts to use. They pick which account they want to use, and Novell SecureLogin switches to that set of credentials using the <code>SetPlat</code> command.</p> <pre>## Logon Dialog Box ## Dialog     Title "Log on" EndDialog PickListAdd "Account One" "One" PickListAdd "Account Two" "Two" PickListAdd "Account Three" "Three" PickListDisplay ?Account "Please select the account you wish to use"-NoEdit SetPlat ?Account Type \$Username #1001 Type \$Password #1002 Click #1 ## End Logon Dialog Box ##</pre>
Example 2	<p>Any application definition</p> <p>In this example, the application should execute and when Novell SecureLogin runs it should display the numbers 1 - 10.</p> <pre>Set ?Count "1" Repeat 10     PickListAdd ?Count     Increment ?Count EndRepeat PickListDisplay ?Count "Please select your option " -NoEdit</pre> <hr/>

---

**Example 3** Java or Windows application definition

In this example, Novell SecureLogin reads the following window and prompts the user with the items in the *Other* list:



```
###Logon
PickListAdd #3
PickListDisplay ?Database "Select your database" -NoEdit
SetPlat ?Database
Type #1 $Username
Type #2 $Password
Select ?Database #3
###End logon##
```

---

## 5.2.58 PickListDisplay

---

Use with	Startup, Terminal Launcher, Web, or Windows
Novell SecureLogin version	3.5 or later
Type	Action
Usage	PickListDisplay <?Variable> <Display-Text> [-NoEdit]
Arguments	<p><b>&lt;?Variable&gt;</b></p> <p>The output variable for the selected option.</p> <p><b>&lt;Display-Text&gt;</b></p> <p>The description text for the pick list box.</p> <p><b>-NoEdit</b></p> <p>The -NoEdit flag disables the addition of extra variables by the user.</p>
Description	<p>Use the <code>PickListDisplay</code> command to display the pick list entries built by previous calls to <code>PickListAdd</code>. The <code>PickListDisplay</code> command returns the result in a &lt;?Variable&gt; sent to the command.</p> <p>If the desired entry is not among the displayed entries, the user can enter their own data into an edit field at the bottom of the pick list. Set the -NoEdit flag to turn this feature off.</p>
Syntax examples	<pre>PickListDisplay ?Choice "Please select the account you wish to use" PickListDisplay ?Choice "Please select the account you wish to use" -NoEdit</pre>

---

Example	<p>Windows example</p> <p>In this example, the user has three accounts to this application and wants to pick which one to use. They pick which account they want to use and Novell SecureLogin uses the <code>SetPlat</code> command to switch to that set of credentials.</p> <pre># Logon dialog box Dialog   Class #32770   Title "Log on" EndDialog PickListAdd "Account one" "One" PickListAdd "Account two" "Two" PickListAdd "Account three" "Three" PickListDisplay ?Account "Please select the account you wish to use" -NoEdit SetPlat ?AccountType \$Username #1001 Type \$Password #1002 Click #1</pre>
---------	---

## 5.2.59 PositionCharacter

Use with	Password Policy application definitions
Novell SecureLogin version	3.5 or later
Type	Action
Usage	POSITIONCHARACTER [NUMERAL] [UPPERCASE] [LOWERCASE] [PUNCTUATION] <Position>, [<Position>].
Arguments	<p><b>[NUMERAL]</b></p> <p>The character at &lt;Position&gt; must be a numeral.</p> <p><b>[UPPERCASE]</b></p> <p>The character at &lt;Position&gt; must be an uppercase character.</p> <p><b>[LOWERCASE]</b></p> <p>The character at &lt;Position&gt; must be a lowercase character.</p> <p><b>[PUNCTUATION]</b></p> <p>The character at &lt;Position&gt; must be a punctuation character.</p> <p><b>&lt;Position&gt;</b></p> <p>The character position in the password.</p>
Description	<p>Use this command in a password policy application definition to enforce that a certain character in the password is a numeral, uppercase, lowercase, or a punctuation character.</p> <p>You can specify multiple positions.</p>

Example	The password is not valid unless the first, sixth, and seventh characters are uppercase.
	<code>POSITIONCHARACTER UPPERCASE 1,6,7</code>

## 5.2.60 PressInput

Use with	Advanced Web application definitions created using the Web Wizard.
Novell SecureLogin Version	3.5.x or later
Type	Action
Usage	<code>PressInput [#FormID:FieldID [-press "press"]]</code>
Arguments	<p><code>PressInput</code></p> <p>Simulates a keyboard enter event. Optionally focusing a given field beforehand.</p> <p><code>#FormID:FieldID</code></p> <p>The ID that was given to the matched field in the Site block using <code>MatchField</code> command. The FormID and FieldID must be unsigned integers.</p> <p><code>-press "press"</code></p>
Description	Simulates pressing the keyboard Enter key.
Example	<p>This example the <code>PressInput</code> command within the application definition is the equivalent of clicking the Sign In button on the <code>www.google.com</code> Web site.</p> <pre># === Logon Application Definition #2 == # === Google Initial Logon ==== #===== Site Login -userid "Google Log On" -initial MatchForm #1 -name "log on" MatchDomain "www.google.com" MatchField #1:1 -name "Email" -type "text" MatchField #1:2 -name "Passwd" -type "password" MatchField #1:3 -name "Cookie" -type "check" EndSite SetPrompt "Enter your user credentials" TextInput #1:1 -value "\$Username" TextInput #1:2 -value "\$Password" FocusInput#1:2 -focus "true" BooleanInput #1:3 -check "false" PressInput Endscript</pre>

## 5.2.61 ReadText

Use with	Terminal Launcher, Windows. This command applies specifically to HLLAPI, WinHLLAPI and HLLAPI 16 terminal emulators.
----------	--



Novell SecureLogin version	3.5 or later
Type	Action
Windows Usage	ReadText <#Ctrl-ID> <?Variable> ReadText [-order] <#Order-ID>
Terminal Launcher Usage	ReadText <?Variable> <Character-Number> <Row-Number> <Column-Number>
Arguments	<p>[-order]</p> <p>If the control ID's are not constant, utilize the -order argument to instruct Novell SecureLogin to type into a control based on the creation order and not the tab order. For more information on the -order argument usage, see <a href="#">"Example 4" on page 168</a>.</p> <p><b>&lt;#Ctrl-ID&gt;</b></p> <p>The control ID number of the text to read.</p> <p><b>&lt;#Order-ID&gt;</b></p> <p>For Windows application definitions, this parameter specifies which control based on the creation order in which to type the text.</p> <p><b>&lt;?Variable&gt;</b></p> <p>The variable that receives the text that is read.</p> <p><b>&lt;Character-Number&gt;</b></p> <p>The number of characters to read.</p> <p><b>&lt;Row-Number&gt;</b></p> <p>The horizontal position number of the first character to read (for example, row).</p> <p><b>&lt;Column-Number&gt;</b></p> <p>The vertical position number of the first character to read (for example, column).</p>
Description	<p>Use the ReadText command to run in both Windows and Terminal Launcher application definitions. While the usage and arguments for the use of ReadText with Windows and Terminal Launcher are different, the results of each command are the same.</p> <p><b>Windows application definition</b> In a Windows application definition, the ReadText command reads the text from any given &lt;#Ctrl-ID&gt;, and sends it to the specified variable. For this command to function correctly, the &lt;#Ctrl-ID&gt; must be valid.</p> <p><b>Terminal Launcher application definition</b> In a Terminal Launcher application definition, the ReadText command reads a specified number of characters, starting at the &lt;Row-Number&gt;, and sends those characters to the specified &lt;Variable&gt;. The ReadText command will not work with Generic or Advanced Generic emulators, it only works with HLLAPI and some DDE emulators. For Generic or Advanced Generic emulators, use the If -Text or Gettext commands.</p> <p>For more information, see <a href="#">Section 5.2.40, "If/Else/EndIf," on page 98</a> and <a href="#">Section 5.2.36, "GetText," on page 96</a>.</p>
Syntax examples	<pre>ReadText #301 ?Text ReadText ?Text 4 6</pre>

---

Example 1	<p>HLLAPI emulator</p> <pre>Readtext ?result "X" "Y" "Z"</pre> <p>X = The number of characters to read.</p> <p>Y= The row from which the characters are read.</p> <p>Z= The column from which the characters are read.</p>
Example 2	<p>Windows script</p> <pre>ReadText #1004 ?result</pre>
Example 3	<p>Windows application definition</p> <p>The same title and class appear in the error message dialog box when a user fails to log on.</p> <p>This example distinguishes between errors and provides users with more specific information, rather than a general message stating their username and password is incorrect, or the account is locked. In this case, the example reads the error message, clicks OK, and prompts the user with a customized message.</p> <pre># Logon Failed Message Dialog     Class #32770     Title "Log on failed" EndDialog  ReadText #65535 ?ErrorMsg Click #1 If "Invalid Username" -In ?ErrorMsg    Display-Variables     "Please verify your Username and try again." \$Username     Type \$Username #1001     Type \$Password #1002     Click #1 EndIf If "Invalid Password" -In ?ErrorMsg    Display-Variables     "Please verify your Password and try again." \$Password     Type \$Username #1001     Type \$Password #1002     Click #1 EndIf If "Account locked" -In ?ErrorMsg    MessageBox "Your account is locked. Please contact the IT help- desk on x4532."     EndScript EndIf</pre>

---

Example 4	Windows application definition
	<p>This example reads the text from a control ID and sets the database variable so the user is not prompted to set the variable.</p>
	<pre># Logon Dialog Box Dialog     Class #32770     Title "Log on" EndDialog ReadText #15 ?Database If -Exists \$Database Else     Set \$Database ?Database EndIf Type \$Username #1001 Type \$Password #1002 Type \$Database #1003 Click #1</pre>
Example 5	Terminal Launcher application definition
	<p>This example reads a message in a trminal emulator and displays the message in a user friendly format.</p>
	<pre>ReadText ?Message 30 24 2 MessageBox ?Message</pre>
Example 6	Windows application definition
	<p>This example reads the text from a control defined by its creation order and sets the database variable so the user is not prompted to set the variable.</p>
	<pre># Logon Dialog Box Dialog     Class #32770     Title "Log on" EndDialog ReadText -order #5 ?Database If -Exists \$Database Else     Set \$Database ?Database EndIf Type \$Username #1001 Type \$Password #1002 Type \$Database #1003 Click #1</pre>

## 5.2.62 RegSplit

When using regular expressions with the `RegSplit` command, ensure that any regular expressions comply with the syntax rules detailed under [Section 4.3.8, “Regular Expressions,” on page 51](#).

Use with	All
Novell SecureLogin version	3.5 or later
Type	Action

Usage	RegSplit <RegEx> <Input-String> [<Output-String1> [<Output-String2>]...]
Arguments	<p><b>&lt;RegEx&gt;</b></p> <p>The regular expression.</p> <p><b>&lt;Input-String&gt;</b></p> <p>The string that to split.</p> <p><b>&lt;Output-String1&gt;</b></p> <p>The first sub-expression.</p> <p><b>&lt;Output-String2&gt;</b></p> <p>The second sub-expression.</p>
Description	<p>Use the <code>RegSplit</code> command to split a string using a regular expression. &lt;Output-String1&gt; and &lt;Output-String2&gt; contain the first and second sub-expressions respectively.</p> <p>For more information regarding regular expressions see:</p> <p><a href="http://www.boost.org/doc/libs/1_33_1/libs/regex/doc/syntax_perl.html">www.boost.org/doc/libs/1_33_1/libs/regex/doc/syntax_perl.html</a> (<a href="http://www.boost.org/doc/libs/1_33_1/libs/regex/doc/syntax_perl.html">http://www.boost.org/doc/libs/1_33_1/libs/regex/doc/syntax_perl.html</a>)</p> <p>For information regarding Microsoft regular expression usage, search the Microsoft MSDN Library at:</p> <p><a href="http://msdn2.microsoft.com/en-us/library/default.aspx">http://msdn2.microsoft.com/en-us/library/default.aspx</a> (<a href="http://msdn2.microsoft.com/en-us/library/default.aspx">http://msdn2.microsoft.com/en-us/library/default.aspx</a>)</p>
Example 1	<p>Windows application definition</p> <p>This example copies text from control ID 301 to the ?Text variable. The <code>RegSplit</code> command is then used to strip the user name details out of the text that was read. The platform is set to that user name, and the correct password is entered by Novell SecureLogin.</p> <pre># Logon Dialog Box Dialog     Class #32770     Title "Log on" EndDialog ReadText #65535 ?Text RegSplit "Please enter the password for (.*?) account" ?Text ?UserSetPlat ?User Type \$Username #1001 Type \$Password #1002 Click #1</pre>

Example 2	<p>How to handle regsplit exception with OnException</p> <pre> # Logon Dialog Box Dialog     Title "Untitled - Notepad" EndDialog Set ?Url "Oneabc" Type ?Url Type \n # Create exception handler OnException RegSplitFailed Call RegSplitError # Provide suspicious regular expression, note the "\)" below RegSplit "(.*\)abc(.*)" ?Url ?Lhs ?Rhs StrCat ?Url ?Lhs ", " ?Rhs MessageBox ?Url ClearException RegSplitFailed Sub RegSplitError     # print out RegSplitReturnCode     Type "RegSplitError: "     Type ?RegSplitReturnCode     Type \n EndScript EndSub </pre>
Open text example	<pre>#?InputString: "This is a long string with a few components in it"</pre>
Command	<pre>RegSplit "This (.*?) a long (.*?) with (.*?) components (.*?) " ?InputString ?First ?Second ?Third ?Fourth</pre>
Result	<pre>?First = "is", ?Second = "string", ?Third = "a few", ?Fourth = "in it"</pre>

## 5.2.63 ReLoadPlat

When an application first presents a login screen, Novell SecureLogin displays a message prompting the user to select an appropriate platform from a list. Once selected, Novell SecureLogin enters the chosen platform's credentials into the application and submits them.

### Resolving the issue of re-entering user ID details

If log on fails due to incorrect credentials, Novell SecureLogin prompts the user to change their credentials. Novell SecureLogin does not retain the platform details and prompts the user to re-enter the information. This could result in the user changing the wrong credentials if they select the incorrect platform.

The `SetPlat`, `ReLoadPlat` and `ClearPlat` commands resolve this issue. `ReloadPlat` sets the current platform to the one which was last chosen (for the given application) or, if a platform was not previously selected, the command will leave it unset.

See also [Section 5.2.76, “SetPlat,” on page 148](#) and [Section 5.2.11, “ClearPlat,” on page 72](#).

Use with	Startup, Terminal Launcher, Web, or Windows
Novell SecureLogin version	3.5 or later

Type	Action
Usage	<p>Use the <code>ReLoadPlat</code> command at:</p> <ul style="list-style-type: none"> <li>♦ Log on. Before the user first logs onto the application, call <code>ReLoadPlat</code>. This prevents the user from having to reselect a platform after a failed log on.</li> <li>♦ Failed log on. Call <code>ReLoadPlat</code> to reselect the platform that contained the incorrect credentials. This gives the user an opportunity to change the credentials using a <code>ChangePassword</code> or a <code>DisplayVariables</code> command.</li> </ul>
Arguments	None
Description	Use to set the current platform to the last one chosen by the application definition or, if a platform is not chosen, leaves the platform unset.
Example	<p>Windows application definition</p> <pre># ==== BeginSection: Application startup ==== Dialog     Class "#32770"     Title "Password Test Application" EndDialog ClearPlat # ==== EndSection: Application startup ====  # ==== BeginSection: Log on ==== Dialog     Class "#32770"     Title "Log on"     Ctrl #1001 EndDialog ReLoadPlat SetPrompt "Username =====&gt;" &gt;Type \$Username #1001 SetPrompt "Password =====&gt;" &gt;Type \$Password #1002 SetPrompt "Domain =====&gt;" &gt;Type \$Domain #1003 Click #1 # ==== EndSection: Log on ====  ## ==== BeginSection: Log on successful ==== Dialog     Class "#32770"     Title "Log on successful" EndDialog ClearPlat Click #2 # ==== EndSection: Log on successful =====</pre>

---

```

Example (continued) # ==== BeginSection: Log on failure ====
                    Dialog
                      Class "#32770"
                      Title "Log on failure"
                    EndDialog
                    Click #2

                    ReLoadPlatOnException ChangePasswordCancelled Call Change-
                    Cancelled
                    ChangePassword $password
                    ClearException ChangePasswordCancelled
                    Type -raw \Alt+F
                    Type -raw L
                    # ==== EndSection: Log on failure ====

                    # ==== BeginSection: Change credentials cancelled ====
                    Sub ChangeCancelled
                      ClearPlat
                    EndScriptEndSub
                    # ==== EndSection: Change credentials
                    Cancelled ===

```

---

## 5.2.64 Repeat/EndRepeat

---

Use with	All
Novell SecureLogin version	3.5 or later
Type	Action
Usage	Repeat [ <b>Loop#</b> ] EndRepeat
Arguments	<b>[Loop#]</b>
	The number of times the repeat application definition block is repeated. If not specified, the repeat continues indefinitely unless broken by other commands.
Description	Use the Repeat command to establish an application definition block similar to the If command. The repeat block is terminated by an EndRepeat command. Alternatively, you can use the Break or EndScript commands to break out of the loop.
Syntax examples	Repeat Repeat 3

---

Example	Terminal application definition
	<p>This example uses the <code>Repeat</code> command to watch the screen for the messages and responds accordingly. You can use the <code>Break</code> command to jump to the next repeat loop in the application definition.</p> <pre> # Initial System Log on WaitForText "login:" Type \$Username Type @E WaitForText "password:" Type \$Password Type @E Delay 500 #Repeat loop for error handling Repeat #Check to see if password has expired   If -Text "EMS: The password has expired." ChangePassword #Password Type \$Password Type @E Type \$Password Type @E   EndIf #User has an invalid Username and / or # Password stored.   If -Text "Log on Failed" DisplayVariables "The username and / or password stored by SecureLogin is invalid. Please verify your credentials and try again. IT x453." Type \$Username Type @E Delay 500 WaitForText "password:" Type \$Password Type @E Delay 500   EndIf # Account is locked for some reason, possibly inactive.   If -Text "Account Locked" MessageBox "Your account has been locked, possibly due to inactivity for 40 days. Please contact the administrator on x453."   EndIf # Main Menu, user has logged on successfully.   If -Text "Application Selection" Break   EndIf Delay 100 EndRepeat </pre>

## 5.2.65 RestrictVariable

Use with	All
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Novell SecureLogin version	3.5 or later
Type	Action
Usage	RestrictVariable <Variable-Name> <Password-Policy>
Arguments	<Variable-Name> The name of the variable to restrict. <Password-Policy> The name of the policy to enforce on the variable.
Description	<p>Use the <code>RestrictVariable</code> command to monitor a variable and enforce a specified password policy on the variable. Any variable specified must match the policy or it is not saved.</p> <p>When restricting variables to policies, if you are making a tighter policy than is already in place, and you restrict a variable that does not match the policy today, then the user cannot save it the first time. This is because when Novell SecureLogin detects there is no saved credential, a user who has a password of 6 characters today cannot save it if the policy restricts the <code>\$Password</code> variable to 8 characters and 2 numbers.</p> <p><a href="#">"Example 2" on page 139</a> works around this by restricting a new password variable (<code>?NewPwd</code>), instead of restricting the <code>\$Password</code> variable. The user can store their existing password when Novell SecureLogin prompts for the credentials first time, and enforces the stronger password policy when the password expires in x days.</p> <p>You can restrict any variable using a password policy, not just a <code>\$Password</code>. You can also use <code>RestrictVariable</code> to make sure other variables are entered in the correct format. For example, you can enforce that <code>\$Username</code> is always lowercase or <code>\$Database</code> is 6 characters and no numbers.</p>

---

---

**Example 1****Windows application definition**

This example uses the application definition to restrict 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 randomly based on that policy (no user intervention is required).

```
# Set the password to use the Finance password policy
RestrictVariable $Password FinancePwdPolicy
```

```
#Logon Dialog Box
Dialog
    Class #32770
    Title "Log on"
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
```

---

---

**Example 2****Windows application definition**

This example uses the application definition to restricts the ?NewPwd variable to the Finance password policy. When the application starts for the first time and prompts the user to enter their credentials, then their current password (\$Password) is saved and used.

When the password expires, the password policy is enforced on any new password. This is a way to enforce tougher password policies (than are currently in place) when you cannot guarantee all existing passwords meet the new policy.

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

---

## 5.2.66 Run

---

Use with	Startup, Terminal Launcher, Web, or Windows
Novell SecureLogin version	3.5 or later
Type	Action
Usage	Run <Command> [<Arg1> [<Arg2>] ...]
Arguments	<b>&lt;Command&gt;</b>  The full path of the program to execute.  <b>&lt;Arg1&gt;, &lt;Arg2&gt;</b>  An optional list of arguments and switches for the command.
Description	Use the Run command to launch the program specified in <Command> with the specified optional [<Arg1> [<Arg2>] ...] arguments.  The application definition does not wait for the launched program to complete.

---

Example	<p>Startup application definition</p> <p>This example prompts the user to start the Finance System.</p> <p>If they click:</p> <ul style="list-style-type: none"> <li>♦ <b>Yes</b>, the <code>Run</code> command is used to start the application with the necessary switches.</li> <li>♦ <b>No</b>, a message box is displayed, and the application is not started.</li> </ul> <pre> MessageBox "Would you like to connect to the Finance System?" -YesNo ?Result If ?Result Eq "Yes"     Run "C:\Program Files\HRS\Finance.exe" "/DB:HRS" "/Debug" Else     MessageBox "You have chosen not to run the Finance System. Please do so manually." EndScript EndIf </pre>
---------	--

## 5.2.67 Select

Use with	Java, Advanced Web, Windows
Novell SecureLogin version	6.1 or later
Type	Action
Usage	Select <Text of Item to select> [<#Ctrl-ID>]
Arguments	<p>&lt;Text of Item to select&gt;</p> <p>The text item that you want Novell SecureLogin to select in the list box.</p> <p>&lt;#Ctrl-ID&gt;</p> <p>When multiple list boxes are found, this specifies which list box to address.</p>
Description	Use the <code>Select</code> command to select entries from a combo or list style control.
Examples	<p>This example picks an item from the session combo or list control:</p> <pre>Select ?session #1</pre> <p>This example selects a tab within another tab control. When one tab control is contained within another, the tab selection order is irrelevant.</p> <pre>Select "Quick Connect" #70 Select "Connection" #69</pre> <p>This example selects a cell from within a table</p> <pre>Select "[0,0]" #1 If -text "User" #1     Select "[0,1]" #1     Type \$Username #1 Endif</pre>

## 5.2.68 SelectListBoxItem

---

Use with	Advanced Web application definitions
Novell SecureLogin version	3.5 or later
Type	Action
Usage	SelectListBoxItem <Text of Item to set to [<#Ctrl-ID>, [<-multiselect>]
Arguments	<p>&lt;Text of Item to set to&gt;</p> <p>The text item that you want Novell SecureLogin to select in the list box.</p> <p>&lt;#Item Number&gt;</p> <p>When multiple list boxes are found, this specifies which list box to address.</p> <p>&lt;-multiselect&gt;</p> <p>Used to select multiple list box entries by using a subsequent SelectListBoxItem command.</p>
Description	<p>Use the SelectListBoxItem command to select entries from a list box.</p> <p>For instructions on determining &lt;#Ctrl-IDs&gt;, see <a href="#">Section 5.2.22, "DumpPage," on page 86</a>.</p>
Example	<pre>SelectListBoxItem "Remember defects" #2 -multiselect SelectListBoxItem "Remember enhancements" #2 -multiselect</pre>

---

## 5.2.69 SelectOption

---

Use with	Advanced Web application definitions.
Novell SecureLogin version	3.5.x or later
Type	Action
Usage	<p>SelectOption #FormID:FieldID:OptionID -select &lt;true false&gt;</p> <p>or</p> <p>SelectOption #FormID:FieldID -clear</p>

---

Arguments	<p>#FormID:FieldID:OptionID</p> <p>The ID that was given to the matched option in the Site block using the <code>MatchOption</code> command. The FormID, FieldID, and OptionID must be unsigned integers.</p> <p>-select "select"</p> <p>Selects or deselects a specific option.</p> <p>"select" is a Boolean value, either "true" or "false".</p> <p>-clear</p> <p>Deselects all options for the given control.</p>
Description	Use the <code>SelectOption</code> command to select or deselect options within a list box or combo dialog box.
Example	<p>This example clears the selection in the option list and selects option 2 only.</p> <pre>SelectOption #1:3 -clear SelectOption #1:3:2 -select true</pre>

## 5.2.70 SendEvent

Use with	All
Novell SecureLogin Version	7.0
Type	Action
Usage	<code>SendEvent &lt;Windows Handle&gt; &lt;Event Specifier&gt;</code>
Arguments	<p>&lt;Windows Handle&gt;</p> <p>A valid windows handle. This should be a local variable with the handle initialised via a call to <code>GetHandle</code>. Alternatively, it is possible to broadcast the event by using the Windows constant <code>HWND_BROADCAST</code>.</p> <p>&lt;Event Specifier&gt;</p> <p>See <a href="#">Section 5.2.24, "Event/Event Specifiers," on page 87</a> for the applicable conditions. In addition, a new custom single sign-on event can be used, <code>SSO_NOTIFY</code>.</p>
Description	<p>Use the <code>SendEvent</code> command with constants:</p> <ul style="list-style-type: none"> <li>◆ <code>HWND_BROADCAST</code> to send an event to all windows</li> <li>◆ <code>SSO_NOTIFY</code> to send a custom single sign-on event</li> </ul>
Example 1	<p>Send <code>WM_SETFOCUS</code> using a captured handle</p> <pre>Event WM_SETFOCUS .... GetHandle ?handle SendEvent ?handle WM_SETFOCUS</pre>

Example 2	Broadcast the custom SSO_NOTIFY event
	<pre>Event SSO_NOTIFY .... SendEvent HWND_BROADCAST SSO_NOTIFY</pre>

## 5.2.71 SendKey

Use with	Terminal Launcher
Novell SecureLogin Version	3.5 or later
Type	Action
Usage	SendKey <Text>
Arguments	<p>&lt;Text&gt;</p> <p>The text typed into the emulator screen.</p>
Description	<p>Use the <code>SendKey</code> command to work only with Generic and Advanced Generic emulators. You can use the <code>SendKey</code> command in the same manner as the <code>Type</code> command. Generally, the <code>Type</code> command is the preferred command to use. The <code>Type</code> command places the text into the clipboard, and then pastes it into the emulator screen. The <code>SendKey</code> command enters the text directly into the emulator screen.</p> <p><b>Using the Type Command:</b> Variables do not work with the <code>SendKey</code> command. If you want to use variables, use the <code>Type</code> command.</p> <p>The <code>Type</code> command has many special functions, and some you can use with the <code>SendKey</code> command. For more information, see <a href="#">Section 5.2.90, "Type," on page 165</a> and <a href="#">Chapter 7, "Reference Commands and Keys," on page 179</a>.</p>
Example	<p>Terminal Launcher application definition</p> <p>The example sends the username and password to the terminal emulator.</p> <pre>#Send User Name SendKey "DJones" SendKey "\N" #Send Password SendKey "Hu7%f" SendKey "\N"</pre>

## 5.2.72 Set

Use with	All
Novell SecureLogin version	3.5 or later
Type	Action
Usage	Set <Variable> <Data>

---

Arguments	<p><b>&lt;Variable&gt;</b></p> <p>The variable to which the data is being assigned.</p> <p><b>&lt;Data&gt;</b></p> <p>The text or variable read from and assigned to the variable. If the data argument contains a ? then it must be escaped (\?), for example:</p> <pre>Set ?Message "\\?Username"</pre>
Descriptions	<p>Use the <code>Set</code> command to copy the value of <code>&lt;Data&gt;</code> into <code>&lt;Variable&gt;</code>. The <code>&lt;Data&gt;</code> can be any text or another variable, whereas the <code>&lt;Variable&gt;</code> must be either a <code>?Variable</code> or <code>\$Variable</code>.</p>
Example 1	<p>Windows application definition</p> <p>This example uses the application definition to set a <code>?RunCount</code> variable to count the number of times the application is run.</p> <pre># Logon Dialog Box Dialog   Class #32770   Title "Log on" EndDialog  If ?RunCount Eq &lt;NOTSET&gt;   Set ?RunCount "1" Else   Increment ?RunCount EndIf  Type \$Username #1001 Type \$Password #1002 Click #1</pre>

---



---

**Example 2****Windows application definition**

This example uses the application definition to set the ?NewPwd to the stored \$Password variable.

```
# Logon Dialog Box
Dialog
  Class #32770
  Title "Log on"
EndDialog

Type $Username #1001
Type $Password #1002
Click #1

# Change Password Dialog Box
Dialog
  Class #32770
  Title "Change Password"
EndDialog

Type $Username #1015
Type $Password #1004
ChangePassword ?NewPwd Random
Type ?NewPwd #1005
Type ?NewPwd #1006
Set $Password ?NewPwd
Click #1
```

**Example 3****Windows application definition**

This example uses the application definition to read the value of control ID 15 and sets the \$Database variable so the user does not have to set the variable.

```
# Logon Dialog Box
Dialog
  Class #32770
  Title "Log on"
EndDialog

ReadText #15 ?Database
If -Exists $Database
Else
  Set $Database ?Database
EndIf
```

---

## 5.2.73 SetCheckBox

---

Use with	Advanced Web, Windows
Novell SecureLogin version	3.5 or later
Type	Action
Usage	SetCheckBox <Item Number> <Option>

---

Arguments	<p><b>&lt;Item Number&gt;</b></p> <p>The check box in reference to the number of check boxes found.</p> <p><b>&lt;Option&gt;</b></p> <p>Specifies the status of the check box as Checked or Unchecked.</p>
Description	Use the <code>SetCheckBox</code> command to select or clear a check box.
Example	<pre> MessageBox "Scroll down to see the 'Search Language' section with the check boxes then click OK"setcheckbox #1 "checked" setcheckbox #2 "checked" setcheckbox #3 "checked" setcheckbox #4 "checked" setcheckbox #25 "checked" setcheckbox #26 "checked" setcheckbox #27 "checked" MessageBox "Did it select the first four languages and Norwegian, Polish and Portuguese languages" -yesno ?advweb if ?advweb eq yes set ?cmd37 "SetCheckBox command worked" elseset ?cmd37 "SetCheckBox failed" endifset checkbox #1 "unchecked" setcheckbox #2 "unchecked" setcheckbox #3 "unchecked" setcheckbox #4 "unchecked" setcheckbox #26 "unchecked" setcheckbox #27 "unchecked" MessageBox "Did it clear all languages except Norwegian" - yesno ? advweb2 if ?advweb2 eq yes set ?cmd38 "SetCheckBox command worked" else set ?cmd38 "SetCheckBox failed" endif </pre>

## 5.2.74 SetCursor

Use with	Terminal Launcher (only available in HLLAPI and some DDE emulators)
Novell SecureLogin version	3.5 or later
Type	Action
Usage 1	SetCursor <b>&lt;Screen-Position&gt;</b>
Usage 2	SetCursor <b>&lt;X Co-ordinate&gt; &lt;Y Co-ordinate&gt;</b>

Arguments	<p><b>&lt;Screen-Position&gt;</b></p> <p>The position on the screen to move the cursor.</p> <p><b>&lt;X Co-ordinate&gt;</b></p> <p>The horizontal coordinate. When specified, a row or column conversion is carried out before the cursor is set to the position.</p> <p><b>&lt;Y Co-ordinate&gt;</b></p> <p>The vertical coordinates. When specified, a row or column conversion is carried out before the cursor is set to the position.</p>
Description	<p>Use the <code>SetCursor</code> command to set the cursor to a specified &lt;Screen-Position&gt; or &lt;X Co-ordinate&gt; &lt;Y Co-ordinate&gt;.</p> <p>The position is noted by a number greater than 0 (zero), for example, <code>SetCursor 200</code>. Terminal Launcher displays an error message if the screen position is invalid.</p>
Syntax examples	<pre>SetCursor 200</pre> <pre>SetCursor 100 500</pre>
Example	<p>Terminal Launcher application definition</p> <p>This example sets the cursor to the correct position, and then you enter credentials.</p> <pre>SetCursor 200 Type \$Username Type @E Type \$Password Type @E</pre>

## 5.2.75 SetFocus

Use with	Java, Web, Windows
Novell SecureLogin version	3.5 or later
Type	Action
Arguments	<p><b>&lt;#Ctrl-ID&gt;</b></p> <p>The ID number of the control to which the keyboard focus is directed.</p>
Description	<p>Use the <code>SetFocus</code> command to set the keyboard focus to a specified control ID.</p> <p>A valid control ID is required for the <code>SetFocus</code> command to function correctly.</p>

Example	<p>Windows application definition</p> <p>This example sets the focus to the username field (#1001). The username is typed and a tab stop is simulated, and then the password is typed and pressing <i>Enter</i> is simulated.</p> <pre># Logon Dialog Box Dialog     Class #32770     Title "Log on" EndDialog  SetFocus #1001 Type \$Username Type \T Type \$Password Type \N</pre>
---------	--

## 5.2.76 SetPlat

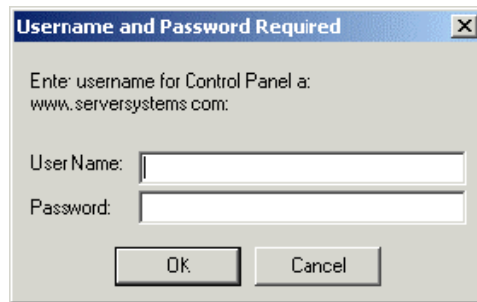
Use with	All
Novell SecureLogin version	3.5 or later
Type	Action
Usage 1	SetPlat <Application-Name>
Usage 2	SetPlat <RegEx> <Variable> <#Ctrl-ID>
Arguments	<p><b>&lt;Application-Name&gt;</b></p> <p>Application name from which to read the variables.</p> <p><b>&lt;RegEx&gt;</b></p> <p>Regular expression to use as application name.</p> <p><b>&lt;Variable&gt;</b></p> <p>Use a previously set ?Variable, for example, using a PickList (see <a href="#">Section 5.2.57, "PickListAdd," on page 124</a>).</p> <p><b>&lt;#Ctrl-ID&gt;</b></p> <p>The control ID number of the regular expression. For information regarding regular expressions see:</p> <p><a href="http://www.boost.org/doc/libs/1_33_1/libs/regex/doc/syntax_perl.html">www.boost.org/doc/libs/1_33_1/libs/regex/doc/syntax_perl.html</a></p>

---

Description	<p>By default, variables are stored directly against the platform or application on which you have Novell SecureLogin enabled. For example, if you enable Groupwise.exe, the Groupwise credentials are stored against the Groupwise.exe platform.</p> <p>SetPlat sets the platform or application from which variables are read and saved if you have:</p> <ul style="list-style-type: none"><li>♦ Multiple accounts (for example, your own log on and an admin log on) accessing the same platform or application.</li><li>♦ Multiple platforms or applications using a common set of credentials?</li></ul> <p>Other uses of SetPlat include:</p> <ul style="list-style-type: none"><li>♦ Configuring application1 to read it's \$Username and \$Password from application2. This saves a user from entering the credentials twice and having to remember to update them in both locations when they change, and so on.</li><li>♦ Configuring application1, application2, and application3 to read the users credentials from Platform Common. This results in a single store of common credentials which you only need to update once.</li></ul>
-------------	---

---

The following is a standard dialog box for accessing a password-protected site using Netscape Navigator.



When you specify the Title, Class, User Name, and Password fields for this dialog box they are always the same. If you stored the user name and password against this platform without using the `SetPlat` command, the same user name and password for `www.serversystems.com` is entered to log on to any site (and are obviously invalid for any other site).

However, the previous dialog box always contains the name of the Web site to which to log on. You can use this name as the unique identifier in order to set a new platform and to save the log on credentials.

**Using a dialog block with a `SetPlat` statement** The solution is to use a dialog block with a `SetPlat` statement such as:

```
Dialog
  Ctrl #330
  Ctrl #214
  Ctrl #331
  Ctrl #1
  Ctrl #2
  Title "Username and Password Required"
  SetPlat #331 "Enter username for (.*?) at (.*?):"
EndDialog
Type $Username #214
Type $Password #330
Click #1
```

The power of this application definition is the line:

```
SetPlat #331 "Enter username for (.*?) at (.*?):"
```

This reads the line from dialog control ID 331, enters the user name for Control Panel at `www.serversystems.com`, and applies the regular expression to this text. Regular expressions are a way of manipulating text strings, however, for most purposes a few very basic commands work.

---

For information regarding regular expressions see:

[www.boost.org/doc/libs/1\\_33\\_1/libs/regex/doc/syntax\\_perl.html](http://www.boost.org/doc/libs/1_33_1/libs/regex/doc/syntax_perl.html) ([http://www.boost.org/doc/libs/1\\_33\\_1/libs/regex/doc/syntax\\_perl.html](http://www.boost.org/doc/libs/1_33_1/libs/regex/doc/syntax_perl.html))

When the user has run the application definition, they will see the user name and password saved as www.serversystems.com. The text matched inside the brackets then becomes the symbol application. If a dialog <#Ctrl-ID> is not specified, the symbol application is unconditionally changed to the application specified in <RegEx>. An unconditional `SetPlat` command is only valid if specified before `Dialog/EndDialog` statements.

#### Example 2

##### Windows application definition

This example displays a pick list and sets a new platform so multiple users can log on to the application. In this case, `SetPlat` creates a new platform called Default User, Global Administrator, or Regional Administrator, and the respective `$Username` and `$Password` is saved there.

```
# Logon Dialog Box
Dialog
    Class #32770
    Title "Log on"
EndDialog

PickListAdd "Default User"
PickListAdd "Global Administrator"
PickListAdd "Regional Administrator"
PickListDisplay ?Choice "Please select the account you wish
to use"-NoEdit
SetPlat ?Choice
Type $Username #1001
Type $Password #1002
Click #3
```

---

## 5.2.77 SetPrompt

---

Use with	All
Novell SecureLogin version	3.5 or later
Type	Action
Usage	<code>SetPrompt &lt;Prompt-Text&gt;</code>
Arguments	<code>&lt;Prompt-Text&gt;</code>  The customized text prompt displayed in the Enter Novell SecureLogin Variables dialog box.

---

Description	<p>Use the <code>SetPrompt</code> command to customize the text in the Enter Novell SecureLogin Variables dialog boxes. These dialog boxes are used to prompt the user for new variables. You can also use the <code>DisplayVariables</code> command to customize the prompt text in the dialog box (for previously stored variables).</p> <p>For more information, see <a href="#">Section 5.2.20, "DisplayVariables," on page 83</a>.</p> <hr/> <p><b>NOTE:</b> Positioning of the <code>SetPrompt</code> command is crucial. Position it before the first usage of each variable to name that variable, and apply the final <code>SetPrompt</code> to the text displayed at the top of the prompt screen.</p>
Example 1	<p>Windows application definition</p> <p>This example replaces the default text prompt in the Enter Novell SecureLogin Variables dialog box, and places the <code>SetPrompt</code> command at the bottom of the application definition.</p> <pre># Logon Dialog Box Dialog   Class #32770   Title "Log on" EndDialog   Type \$Username #1001   Type \$Password #1002   Click #1 SetPrompt "Please enter your user name and password for accessing the Human Resources system. These credentials will be remembered by SecureLogin and you will be automatically logged on in future. IT Help Desk x4532"</pre>
Example 2	<p>Windows application definition</p> <p>This example replaces the text prompt next to any variable entry field in the Enter Novell SecureLogin Variables box and places the <code>SetPrompt</code> command immediately before the variable in the application definition.</p> <pre># Logon Dialog Box Dialog   Class #32770   Title "Log on" EndDialog SetPrompt "Enter Username==&gt;" Type \$Username #1001 SetPrompt "Enter Password==&gt;" Type \$Password #1002 Click #1 SetPrompt "Please enter your user name and password for accessing the Human Resources system. These credentials will be remembered by SecureLogin and you will be automatically logged on in future. IT Help Desk x4532"</pre>

## 5.2.78 -SiteDeparted

Use With	Web
Novell SecureLogin version	3.5 or later



Type	Action
Argument	SiteDeparted is a conditional variable.
Description	Use the SiteDeparted variable in Web scripts to see if the current document is still active when used as part of an If statement.
Example	<p>The following example checks if the user has navigated away from the current Web site or not.</p> <p>If the users have navigated away from the Website, it informs the users and exists the script.</p> <pre> If -SiteDeparted     MsgBox "Script terminated, we have left the web- site" EndScript EndIf </pre>

## 5.2.79 Site/Endsite

Use with	Advanced Web application definitions created using the Web Wizard.
Novell SecureLogin Version	3.5.x or later
Type	Action
Usage	Site ["Name" [-userid "userid"] [-initial -subsequent -recent timeout] [-nonexclusive]]

Arguments	<p data-bbox="487 201 529 226">Site</p> <p data-bbox="487 254 1341 336">The Site/EndSite commands are used to match a particular site given a set of filters. Site/EndSite usage is much the same as the Dialog/EndDialog commands found in the windows scripting commands.</p> <p data-bbox="487 363 570 388">"Name"</p> <p data-bbox="487 415 1341 497">Name is a static string used to denote the site being matched. The Name cannot be a variable and the same value can be used by multiple Site commands to specify a match for the same site under differing conditions.</p> <p data-bbox="487 525 647 550">-userid "userid"</p> <p data-bbox="487 577 1195 602">Specifies the default set of credentials to be used for this site block.</p> <hr/> <p data-bbox="487 636 894 661"><b>NOTE:</b> "userid" must be a static string.</p> <hr/> <p data-bbox="487 699 550 724">-initial</p> <p data-bbox="487 751 1081 777">Specifies that this site block will only match the first time.</p> <p data-bbox="487 804 620 829">-subsequent</p> <p data-bbox="487 856 1341 905">Specifies that this site block will only match after an initial match has already been made.</p> <p data-bbox="487 932 647 957">-recent timeout</p> <p data-bbox="487 984 1341 1033">Specifies that this site block will only match if a previous match was made within the given timeout period.</p> <p data-bbox="487 1060 826 1085">Timeout is given in milliseconds.</p> <p data-bbox="487 1113 634 1138">-nonexclusive</p> <p data-bbox="487 1165 1341 1213">Specifies that even if this site block matches, other scripts and wizards will not be prevented from running.</p>
Description	<p data-bbox="487 1241 1260 1297">Site/EndSite begins and ends an application definition, in place of Dialog/EndDialog.</p> <p data-bbox="487 1325 1341 1434">The Site/EndSite commands have been added to allow for much finer control of Web site matching. No longer is a URL all that can be matched on. Detailed information of the loaded Web site can now be matched upon and used to execute blocks of scripting commands.</p> <p data-bbox="487 1461 1300 1509">Site/EndSite blocks are used to define all the parameters Novell SecureLogin would expect to find on a Web page to run the application definition.</p> <p data-bbox="487 1537 1341 1591">'Match' commands can be used to filter a given site. If one of the contained match commands fails to match, then the site block fails to match as a whole.</p>
Example 1	<p data-bbox="487 1619 1187 1644">This simple example would locate the Web site www.mybank.com.</p> <pre data-bbox="487 1671 1230 1780"> # === My Bank Initial Logon === Site "www.mybank.com" -userid "My Logon Credentials" -initial EndSite </pre>

Example 2	<p>This simple example would locate the Web site <a href="http://www.google.com">www.google.com</a>, locate the login form and log on to the user's account using the user's e-mail address, account number and password.</p> <pre># === Logon Application Definition #2 == # === Google Initial Logon === #===== Site Login -userid "Google Log On" -initial MatchDomain "www.google.com" MatchField #1:1 -name "Email" -type "text" MatchField #1:2 -name "Passwd" -type "password" MatchField #1:3 -name "Cookie" -type "check" EndSite SetPrompt "Enter your user credentials" TextInput #1:1 -value "\$Username" TextInput #1:2 -value "\$Password" FocusInput#1:2 -focus "true" BooleanInput #1:3 -check "false" PressInput Endscript</pre>
-----------	---

## 5.2.80 StrCat

Use with	All
Novell SecureLogin Version	3.5 or later
Type	Action
Usage	<b>StrCat &lt;Variable&gt; &lt;Input-String1&gt; &lt;Input-String2&gt;</b>
Arguments	<p><b>&lt;Variable&gt;</b></p> <p>The variable to which you want a result saved.</p> <p><b>&lt;Input-String1&gt;</b></p> <p>First data string or variable.</p> <p><b>&lt;Input-String2&gt;</b></p> <p>Second data string or variable.</p>
Description	<p>Use the <code>StrCat</code> command to append the second data string to the first data string. For example, <code>StrCat ?Result "SecureRemote " "\$Username"</code>.</p> <p>In this case "\$Username" is "Tim", and the variable "?Result" now contains the value "SecureRemote Tim".</p>

Example	<p>Windows application definition</p> <p>This example reads the user name from #1001 into ?Username and uses the StrCat command to join the user name onto the password. The result is a LoginID, which Novell SecureLogin uses to log on to the system.</p> <pre># Logon Dialog Box Dialog   Class #32770   Title "Log on" EndDialog  ReadText #1001 ?Username StrCat ?LoginID ?Username \$Password Type ?LoginID #1002 Click #1</pre>
---------	---

## 5.2.81 StrLength

Use with	All
Novell SecureLogin version	3.0.4 or later
Type	Variable manipulator
Usage	StrLength <Destination> <String>
Arguments	<p>&lt;Destination&gt;</p> <p>The output variable. Also the input variable if no source is specified.</p> <p>&lt;String&gt;</p> <p>The string whose length you want to measure.</p>
Description	Use the StrLength command to count the number of characters in a variable and output that value to the destination variable.
Example	<p>Windows application definition</p> <p>This example reads the password from #301 and then uses StrLength to count the number of characters. If it is less than 4, an error message is displayed.</p> <pre># Logon Dialog Box Dialog   Class #32770   Title "Log on" EndDialog  ReadText #301 ?Password StrLength ?Length ?Password If ?Length Lt "4"   MessageBox "Password is too short" EndIf</pre>

## 5.2.82 StrLower

---

Use with	All
Novell SecureLogin Version	3.0.4 or later
Type	Variable manipulator
Usage	StrLower <Destination> [<Source>]
Arguments	<p><b>&lt;Destination&gt;</b></p> <p>The output variable. Also the input variable if no source is specified.</p> <p><b>[&lt;Source&gt;]</b></p> <p>The input variable. If not specified, Novell SecureLogin reads the destination variable, makes the necessary changes, and writes over the variable.</p>
Description	<p>Use the StrLower command to modify a variable so that all the characters are lower case.</p> <p>If only a:</p> <ul style="list-style-type: none"><li>♦ Destination variable is specified, the string is read from the destination, then is stored back to it.</li><li>♦ Source variable is specified, the string is read from the source, and the modified value is stored in the destination variable. In this case, the source variable remains unchanged.</li></ul>
Example	<p>Windows application definition</p> <p>The example reads the user name from #1001 and copies it into ?Username. The StrLower command is then used to make sure the user name is all lower case.</p> <pre># Logon Dialog Box Dialog     Class #32770     Title "Log on" EndDialog  ReadText #1001 ?Username StrLower ?LowerCaseUsername ?Username Type ?LowerCaseUsername #1002 Click #1</pre>

---

## 5.2.83 StrUpper

---

Use with	All
Novell SecureLogin version	3.0.4 or later
Type	Variable manipulator

---

Arguments	<p><b>&lt;Destination&gt;</b></p> <p>The output variable. Also the input variable if no source is specified.</p> <p><b>[&lt;Source&gt;]</b></p> <p>The input variable. If not specified, Novell SecureLogin reads the destination variable, makes the necessary changes, and writes over the variable.</p>
Description	<p>Use the <code>StrUpper</code> command to modify a variable so that all the characters are upper case.</p> <p>If only a:</p> <ul style="list-style-type: none"> <li>◆ Destination variable is specified, the string is read from the destination and is then stored back to it.</li> <li>◆ Source variable is specified, the string is read from the source, and the modified value is stored in the destination variable. In this case, the source variable remains unchanged.</li> </ul>
Example	<p>Windows application definition</p> <p>This example reads the user name from #1001 and copies it into ?Username. The <code>StrUpper</code> command is then used to make sure the user name is all upper case.</p> <pre># Logon Dialog Box Dialog   Class #32770   Title "Log on" EndDialog  ReadText #1001 ?Username StrUpper ?UpperCaseUsername ?Username Type ?UpperCaseUsername #1002 Click #1</pre>

## 5.2.84 Sub/EndSub

Use with	Startup, Terminal Launcher, Web, or Windows
Novell SecureLogin version	3.5 or later
Type	Flow control
Usage	Sub <b>&lt;Name&gt;</b> EndSub
Arguments	<p><b>&lt;Name&gt;</b></p> <p>Any name entered to identify the subroutine.</p>
Description	<p>Use the Sub/EndSub commands around a block of lines within an application definition to denote a subroutine.</p> <p>You can also call a subroutine using the <code>Call</code> command. For more information, see <a href="#">Section 5.2.8, "Call," on page 69</a>.</p>

Example	<p>Terminal Launcher application definition</p> <p>This example checks the emulator screen for the text Log On or Wrong Password. If either is found, the appropriate subroutine is called and run before the next part of the application definition.</p> <pre> If -Text "Log On"     Call "Log On" EndIf If -Text "Wrong Password"     Call "WrongPassword" EndIf Sub Login     Type \$Username     Type @E     Type \$Password     Type @E EndSub Sub WrongPassword     DisplayVariables "Enter correct password"     \$Password     Call Login EndSub </pre>
---------	--

## 5.2.85 Submit

Use with	Web
Novell SecureLogin version	3.5 or later
Type	Action
Usage	Submit
Arguments	None

Description	<p>Use the <code>Submit</code> command only in Web application definitions and only with Internet Explorer to allow for enhanced control of how and when a form is submitted. The <code>Submit</code> command performs a Submit on the form in which the first password field is found. The <code>Submit</code> command is ignored if used with Netscape.</p> <p>The function performed by the <code>Submit</code> command is automatically performed by Web application definitions by default. For example, the application definition:</p> <pre>Type \$Username Type \$Password Password</pre> <p>Types the user name and password and submits the form.</p> <p><b>When submits do not occur automatically</b> However, submits do not occur automatically if any of the following commands are in the application definition: <code>Type \N</code>, <code>Type \T</code>, <code>Submit</code>, or <code>Click</code>. If any of these commands are used, you must use the <code>Submit</code> command or some other means to submit the form.</p> <p>Furthermore, an automatic submit does not occur if you type text into a specific text entry field. For example, in the application definition snippet below, the <code>Submit</code> command must follow the <code>Type</code> command for the application definition to work properly:</p> <pre>Type \$Username #1001 Submit</pre>
Example	<p>Web application definition</p> <p>This example enters the user name and password and then executes a manual Submit.</p> <pre>Type \$Username #1 Type \$Password #2 Submit</pre>

## 5.2.86 Subtract

Use with	Startup, Terminal Launcher, Web, or Windows
Novell SecureLogin version	3.0 or later
Type	Variable manipulator
Usage	Subtract <Start-Value> <Subtract-Value> [?Result]



Arguments	<p><b>&lt;Start-Value&gt;</b></p> <p>The &lt;Start-Value&gt; argument is the start number from which the second argument is subtracted. This argument contains the result if the optional [?Result] argument is not passed in. If used:</p> <ul style="list-style-type: none"> <li>Without the [?Result] argument, then &lt;Start-Value&gt; must be a Novell SecureLogin variable, for example, ?StartValue or \$StartValue.</li> <li>With the [?Result] argument, then &lt;Start-Value&gt; can be a Novell SecureLogin variable or a numeric value.</li> </ul> <p><b>&lt;Subtract-Value&gt;</b></p> <p>The &lt;Subtract-Value&gt; argument is the number subtracted from the first argument. &lt;Subtract-Value&gt; can be a Novell SecureLogin variable or a numeric value.</p> <p><b>[?Result]</b></p> <p>The result of the equation. This argument is optional but, if used, set to &lt;Start-Value&gt; - &lt;Subtract-Value&gt;. The [?Result] must be a Novell SecureLogin variable, for example, \$Result or ?Result.</p>
Description	<p>Use the <code>Subtract</code> command to subtract one value from another.</p> <p>This is useful if you are implementing periodic password change functionality for an application. You can use the <code>Subtract</code> command (in conjunction with the <code>Divide</code> function and the <code>Slina</code> DLL) to determine the number of days that have elapsed since the last password change. Other numeric commands include the <code>Add</code>, <code>Divide</code>, and <code>Multiply</code>.</p> <p>For more information see:</p> <ul style="list-style-type: none"> <li><a href="#">Section 5.2.2, "Add," on page 64</a></li> <li><a href="#">Section 5.2.21, "Divide," on page 85</a></li> <li><a href="#">Section 5.2.54, "Multiply," on page 116</a></li> </ul> <hr/> <p><b>NOTE:</b> The <code>Subtract</code> command correctly subtracts when &lt;Start-Value&gt;, &lt;Subtract-Value&gt; and &lt;Result-Value&gt; are between -2147483648 and +2147483647.</p> <hr/>
Syntax examples:	<pre>Subtract "1" "2" ?Result Subtract ?LoginAttempts ?LoginFailures Subtract ?LoginAttempts ?LoginFailures ?Result Subtract ?LoginAttempts "3" Subtract ?LoginAttempts "3" ?Result</pre>
Example	<p>Windows application definition</p> <p>This example reads the values of control IDs 103 and 104 into variables. From there they are subtracted and typed into control ID 1.</p> <pre>ReadText #103 ?Number1 ReadText #104 ?Number2 Subtract ?Number1 ?Number2 ?Result Type ?Result</pre> <hr/>

## 5.2.87 Tag/EndTag

---

Use with	Advanced Web application definitions
Novell SecureLogin version	3.5 or later
Type	Tag specifier
Usage	Tag EndTag
Arguments	None
Description	Use the Tag/EndTag commands to find HTML tags.
Example	This example finds the form that has an attribute of Name with a value of Log on.  <pre>Tag "Form"     Attribute "Name"     "Log on"EndTag</pre>

---

## 5.2.88 TextInput

---

Use with	Advanced Web application definitions created using the Web Wizard.
Novell SecureLogin version	3.5.x or later
Type	Action
Usage	TextInput #FormID:FieldID -value "value"
Arguments	#FormID:FieldID  The ID that was given to the matched field in the Site block using <code>MatchField</code> command. The FormID and FieldID must be unsigned integers.  -value "value"  The text value to be input.
Description	Use the <code>TextInput</code> command after a Site block to input text into a specified field.  You can enter text into fields of type password/text/textarea/file.

---

---

Example	In this example the text value of the system user name and password are passed to the application definition.
---------	---

```
# === Logon Application Definition #2 ==  
# === Google Initial Logon ===  
#=====  
Site Login -userid "Google Log On" -initial  
MatchDomain "www.google.com"  
MatchField #1:1 -name "Email" -type "text"  
MatchField #1:2 -name "Passwd" -type "password"  
MatchField #1:3 -name "Cookie" -type "check"  
EndSite  
SetPrompt "Enter your user credentials"  
TextInput #1:1 -value "$Username"  
TextInput #1:2 -value "$Password"  
FocusInput#1:2 -focus "true"  
BooleanInput #1:3 -check "false"  
PressInput  
Endscript
```

---

## 5.2.89 Title

---

Use with	Java, Windows
Novell SecureLogin version	3.5 or later
Type	Dialog specifier
Usage	Title <Window-Title> [-regex "regular expression"]
Arguments	<Window-Title>  The text to test against the window title.  -regex  You may also use regular expressions to match part of a URL, such as the domain only.  For more information regarding regular expressions see:  <a href="http://www.boost.org/doc/libs/1_33_1/libs/regex/doc/syntax_perl.html">www.boost.org/doc/libs/1_33_1/libs/regex/doc/syntax_perl.html</a> ( <a href="http://www.boost.org/doc/libs/1_33_1/libs/regex/doc/syntax_perl.html">http://www.boost.org/doc/libs/1_33_1/libs/regex/doc/syntax_perl.html</a> )

---

Description	<p>Use the <code>Title</code> command to retrieve the title of a window and compare it against the string specified in the <code>&lt;Window-Title&gt;</code> argument. For this block of the application definition to run, the retrieved window title and the <code>&lt;Window-Title&gt;</code> argument must match the text supplied to the <code>Title</code> command in the dialog block.</p> <p><code>Title</code> is one of the main commands to identify a window. However, the <code>Title</code> command alone may not be enough – if there is more than one window in a platform (application) with the specified title, the Novell SecureLogin application definition will run every time that window is detected.</p> <p>Make <code>Title</code> the first command in the Dialog block to speed the matching process and ensure that all detected controls are also created. However, with some applications, if the text to match is too long, this will slow the detection and creation process. Consequently, if your application definition is unusually slow to execute, try placing the <code>Title</code> command after all other commands in the Dialog block.</p> <p>For Windows applications, either <code>Title</code> or <code>Class</code> should be defined in a Dialog block at least once.</p> <p><b>Uniquely identifying a window</b> To uniquely identify a window, the <code>Title</code> command is typically used with the <code>Class</code> or <code>Ctrl</code> commands. For more information, see <a href="#">Section 5.2.10, “Class,” on page 72</a> and <a href="#">Section 5.2.15, “Ctrl,” on page 79</a>.</p> <hr/> <p><b>NOTE:</b> Use the Novell Window Finder tool to determine the window title.</p>
Example 1	<p>Windows application definition</p> <p>This example tests the dialog box to see if it has the correct title. If the title is not correct, the application definition passes on to the next Dialog block.</p> <pre># Logon Dialog Box Dialog     Class #32770     Title "Logon" EndDialog  Type \$Username #1001 Type \$Password #1002 Click #1</pre>
Example 2	<p>Windows application definition</p> <p>This example uses a regular expression to identify the window title.</p> <pre>Dialog     Title "Logon - Simple"     Class "#32770" Parent     Class "#32770"     Title -regex "training" EndParent Ctrl #1001 Ctrl #1002 Ctrl #1 EndDialog</pre>

## 5.2.90 Type

---

Use with	Java, Terminal Launcher, Web, or Windows
Novell SecureLogin version	3.5 or later
Type	Action
Terminal usage	Type [-Raw] <Text>
Windows usage	Type <Text> [<#Ctrl-ID>]
	Type [-Raw] <Text>
	Type [-order] <Text> [<#Order-ID>]
	Type [-msg] <Text> [<#Ctrl-ID>]
Web usage	Type <Text> [<#Field-ID>]
	Type <Text> ["password"]
	Type [-Raw] <Text>

---

---

Arguments	<p><b>[-Raw]</b></p> <p>By default, when typing into a terminal emulator or Windows application, Novell SecureLogin verifies that the window exists before continuing. This verification process is disabled when the -Raw argument is provided. Furthermore, instead of setting the text in the field directly, the -Raw argument simulates actual keystrokes, causing Novell SecureLogin to type into whichever window has focus. The -Raw argument can also be used in a Web application. The -Raw argument attempts to type the text into the window that owns the Web page (Internet Explorer or Firefox) and works the same as -Raw on Windows applications.</p> <p><b>[-order]</b></p> <p>If the control ID's are not constant, utilize the -order argument to instruct Novell SecureLogin to type into a control based on the creation order and not the tab order. For more information on the -order argument usage, see <a href="#">"Example 5" on page 168</a>.</p> <p><b>[-msg]</b></p> <p>The -msg argument can be used when a <code>Type</code> command is sending the data correctly, but the application is not successfully reading the data. The -msg argument will only work in Windows applications as the argument simulates the keys being pressed (that is, key down, character, key up). For Web applications use the -Raw argument to get the JavaScript to trigger. The -msg argument sends the data character by character versus sending the text string all at once. This -msg option is often useful for older Windows applications, particularly old versions of Lotus Notes.</p> <p><b>&lt;Text&gt;</b></p> <p>The text to type into this area. This text can be static text, such as ABC, or any Novell SecureLogin variable, such as \$Username.</p> <p><b>[&lt;#Ctrl-ID&gt;]</b></p> <p>For Windows application definitions, this optional argument specifies the control into which to type the text. Use the Novell Window Finder to extract these control IDs. For more information, see <a href="#">"Windows specific" on page 167</a>.</p> <p><b>[&lt;#Order-ID&gt;]</b></p> <p>For Windows application definitions, this parameter specifies which control based on the creation order in which to type the text.</p> <p><b>[&lt;#Field-ID&gt;]</b></p> <p>For Web application definitions, this optional argument specifies the text field into which to type the text. For more information, see <a href="#">"Web specific" on page 167</a>.</p> <p><b>[password]</b></p> <p>For Web application definitions, this optional argument specifies to perform this type into the password field on this form. If [password] is used, that application's application definition cannot use a &lt;#Ctrl-ID&gt; argument. For more information, see <a href="#">"Web specific" on page 167</a>.</p>
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Description	Use the <code>Type</code> command to enter data such as user names and passwords into applications. There are reserved character sequences that are used to type special characters, for example Tab and Enter. If it is not possible to determine control IDs in a Windows application, and the <code>Type</code> command is not working, use the <code>SendKey</code> command instead.
-------------	--

**Windows specific** In Windows, if the `<#Ctrl-ID>` argument is:

- ♦ Provided, it must be a number that refers to a control ID as identified by the Window Finder Tool. Novell SecureLogin will then send the contents of the `<Text>` argument directly to the window and to the specific control that matches the `<#Ctrl-ID>` argument.
- ♦ Not specified, Novell SecureLogin will send keystrokes to whichever control has focus. In the Windows environment, the `-Raw` option is often useful when the Window Finder Tool is unable to determine control IDs for the text entry areas of an application, or these control IDs are changing. If using the `-Raw` option, then you cannot use the `<#Ctrl-ID>` argument.

**Web specific** For Web pages, there are two ways to specify which field receives `<Text>`.

- ♦ The first method uses absolute positioning by means of the `<#Field-ID>` argument. The `<#Field-ID>` is a number that refers to the location of the field within the HTML form. For example, `#1` refers to the first text entry field in the Web form; `#2` refers to the second text entry field, and so on.
- ♦ The second method uses relative positioning using the password argument. In this method the Novell SecureLogin agent first locates the text field within the HTML form that is a password field, and types `<Text>` into that field. Other type commands send their `<Text>` parameters to fields that are relative to the first password field.

For example, the `Type` command immediately preceding the `Type` command that has the `[Password]` argument is sent to the text field immediately preceding the first password field.

Example 1	Windows application definition
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This example typifies the use of the `Type` command in a Windows application definition.

```
# Logon Dialog Box
Dialog
  Class #32770
  Title "Log on"
EndDialog

Type $Username #1001
Type $Password #1002
Type "DB2" #1003
Click #1
```

---

---

Example 2	<p data-bbox="472 197 797 226">Windows application definition</p> <p data-bbox="472 247 1352 306">This example shows the use of the <code>-Raw</code> switch. This switch is not actually required in this instance, and is only used as an example.</p> <pre data-bbox="472 327 797 590"># Calculator Is Active Dialog     Class #SciCalc     Title "Calculator" EndDialog Type -Raw "15" Type -Raw "+" Type -Raw "20" Type -Raw "="</pre>
Example 3	<p data-bbox="472 611 797 640">Windows application definition</p> <p data-bbox="472 661 1352 749">This example shows the use of the <code>-msg</code> switch. In this instance the switch is not actually required and is only used as an example of the use of <code>Password</code> as the <code>-msg</code> argument.</p> <pre data-bbox="472 770 846 947"># Calculator Is Active Dialog     Class #SciCalc     Title "Calculator" EndDialog Type -msg \$Password #480".</pre>
Example 4	<p data-bbox="472 968 797 997">Windows application definition</p> <p data-bbox="472 1018 1352 1077">The following syntax examples compare and contrast the use of the various <code>Type</code> command arguments.</p> <pre data-bbox="472 1098 678 1127">Type #1 "text"</pre> <p data-bbox="472 1148 862 1178">Will type text into control with ID of 1</p> <pre data-bbox="472 1199 781 1228">Type #1 "text" -order</pre> <p data-bbox="472 1249 1352 1278">Will type text into the first control found in the dialog when enumerating the children.</p> <pre data-bbox="472 1299 748 1329">Type #1 "text" -msg</pre> <p data-bbox="472 1350 1352 1409">Will type text into the first control with an ID of 1 it finds within the set of windows allowing some time for the control to be created.</p> <pre data-bbox="472 1430 781 1488">Type #1 "text" -raw Type #1 "text" -focus</pre> <p data-bbox="472 1509 829 1539">Ignores the unused parameter #1</p>
Example 5	<p data-bbox="472 1560 797 1589">Windows application definition</p> <p data-bbox="472 1610 1352 1669">This example shows the use of the <code>-order</code> switch and demonstrates the possible “order” of the parameter.</p> <pre data-bbox="472 1690 846 1789">Type -order #1 "some text" Type #2 "some text" -order Type "some text" -order #3</pre>

---



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**Example 6****Web application definition**

This example uses the Novell SecureLogin agent to automatically generate this application definition for the mail.yahoo.com site. This example shows the use of password as the [<Field Name>] argument.

```
Type $Username  
Type $Password Password
```

In the application definition above, the Novell SecureLogin agent locates the first password field. The first `Type` command sends `$Username` to the field immediately before the password field. The second `Type` command sends `$Password` to the password field. The same application definition could be rewritten using absolute placement as shown below. In the following example, the `Submit` command is also used to automatically submit the page.

```
Type $Username #1  
Type $Password #2  
Submit
```

---

## **Sending keyboard commands using Type**

Novell SecureLogin can send special keyboard keystrokes to Windows and Web-based applications to emulate the user's keyboard entry. The `Type` command can pass keystrokes through to the window that the application definition is working. These special commands include the ability to select menu items, send Alt, and send other keyboard combinations.

### **Special key commands**

---

Type	Simulates
\Alt+<key>	Pressing the ALT key plus the desired <key>.
\Shift+<key>	Pressing the SHIFT key plus the desired <key>.
\Ctrl+<key>	Pressing the CTRL key plus the desired <key>.
\LWin+<key>	Pressing the left Windows key plus the desired <key>.
\RWin+<key>	Pressing the right Windows key plus the desired <key>.
\Apps+<key>	Pressing the Application key plus the desired <key>.

---

### **Raw key commands**

You can also use the `Type` command to send a combination of raw key commands. [Section 7.1, “Windows Keyboard Functions,” on page 179](#) details the available keyboard sequences you can use with the `Type` command.

---

Type	Simulates
\ <xxx>	The format for sending a raw key command, where <xxx> represents the keyboard code.
\ 18+65	Pressing the ALT-A keys in sequence.

---

## Type commands used with Terminal Launcher

Terminal Launcher uses the High Level Language Application Programming Interface (HLLAPI) to interface with a wide range of mainframe emulators that implement this programming standard. Listed below are the @ commands that you can use in the `TYPE` command. These commands perform specific emulator and mainframe functions. For example, you can send an Enter, Tab, cursor key, issue a mainframe emulator print screen, or reset function.

The @ commands are used in application definition language in the following format:

- ♦ `TYPE @` command
- ♦ `WAITFORTEXT "Log on:"`
- ♦ `Type $username`
- ♦ `Type @T`
- ♦ `Type $password`
- ♦ `Type @E`

The [Section 7.1, “Windows Keyboard Functions,” on page 179](#) details the commands that you can use within a Terminal Emulator application definition.

### 5.2.91 WaitForFocus

Use with	Windows
Novell SecureLogin version	3.5 or later
Type	Flow control
Usage	<code>WaitForFocus &lt;#Ctrl-ID&gt; [&lt;Repeat-Loops&gt;]</code>
Arguments	<b>&lt;#Ctrl-ID&gt;</b>  The ID number of the control with the focus.  <b>[&lt;Repeat-Loops&gt;]</b>  The number of repeat-loops that will run.
Description	<p>Use the <code>WaitForFocus</code> command to suspend the running of the application definition until the <code>&lt;#Ctrl-ID&gt;</code> has received keyboard focus, or the <code>&lt;Repeat-Loops&gt;</code> expire. The <code>&lt;Repeat-Loops&gt;</code> is an optional value that defines the number of loop cycles to run. The <code>&lt;Repeat-Loops&gt;</code> value defaults to 3000 loops if nothing is set. Once focus is received, the application definition continues.</p> <p>Set the figure to a negative number (for example, <code>WaitForFocus "#1065" "-1"</code>) for the <code>&lt;Repeat-Loops&gt;</code> never to expire. If the <code>&lt;Repeat-Loops&gt;</code> is set to 0 (zero), it loops until the window defined in the <code>Dialog/ EndDialog</code> statement is given keyboard focus.</p> <hr/> <p><b>NOTE:</b> Do not place <code>WaitForFocus</code> commands within <code>Dialog / EndDialog</code> statements.</p>

Syntax examples	<pre> WaitForFocus #301 WaitForFocus #301 "2000" WaitForFocus #301 "0" WaitForFocus #301 "-1" </pre>
Example 1	<p>Windows application definition</p> <p>This example has Novell SecureLogin waiting indefinitely for window 301 to get focus. Once the login dialog box is detected, it enters the user credentials.</p> <pre> # Logon Dialog Box Dialog     Class #32770     Title "Log on" EndDialog  WaitForFocus #301 "-1" Type \$Username Type \T Type \$Password Type \N </pre>
Example 2	<p>This example has the <code>WaitForFocus</code> command suspend the running of the application definition until control ID #15 is reached and a message box with "love" should appear.</p> <pre> ## BeginSection: "Logon Window" Dialog Class "Notepad" Title "Untitled - Notepad" EndDialog Setprompt "Optional:" # Here the correct ID with the loops set to 0 WaitForFocus #15 0 Set ?thu "love\me" RegSplit "(.*)\\(.*)" ?thu ?Domain ?User MessageBox ?Domain ## EndSection: "Logon Window" </pre>

## 5.2.92 WaitForText

Use with	Terminal Launcher
Novell SecureLogin version	3.5 or later
Type	Flow control
Usage	WaitForText <Text>
Arguments	<p>&lt;Text&gt;</p> <p>The text for which the application definition is waiting.</p>

Description	<p>Use the <code>WaitForText</code> command to make the Terminal Launcher wait for the specified text to display before continuing. For example, you may make Novell SecureLogin wait for a user name field to display before attempting to type a user name.</p> <p>The text may appear anywhere on the terminal screen and is usually case sensitive (this depends on the Terminal Emulator itself). If the text is written in the wrong case, the terminal launcher will pause and try to find the correct text in the correct case, until the terminal screen times out.</p> <p>If <code>WaitForText</code> is not working, try leaving the initial letter off the <code>&lt;Text&gt;</code> to avoid any conflict with case sensitivity. For example, <code>WaitForText</code> <code>logon</code> will work regardless of whether the text 'log on' is presented on the terminal screen as <code>Log on</code> or <code>log on</code>. However, <code>WaitForText</code> <code>"Log on"</code> will only work if the word <code>log on</code> is presented on the screen as <code>'Log on'</code>.</p> <p>Also, some terminal emulators will not correctly match text that is hard against the left margin of the window. Again, if you encounter this situation, try to match text without the leading character.</p>
Example	<p>Terminal Launcher application definition</p> <p>This command instructs Novell SecureLogin to wait for the text <code>ogin:</code> to appear on the emulator screen before entering the user name. It will then wait for <code>assword:</code> to display before entering the password.</p> <pre> WaitForText "ogin:" Type \$Username Type @E WaitForText "assword:" Type \$Password Type @E </pre>

# Testing Application Definitions

# 6

- ♦ [Section 6.1, “Using the Novell SecureLogin Test Application,” on page 173](#)

## 6.1 Using the Novell SecureLogin Test Application

To allow Administrators and other application definition writers to practice their application definition creation skills, the Password Test application is included in the software package. It is designed to replicate an application logon panel and supports the following processes:

- ♦ Initial log in
- ♦ Wrong password
- ♦ Password change

If you do not have the test application, contact Novell Technical Support.

The following example, application definition for the Password Test application, further explains the SecureLogin application definition principles.

### 6.1.1 Example Application Definition for the Test Application

The application definition for the PSL Password Test Application (`PasswordTest.exe`) provides an example of a typical Windows application definition, including error handling and changing the password. Remember, the password for this application is hard-coded to single when the application is closed and restarted. This can cause confusion when setting strong password policies and changing passwords. You must also create a password policy called `PwdTestPolicy`, according to the password policy defined in this application definition. The password policy must require a minimum of 6 characters, but no complex rules, in order to use single as a password.

Here is the sample application definition in its entirety. Following this application definition is the explanation of what each section does.

```

# Set Password Policy
RestrictVariable $Password PwdTestPolicy
# ==== BeginSection: Log on ====
Dialog

    Class "#32770"

    Ctrl #1001

    Title "Log on"

EndDialog

SetPrompt "Username =====>"
Type $Username #1001
SetPrompt "Password =====>"
Type $Password #1002
SetPrompt "Domain =====>"
Type $Domain #1003
Click #1
SetPrompt "Please enter your user name and password to access Password Test.
SecureLogin will remember and automatically log you on in future. IT Help Desk
x4532"
# ==== EndSection: Log on ====

# ==== BeginSection: Log on failure ====
Dialog

    Class "#32770"

    Title "Log on failure"

EndDialog

# Read the error message and set it as a temporary variable, then clear it
ReadText #65535 ?ErrorMessage
Click #2

# If log on failed, display the current stored Username and Password and prompt
the user to verify them, then retry log on
If "You have failed to log on." -In ?ErrorMessage
    DisplayVariables "Log on to Password Test failed. The password for this
application must be single when it first starts. IT Help Desk x4532"
# Press Alt>F and L to invoke the logon box so the user doesn't have to.

    Type -Raw "\Alt+F"

    Type -Raw "L"

    Type $Username

    Type $Password

    Type $Domain

EndIf

# ==== EndSection: Log on ====

```

```

# ==== Begin Section: Change Password ====
# Change Password Dialog Box
Dialog
Class "#32770"
Title "Change Password"
EndDialog

# Backup password, fill in the old user name and password, then start the
change password routine
Set ?PwdBackup $Password
Type $Username #1015
Type $Password #1004
ChangePassword ?NewPwd "Please enter a new password for this application."
Type ?NewPwd #1005
Type ?NewPwd #1006
Click #1

# Change password successful message
Dialog

    Class "#32770"

    Ctrl #65535 "You have changed your password successfully."

    Title "Change successful"

EndDialog

# Clear application owned message and accept new password
Click #2
Set $Password ?NewPwd
# ==== End Section: Change Password ====

```

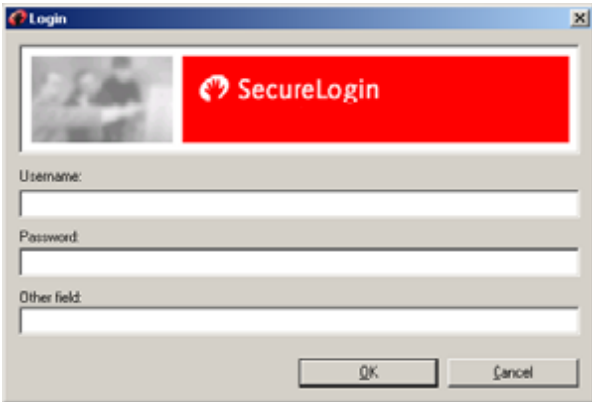
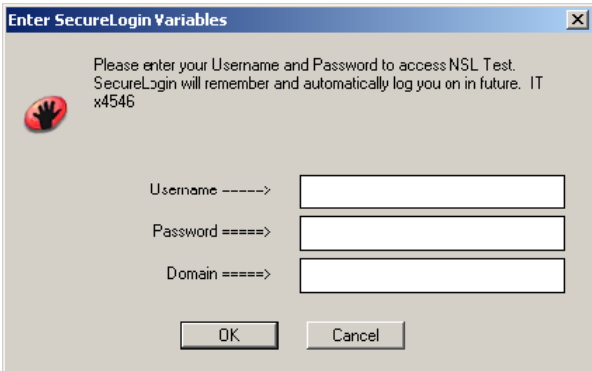
## Application Definition Explained

You can use the same application definition to show what function each section performs. `Dialog/EndDialog` blocks define a Windows dialog box. When the dialog box appears, SecureLogin detects that this dialog box is based on the information found within the dialog block. The `Dialog/EndDialog` block must contain enough information for the block to be unique, or the application definition runs when other dialog boxes owned by the same executable with the same information appear.

When SecureLogin detects that all the information between `Dialog` and `EndDialog` is contained in the dialog box on the screen (for example, the application login box, the change password box, or the failed logon box), it runs the application definition commands until it sees the next dialog statement or the end of the application definition, whichever is applicable. The order does not matter in Windows application definitions, because SecureLogin watches for all dialog boxes while the executable is running. Use a logical order for troubleshooting purposes.

## Dialog boxes

The following application definition example shows screen captures of the relevant dialog boxes. You can use the Window Finder tool to gather information about the title of the window, class names, dialog IDs, and so on. Use the wizard to automate the application definition creation.

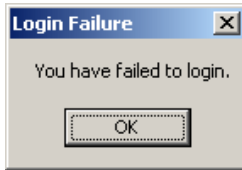
Application definition section	Comments
<pre># Set Password PolicyRestrictVariable \$Password PwdTestPolicy</pre>	<p>This restricts the \$Password variable to comply with the Password Policy "PwdTestPolicy".</p>
<pre># ==== BeginSection: Log on ====Dialog Class "#32770" Ctrl #1001 Title "Log on"EndDialog</pre>	<p>When PasswordTest.exe runs, SecureLogin watches for dialog boxes that appear and match the information defined between the Dialog/EndDialog commands.</p> <p>You can specify all values, or a few, as long as the information specified is unique to that dialog box.</p>
<pre>SetPrompt "Username =====&gt; "Type \$Username #1001 SetPrompt "Password =====&gt; "Type \$Password #1002 SetPrompt "Domain =====&gt;" Type \$Domain #1003 Click #1 SetPrompt "Please enter your Username and Password to access NSL Test. SecureLogin will remember and automatically log you on in future. IT Helpdesk x4546" # ==== EndSection: Log on =====</pre>	<p>Type the stored (\$) Username variable into #1001, and so on. SetPrompt is used to customize the window the user sees when there are no credentials stored.</p> <p>When the user first runs an application that is newly enabled for single sign-on, SecureLogin prompts for their login credentials, and stores and remembers them for future login attempts.</p>
	<p>The title is Log In.</p> <p>The Class is #32770.</p> <p>The Username field is Control ID #1001.</p> <p>The Password field is Control ID #1002.</p> <p>The Other field is Control ID #1003.</p> <p>The OK button is Control ID #1.</p>
	<p>This dialog box is only displayed the first time the application definition is run by a user. It prompts the user to enter credentials for SecureLogin to store.</p> <p>The SetPrompt command is used throughout the example application.</p>



---

**Application definition section****Comments**

---



This is the login failure dialog box.

The title is Login Failure.

The class is #32770.

The OK button is Control ID #2.

The error message is Control ID #65535



This is the Change Password dialog box.

The *Username* field is Control ID #1015.

The *Old Password* field is Control ID #1004.

The *New Password* field is Control ID #1005.

The *Confirm New Password* field is Control ID #1006.

The OK button is Control ID #1.



The `ChangePassword` command is used in the example application definition to display a dialog box for the user to enter a new password.

The dialog box is customized to provide more information for the user.

---



# Reference Commands and Keys

# 7

- ♦ [Section 7.1, “Windows Keyboard Functions,” on page 179](#)
- ♦ [Section 7.2, “Terminal Emulator Commands,” on page 184](#)

## 7.1 Windows Keyboard Functions

The following reference tables list the Windows keyboard functions. You can use these functions in conjunction with the Type command by referencing the appropriate keyboard code.

Do not type quotation marks before and after the keys. In this case the keys are taken literally, as shown in the following table.

**Table 7-1** *Typing Keys*

For this command	Type
Alt+Print Screen	\Alt+\\44
Shift+Home	\Shift+\\36
Shift+End	\Shift+\\35

For more information about the Type command, see [Section 5.2.90, “Type,” on page 165](#).

**Table 7-2** *Windows Keyboard Functions*

Function	Decimal	Comment
Left mouse button	1	
Right mouse button	2	
CTRL-Break	3	
Middle mouse button	4	
X1 mouse button	5	
X2 mouse button	6	
Backspace	8	
Tab	9	
Clear	12	5 on the keypad
Enter	13	
Shift	16	
Ctrl	17	
Alt	18	

Function	Decimal	Comment
Pause	19	
Cap Lock	20	
Escape	27	
Space	32	
PageUp	33	
PageDown	34	
End	35	
Home	36	
Left-arrow	37	
Up-arrow	38	
Right-arrow	39	
Down	40	
Select	41	
Execute	43	
Print	44	
Insert	45	
Delete	46	
Help Key	47	
0	48	
1	49	
2	50	
3	51	
4	52	
5	53	
6	54	
7	55	
8	56	
9	57	
A	65	
B	66	
C	67	
D	68	

Function	Decimal	Comment
E	69	
F	70	
G	71	
H	72	
I	73	
J	74	
K	75	
L	76	
M	77	
N	78	
O	79	
P	80	
Q	81	
R	82	
S	83	
T	84	
U	85	
V	86	
W	87	
X	88	
Y	89	
Z	90	
Left Windows Key	91	
Right Windows Key	92	
Application Key	93	
Sleep Key	94	
Keypad 0	96	
Keypad 1	97	
Keypad 2	98	
Keypad 3	99	
Keypad 4	100	
Keypad 5	101	

Function	Decimal	Comment
Keypad 6	102	
Keypad 7	103	
Keypad 8	104	
Keypad 9	105	
Keypad asterisk (*)	106	
Keypad plus sign (+)	107	
Keypad separator	108	
Keypad minus sign (-)	109	
Keypad period (.)	110	
Keypad slash mark (/)	111	
F1 key	112	
F2 key	113	
F3 key	114	
F4 key	115	
F5 key	116	
F6 key	117	
F7 key	118	
F8 key	119	
F9 key	120	
F10 key	121	
F11 key	122	
F12 key	123	
F13 key	124	
F14 key	125	
F15 key	126	
F16 key	127	
F17 key	128	
F18 key	129	
F19 key	130	
F20 key	131	
F21 key	132	
F22 key	133	

Function	Decimal	Comment
F23 key	134	
F24 key	135	
Num Lock key	144	
Scroll Lock	145	
Left Shift	160	
Right Shift	161	
Left Control	162	
Right Control	163	
Left Menu	164	
Right Menu	165	
Browser Back key	166	Applies to Windows 2000 +
Browser Forward key	167	Applies to Windows 2000 +
Browser Refresh key	168	Applies to Windows 2000 +
Browser Stop key	169	Applies to Windows 2000 +
Browser Search key	170	Applies to Windows 2000 +
Browser Favorites key	171	Applies to Windows 2000 +
Browser Start and Home key	172	Applies to Windows 2000 +
Volume Mute key	173	Applies to Windows 2000 +
Volume Down key	174	Applies to Windows 2000 +
Volume Up key	175	Applies to Windows 2000 +
CD Next Track key	176	Applies to Windows 2000 +
CD Previous Track key	177	Applies to Windows 2000 +
CD Stop Media key	178	Applies to Windows 2000 +
CD Play/Pause key	179	Applies to Windows 2000 +
Launch Mail key	180	Applies to Windows 2000 +
Media Select key	181	Applies to Windows 2000 +
Start Application 1 key	182	Applies to Windows 2000 +
Start Application 2 key	183	Applies to Windows 2000 +
;	186	Semi Colon/Colon
=	187	Equals/Plus Key
,	188	Comma/Less Than
-	189	Minus/Underscore

Function	Decimal	Comment
.	190	Period/Greater Than
/	191	Slash/Question Mark
`	192	Single Open Quote/Tilde
[	219	Left Square/Curley Bracket
\	220	Back slash/Pipe
]	221	Right Square/Curley Bracket
'	222	Single Close Quote Double Quote
Play Key	250	
Zoom Key	251	

## 7.2 Terminal Emulator Commands

The following table lists the terminal commands in terminal emulator application definitions.

The Type Command	Meaning	The Type Command	Meaning
@B	Left Tab	@A@C	Test
@C	Clear	@A@D	Word Delete
@D	Delete	@A@E	Field Exit
@E	Enter	@A@F	Erase Input
@F	Erase EOF	@A@H	System Request
@H	Help	@A@I	Insert Toggle
@I	Insert	@A@J	Cursor Select
@J	Jump (Set Focus)	@A@L	Cursor Left Fast
@L	Cursor Left	@A@Q	Attention
@N	New Line	@A@R	Device Cancel (Cancels Print Presentation Space)
@O	Space	@A@T	Print Presentation Space
@P	Print	@A@U	Cursor Up Fast
@R	Reset	@A@V	Cursor Down Fast
@T	Right Tab	@A@Z	Cursor Right Fast
@U	Cursor Up	@A@9	Reverse Video
@V	Cursor Down	@A@b	Underscore
@X*	DBCS (Reserved)	@A@c	Reset Reverse Video



The Type Command	Meaning	The Type Command	Meaning
@Y	Caps Lock (No action)	@A@d	Red
@Z	Cursor Right	@A@e	Pink
@0	Home	@A@f	Green
@1	PF1/F1	@A@g	Yellow
@2	PF2/F2	@A@h	Blue
@3	PF3/F3	@A@i	Turquoise
@4	PF4/F4	@A@l	Reset Host Colors
@5	PF5/F5	@A@j	White
@6	PF6/F6	@A@t	Print (Personal Computer)
@7	PF7/F7	@A@y	Forward Word Tab
@8	PF8/F8	@A@z	Backward Word Tab
@9	PF9/F9	@A@	- Field -
@a	PF10/F10	@A@<	Record Backspace
@b	PF11/F11	@A@	+ Field +
@c	PF12/F12	@S@x	Dup
@d	PF13	@S@E	Print Presentation Space or Host
@e	PF14	@S@y	Field Mark
@f	PF15	@X@c	Split Vertical Bar (!)
@g	PF16	@X@7	Forward Character
@h	PF17	@X@6	Display Attribute
@i	PF18	@X@5	Generate SO/SI
@j	PF19	@X@1	Display SO/SI
@k	PF20	@M@0	VT Numeric Pad 0
@l	PF21	@M@1	VT Numeric Pad 1
@m	PF22	@M@2	VT Numeric Pad 2
@n	PF23	@m@3	VT Numeric Pad 3
@o	PF24	@M@4	VT Numeric Pad 4
@q	End	@M@5	VT Numeric Pad 5
@s	ScrLk (No action)	@M@6	VT Numeric Pad 6
@t	Num Lock (No action)	@M@7	VT Numeric Pad 7
@u	Page Up	@M@8	VT Numeric Pad 8

The Type Command	Meaning	The Type Command	Meaning
@v	Page Down	@M@9	VT Numeric Pad 9
@x	PA1	@M@-	VT Numeric Pad
@y	PA2	@M@,	VT Numeric Pad
@z	PA3	@M@.	VT Numeric Pad
@M@h	VT Hold Screen	@M@e	VT Numeric Pad Enter
@M@N	Control Code SO	@M@f	VT Edit Find
@M@M	Control Code CR	@M@i	VT Edit Insert
@M@L	Control Code FF	@M@r	VT Edit Remove
@M@K	Control Code VT	@M@s	VT Edit Select
@M@J	Control Code LF	@M@p	VT Edit Previous Screen
@M@I	Control Code HT	@M@n	VT Edit Next Screen
@M@H	Control Code BS	@M@a	VT PF1
@M@G	Control Code BEL	@M@b	VT PF2
@M@F	Control Code ACK	@M@c	VT PF3
@M@(space)	Control Code NUL	@M@d	VT PF4
@M@E	Control Code ENQ	@M@O	ControlCode S1
@M@D	Control Code EOT	@M@Q	ControlCode DC1
@M@C	Control Code ETX	@M@P	ControlCode DLE
@M@B	Control Code STX	@M@A	ControlCode SOH

# Application Definition Commands for SNMP Alerts

# 8

Novell SecureLogin produces Simple Network Management Protocol (SNMP) for network monitoring software to trap. A simple application definition command is used to send the alerts.

You might need to copy the `LIBSNMP.DLL` file to the `Windows\System32` directory for SNMP support to work.

## 8.1 Creating an SNMP Alert

In order to produce an SNMP alert, place the following command in the application definition where you would like to create the alert:

---

**NOTE:** You may have to copy the `LIBSNMP.DLL` file to the `Windows\System32` directory for SNMP support to work.

---

```
Run C:\Progra~1\Novell\Secure~1\Slsnmp.exe <Community Name>
<Host IP Address> <Text>
```

Where:

- ♦ `<Community Name>` is the case-sensitive community name to which this computer sends trap messages.
- ♦ `<Host IP Address>` is the IP address of the SNMP host.
- ♦ `<Text>` is the text displayed as the message at the host.

## 8.2 Example

The following is an example application definition:

```
Dialog
Class #32770
Title "Incorrect Password"
EndDialog
Run C:\Progra~1\ActivIdentity\Secure~1\Slsnmp.exe SNMPCommunity1
192.168.156.23 "PSL - Incorrect password in finance system."
MessageBox "You have entered an incorrect password. The
administrator has been notified. Please restart the application
and try again."
KillApp "PasswordText.exe"
```

