

Login Scripts Guide

Novell[®] Login Scripts

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About This Guide

This guide includes the following information on login scripts that can be used with Novell eDirectory user accounts and Novell Client software on Windows and Linux workstations:

- ◆ [Chapter 1, “Using Login Scripts,” on page 7](#)
- ◆ [Chapter 2, “Sample Login Scripts,” on page 19](#)
- ◆ [Chapter 3, “Login Script Commands and Variables,” on page 27](#)
- ◆ [Chapter 4, “Troubleshooting Login Scripts,” on page 57](#)
- ◆ [Appendix A, “Documentation Updates,” on page 61](#)

Audience

This guide is intended for network administrators.

Feedback

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

Documentation Updates

For the latest version of this documentation, see the [Novell Clients online documentation \(http://www.novell.com/documentation/noclienu/index.html\)](http://www.novell.com/documentation/noclienu/index.html).

Additional Documentation

For documentation on installing and managing Novell Client software, see the following documentation Web pages.

- ◆ [Novell Client v 4.91 for XP/2003 \(http://www.novell.com/documentation/noclienu/index.html\)](http://www.novell.com/documentation/noclienu/index.html)
- ◆ [Novell Client for Linux \(http://www.novell.com/documentation/linux_client/index.html\)](http://www.novell.com/documentation/linux_client/index.html)
- ◆ [Novell Client for Windows Vista \(http://www.novell.com/documentation/vista_client/index.html\)](http://www.novell.com/documentation/vista_client/index.html)

Using Login Scripts

This section includes the following information:

- ♦ [Section 1.1, “Login Script Overview,” on page 7](#)
- ♦ [Section 1.2, “Where Login Scripts Should Be Located,” on page 8](#)
- ♦ [Section 1.3, “Common Login Script Commands,” on page 10](#)
- ♦ [Section 1.4, “Creating or Modifying Login Scripts,” on page 10](#)
- ♦ [Section 1.5, “Creating Login Scripts from a Sample or Existing Login Script,” on page 13](#)
- ♦ [Section 1.6, “Modifying User Login Scripts from the N Menu,” on page 14](#)
- ♦ [Section 1.7, “Printing Login Scripts from Windows,” on page 15](#)
- ♦ [Section 1.8, “Understanding How Login Scripts Work with Linux Workstations,” on page 15](#)
- ♦ [Section 1.9, “Understanding How Login Scripts Work with NetStorage,” on page 16](#)
- ♦ [Section 1.10, “Additional Sources for Login Scripts Information,” on page 17](#)

1.1 Login Script Overview

A login script is a set of instructions that is executed when a user logs in using the Novell Client for Windows, the Novell Client for Linux, or some other method of login that accesses Novell eDirectory object properties. A login script is simply a text file that the login executable interprets and runs line by line.

When a user successfully logs in to the network, one or more login scripts can be executed that automatically set up the workstation environment.

Login scripts are similar to batch files and are executed by the Novell LOGIN utility.

You can use login scripts to map drives and search drives to directories, display messages, set environment variables, and execute programs or menus.

Login scripts are properties of specific eDirectory objects.

There are four types of login scripts:

- ♦ **Container** sets the general environments for all users in that container. Container login scripts are executed first and can be associated with Organization or Organizational Unit objects. A user can use only one container login script.
- ♦ **Profile** sets environments for several users at the same time. Profile login scripts are executed after the container login script and are associated with Profile objects. A user can be assigned only one profile login script that is then associated with the User object in eDirectory. However, other profile login scripts can be assigned by using the PROFILE command in the login script or by selecting a different Profile login script from the Novell Login window.
- ♦ **User** sets environments (such as printing options or an e-mail username) specific to a single user. User login scripts are executed after any container and profile login scripts and are associated with User objects. A user can have only one user login script. However, the User login script can be overwritten by selecting a different login script from the Novell Login window.

- ♦ **Default** contains only essential commands, such as drive mappings to NetWare utilities, and cannot be edited. The default login script runs if a user (including user Admin) doesn't have a user login script, even if a container or profile login script exists.

TIP: If you don't want to create any user login scripts and you don't want the default login script to execute for any users, you can disable the default login script by including the `NO_DEFAULT` command in the container or profile login script.

Maintaining many user login scripts can be time consuming. Therefore, you should try to include as much customization information as possible in the container and profile login scripts, which are fewer in number and easier to maintain.

For example, if all users need access to the NetWare utilities in the same volume, put the search drive mapping to that volume in a single container login script rather than in every user login script.

Create profile login scripts if several users have identical login script needs. Profile login scripts are sometimes thought of as group login scripts.

Finally, in user login scripts, include only those individual items that can't be included in profile or container login scripts. For example, personal drive mappings could be included in the user login script.

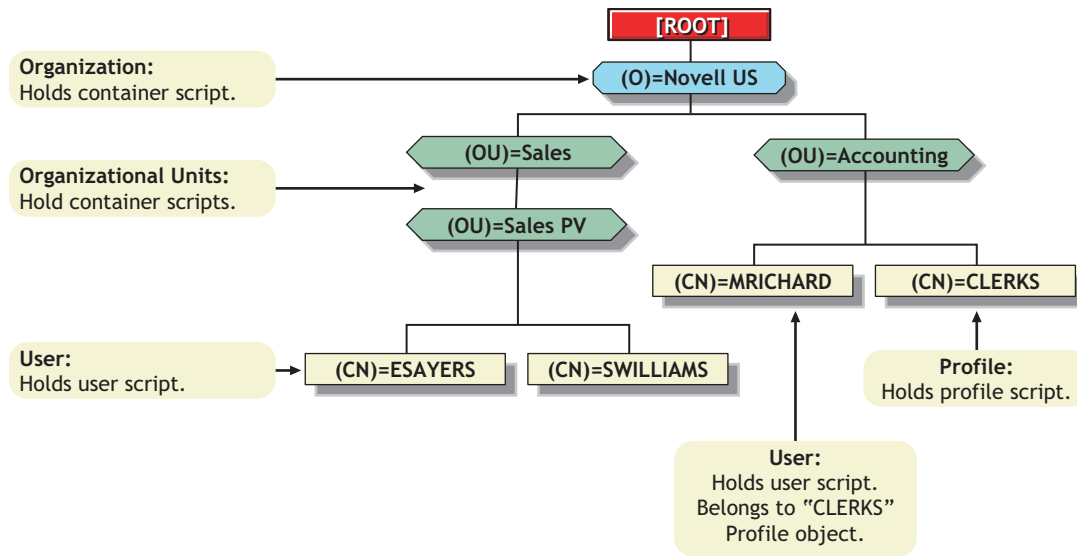
IMPORTANT: Because three or more login scripts can execute whenever a user logs in, conflicts can occur and drive mappings can be overwritten by consecutive login scripts. It is important to note that the last login script to execute (usually the user login script) overrides any conflicting commands in a previous login script.

1.2 Where Login Scripts Should Be Located

Login scripts are properties of User objects, Profile objects and Container objects in eDirectory. Consequently, only User objects, Profile objects, and Container objects can contain login scripts. This, in turn, largely determines where login scripts can be located.

The following figure shows how the different types of login scripts can reside in an eDirectory tree and how they affect users.

Figure 1-1 Where Different Types of Login Scripts Can Reside



In the figure, there are three users: ESAYERS, SWILLIAMS, and MRICHARD. The following explains which login scripts execute when each of these users logs in:

- ♦ User ESAYERS: The SALES_PV container login script executes first, followed by ESAYERS's user login script.
- ♦ User SWILLIAMS: The SALES_PV container login script executes first, followed by the default login script.
- ♦ User MRICHARD: The ACCOUNTING container login script executes, followed by the CLERKS profile login script, and then the MRICHARD user login script.

Container login scripts affect only users immediately below the Organization or Organizational Unit that contains the login script.

For example, in the previous figure, although there are two levels of container objects above users ESAYERS and SWILLIAMS, only the script for the container they are in (OU=SALES_PV) executes when they log in.

If the SALES_PV Organizational Unit had no container login script defined, no container login script would execute for ESAYERS and SWILLIAMS, even though a container login script exists at a higher level.

Because user SWILLIAMS has no user login script defined, the default login script executes after the container login script.

Because user MRICHARD belongs to the profile CLERKS, the CLERKS profile login script executes before the MRICHARD user login script. Users can be assigned to only one Profile object, but there are ways to get around this restriction. See [“Getting Around the One User and One Profile Login Script Restriction”](#) on page 13.

1.3 Common Login Script Commands

Login scripts are powerful and can execute many different commands that you might find useful. However, the most common use for login scripts is mapping drives on NetWare servers. The following are the most common commands:

- ♦ **MAP:** Defines a path to a directory on a NetWare server. By putting a `MAP` command in the login script, the directory is automatically available to the user in My Computer. The drive letter can either be specified (`MAP G:=`) or can be relative (`MAP *1=` or `MAP NEXT=`). See [Section 3.18, “MAP,” on page 45](#).
- ♦ **IF . . . THEN:** Gives statements of condition. For example, `IF MEMBER OF “MANAGERS” THEN` would execute the command that follows only if the user is a member of the Managers group. See [Section 3.15, “IF..THEN,” on page 41](#).
- ♦ **INCLUDE:** Provides the name of an ANSI text file to be processed at a specific point in the login script. See [Section 3.16, “INCLUDE,” on page 43](#).
- ♦ **EXIT:** Terminates all login script processing. `EXIT` is often used with `IF . . . THEN` statements. See [Section 3.11, “EXIT,” on page 39](#).

Information on these commands and others that you might find useful is provided in [Chapter 3, “Login Script Commands and Variables,” on page 27](#). Sample login scripts are located in [“Sample Login Scripts” on page 19](#).

1.4 Creating or Modifying Login Scripts

You can use Novell iManager or ConsoleOne to create login scripts from scratch or from a sample login script that is provided for you. Using a sample login script can help reduce syntax errors and thus reduce the time it takes to create login scripts.

All four types of login scripts use the same conventions, commands, and variables. For more information, see [“Login Script Commands and Variables” on page 27](#).

The main difference in creating Container, Profile, and User login scripts is the object that you select to contain the login scripts. The default login script is not assigned to any object.

- ♦ Container login scripts are assigned to container objects (Organization or Organizational Unit objects).
- ♦ Profile login scripts are assigned to Profile objects. In order for a User object to use a profile login script, you must select that User object and assign it to (make it a trustee) the Profile object.

IMPORTANT: You must make the user a trustee of the Profile object in order for the User object to be able to access the Profile login script. Failing to do so means that the User object has the command to run the Profile login script but does not have the rights to access it, so the login script does not run.

- ♦ User login scripts are assigned to User objects.

Before you create or modify login scripts, you must have the Write property right to the object that will contain the login script. In addition, the Organization, Organizational Unit, Profile, or User object that you plan to assign the login script to must already exist.

1.4.1 Creating or Modifying Login Scripts in iManager

- ♦ [“Creating or Modifying a User Login Script” on page 11](#)
- ♦ [“Creating a Container Login Script” on page 11](#)
- ♦ [“Creating a Profile Login Script” on page 11](#)

Creating or Modifying a User Login Script

- 1 Click *Roles and Tasks > User > Modify User*.
- 2 Specify a username and context, then click *OK*.
- 3 Click *General > Login Script*.
- 4 Type the login script commands and information in the login script text box.
For a sample, see [“Sample Login Scripts” on page 19](#).

IMPORTANT: Make sure that you edit the sample login script to match the server names, directory paths, and specifications of your own network.

For additional information on all login script commands, see [“Login Script Commands and Variables” on page 27](#).

- 5 (Conditional) To associate a Profile login script with this object, specify the Profile object name and context in the *Profile* field.
For additional information, see [“Creating a Profile Login Script” on page 11](#).
- 6 To save the login script, click *OK*.

Creating a Container Login Script

- 1 Click *Roles and Tasks > Directory Administration > Modify Object*.
- 2 Specify the container and context, then click *OK*.
- 3 Click *General > Login Script*.
- 4 Type the login script commands and information in the login script text box.
For a sample, see [“Sample Login Scripts” on page 19](#).

IMPORTANT: Make sure that you edit the sample login script to match the server names, directory paths, and specifications of your own network.

For additional information on all login script commands, see [“Login Script Commands and Variables” on page 27](#).

- 5 (Optional) To associate a Profile login script with this object, specify the Profile object name and context in the *Profile* field.
For additional information, see [“Creating a Profile Login Script” on page 11](#).
- 6 To save the login script, click *OK*.

Creating a Profile Login Script

- 1 Click *Roles and Tasks > Directory Administration > Create Object*.
- 2 Select *Profile*, then click *OK*.

- 3 Specify the Profile name and context.
- 4 Type the login script commands and information in the login script text box.
For a sample, see [“Sample Login Scripts” on page 19](#).

IMPORTANT: Make sure that you edit the sample login script to match the server names, directory paths, and specifications of your own network.

For additional information on all login script commands, see [“Login Script Commands and Variables” on page 27](#).

- 5 Click *OK* twice.
- 6 To associate the Profile with a user, click *Roles and Tasks > Users > Modify User*.
- 7 Specify a username and context, then click *OK*.
- 8 On the *General* tab, click *Login Script*.
- 9 In the *Profile* field, specify a profile name and context, then click *OK*.

1.4.2 Creating or Modifying Login Scripts in ConsoleOne

- 1 Double-click the object whose login script you want to create or modify.
You can create this login script on a Container object, Profile object, or User object.
- 2 Click *Login Script*.
- 3 Type the login script commands and information in the login script text box.
For a sample, see [“Sample Login Scripts” on page 19](#).

IMPORTANT: Make sure that you edit the sample login script to match the server names, directory paths, and specifications of your own network.

For additional information on all login script commands, see [“Login Script Commands and Variables” on page 27](#).

- 4 To save the login script and close the Details dialog box, click *OK*.

If the login script that you just created was a container or user login script, you're finished and the client software will be installed or updated the next time users log in.

If the login script that you just created was for a Profile object, you must associate the User object with the Profile object and make the User object a trustee of the Profile object. See the next section, [“Associating the User Object with a Profile Object.”](#)

For additional information on all login scripts, see [Section 1.4, “Creating or Modifying Login Scripts,” on page 10](#).

Associating the User Object with a Profile Object

- 1 Double-click the User object that needs to use the profile login script.
- 2 Click *Login Script*.
- 3 Type the name of the Profile object in the Default Profile field located under the login script text box, then click *OK*.
- 4 Add the User object as a trustee of the Profile object by double-clicking the Profile object.

- 5 Click *NDS Rights > Trustees of This Object > Add Trustee*.
- 6 Specify the name of the User object that uses this Profile object.
- 7 Make sure that the *Browse object* and the *Read Property* check boxes are selected, then click *OK* to assign these rights to the User object.

The User object is now a trustee of the Profile object and has the rights necessary to run the profile login script.

Repeat these steps for all additional users who need to use this script.

1.4.3 Getting Around the One User and One Profile Login Script Restriction

Users can have only one User profile associated with their User object and can belong to only one Profile object. As a rule, only one User login script and one Profile login script can be executed for any user.

There are ways around this limitation using the Novell Login Window and the `PROFILE` command. The Novell Login Window allows users to specify additional login scripts to be run during login when they click on the Scripts tab. Here, users can specify scripts that are not a part of their eDirectory User object or, are not associated with a Profile object that they are trustees for.

Also, additional scripts can be run from within the two standard scripts by using the `PROFILE` command. For more information on the `PROFILE` command, see [Section 3.21, "PROFILE," on page 48](#).

In addition to using the Novell Login Window or the `PROFILE` command, you can also assign users to more than one Group object. Use the `MEMBER OF` group identifier variable to execute different parts of a login script, depending on the Group objects that the user belongs to. To accomplish this, use the `IF . . . THEN` command (see [Section 3.15, "IF...THEN," on page 41](#)) and the `MEMBER OF` group identifier variable (see [Section 3.2, "Using Identifier Variables," on page 29](#)).

To view an example of the `IF . . . THEN` command used with the `MEMBER OF` group identifier variable, see ["Sample Login Scripts" on page 19](#).

1.5 Creating Login Scripts from a Sample or Existing Login Script

- 1 Locate the sample or existing login script that you want to modify.
For sample login scripts included in this documentation, see ["Sample Login Scripts" on page 19](#).
- 2 Copy the sample or existing login script.
- 3 In Novell iManager or ConsoleOne, open the login script, copy the sample, then paste it into the User object or Profile object's login script.
See [Section 1.4, "Creating or Modifying Login Scripts," on page 10](#).
- 4 Make necessary changes to the sample login script to customize it for your network.

IMPORTANT: Make sure that you edit the sample login script to match the server names, directory paths, and specifications of your own network.

- 5 Click *OK* to save the new login script.

If the login script that you just created was a container or user login script, you're finished. If the login script that you just created was for a Profile object, you must associate the User object with the Profile object and make the User object a trustee of the Profile object. See [“Creating a Profile Login Script” on page 11](#) or [“Associating the User Object with a Profile Object” on page 12](#).

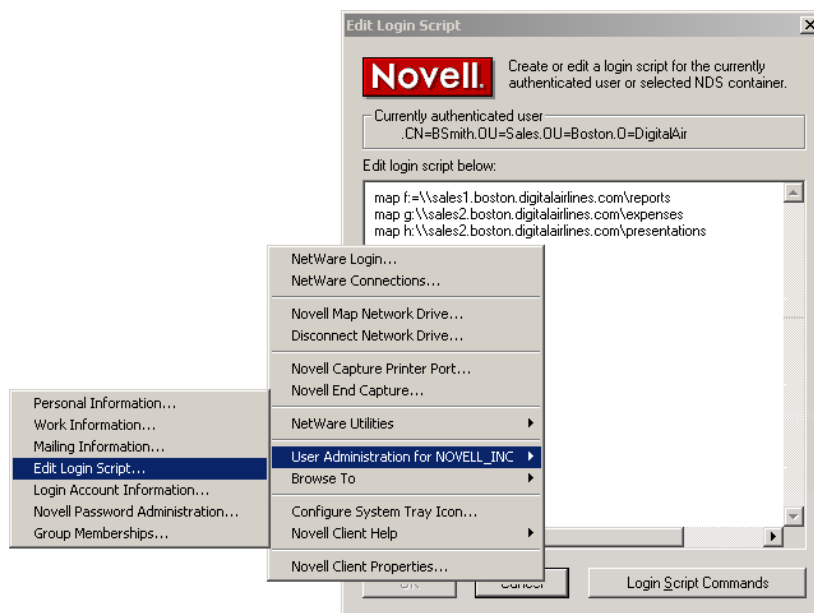
1.6 Modifying User Login Scripts from the N Menu

In addition to creating User login scripts in Novell iManager or ConsoleOne, you can also add user login scripts to User objects from the N menu in the system tray. This lets you customize the login script for the user that is currently logged in to the network, without running iManager or ConsoleOne.

IMPORTANT: On Linux workstations, the ability to edit login scripts is available only in the Novell Client for Linux 1.2 or later.

1.6.1 Modifying Login Scripts from the N Menu

Figure 1-2 Editing a Login Script from the N Menu



For example, users can add commands to their login scripts to map drives that they access frequently.

- 1 Log in as the user you want to modify login scripts for.
- 2 Right-click the N menu, then click *User Administration for tree_name > Edit Login Script*.
- 3 Type the login script commands you want to add.

For example, if you want to map drives, you would type

```
MAP drive_letter:=\\server_name\path_to_volume
```

For example:

```
MAP F:=\\MKTG.TOKYO.DIGITALAIRLINE.COM\DOC
```

- 4 Click *OK*.
- 5 Click *Yes* to save changes to the login script.
- 6 Log in again to see the changes to your login script.

1.7 Printing Login Scripts from Windows

To print a login script from the Windows command line, use the `NLIST` command and redirect the output to a file or a printer. You must be in an object's parent container to see and print the login script of that object.

IMPORTANT: You must have a workstation running DOS 3.30 or later and the Read and File Scan property rights to the object to be printed.

To print a user's login script, enter

```
NLIST user=username show "login script">LPT1
```

To print a container's login script, enter

```
NLIST organizational unit=ou name show login script>LPT1
```

IMPORTANT: Any option in the `NLIST` command that includes a space in its name must be enclosed in quotes.

1.8 Understanding How Login Scripts Work with Linux Workstations

Novell has been able to port the vast majority of login script functionality over to the Linux platform. This means that the login scripts you create in your network will work for both Windows users and Linux users with very little difference in functionality.

Additionally, login scripts that were created to run on Windows will be run when a user logs in from a Linux workstation. This means that in most cases, your existing login scripts do not need to be modified to accommodate Linux workstations unless you have specific commands that you want to run only on Linux workstations.

Some of the small differences are created by the inherent difference between Windows and Linux. For example, when you map drives in Linux, you are creating a symbolic link like a mount point. When you create a mapped drive, you can also use a descriptive name instead of a drive letter since Linux supports descriptive names in addition to drive letters. For more information on differences in the `MAP` command on Linux, see [Section 3.18.1, "MAP Command Differences on Linux," on page 47](#).

Some login script commands do not work on Linux workstations due to the way the Linux operating system handles them.

- ♦ The following commands do not work: `DRIVE`, `SCRIPT_SERVER`, and `SET_TIME`.

- ♦ `FDISPLAY` displays the file displays the binary form with all commands visible. It is better to use the `DISPLAY` command in Linux.
- ♦ `FIRE PHASERS` prints a message stating `BEEP BEEP BEEP` to indicate that the beep has been sent.
- ♦ `IF . . . THEN` statements can be nested up to 100 levels in Linux.
- ♦ `SET` command are not persistent and only apply to the specific login session they are associated with, as is standard with Linux.
- ♦ The `TERM` command operates the same way that `EXIT` operates.

1.9 Understanding How Login Scripts Work with NetStorage

Novell NetStorage provides secure Internet-based access to files and folders on a NetWare server in your network using either a browser or Microsoft Web Folders (Microsoft's implementation of WebDav). NetStorage authentication relies on the power of eDirectory to provide secure access, so Internet-based access is as secure as accessing files from within the network.

When a user authenticates to NetStorage, the login scripts associated with the eDirectory User object in the primary authentication domain are processed. These login scripts are the same scripts processed by the Novell Client.

However, because login scripts were designed to be processed by the Novell Client on the user's workstation, some of the defined statement types and script variables cannot be processed by NetStorage. The following is a list of what login script functions are available when users authenticate using NetStorage.

- ♦ **NetStorage Looks for MAP Commands:** NetStorage processes login scripts in order to find MAP statements. Each MAP statement generates one path into the NetWare file system that the user can access using NetStorage.

In addition to the `MAP` command, the `IF`, `THEN`, `ELSE`, `END`, `INCLUDE`, and `EXIT` commands are the only commands recognized by NetStorage. All other login script statements are treated as comments and ignored.

- ♦ **Multiple Login Scripts Processed:** When a user successfully logs in to the network, one or more login scripts are executed. Login scripts can be obtained from container objects, Profile objects, User objects, or any file or directory object designated by the `INCLUDE` statement.
- ♦ **Authentication to Multiple eDirectory Trees:** Users can authenticate to multiple eDirectory trees. One tree is configured as primary. When the user enters a username and password, NetStorage authenticates to the primary tree and, if successful, attempts to authenticate to all other domains.

Only the login scripts from the primary eDirectory tree are processed. However, one of these login scripts might map to a directory on a server that resides in another tree. Because the user is authenticated to all trees, he will also have access to this directory.

- ♦ **eDirectory Variables:** The value of an eDirectory attribute of the current User object can be substituted anywhere in the login script. Precede the attribute name with a percent sign (%) and replace any spaces in the attribute name with an underscore (_). The following are some attributes that are useful in login scripts:

`%HOME_DIRECTORY`

`%CN`

`%LANGUAGE`

These variables are generally used as part of the MAP statement or the IF statement. For example:

```
IF "%LANGUAGE" = "ENGLISH"
MAP H:=\\MYSERVER\USERS\%CN
```

The eDirectory syntax types supported by NetStorage for these attributes are path, string, and list. In the case of the list syntax, only the first string in the list is used.

For more specific information on how login scripts are processed by NetStorage, see “[Login Script Processing by NetStorage](http://support.novell.com/cgi-bin/search/searchtid.cgi?/10068983.htm)” TID# 10068983 (<http://support.novell.com/cgi-bin/search/searchtid.cgi?/10068983.htm>).

1.10 Additional Sources for Login Scripts Information

Because login scripts have been used in multiple versions of Novell products over the past 10 years, there is a wealth of information about them available in other documentation. Here are a few sources to check for additional information:

- ♦ “Using NDS User Object Properties in a Login Script” AppNotes article (<http://developer.novell.com/research/appnotes/1995/may/04/index.htm>)
- ♦ Troubleshooting Login Scripts TID# 1203151 (<http://www.novell.com/support/php/search.do?cmd=displayKC&docType=kc&externalId=10012087>)
- ♦ Troubleshooting Login Scripts TID# 10012087 (<http://www.novell.com/support/php/search.do?cmd=displayKC&docType=kc&externalId=10012087>)
- ♦ Troubleshooting Container Login Scripts TID# 10025702 (<http://support.novell.com/docs/Tids/Solutions/10025702.html>)

This additional information, in conjunction with this manual, provides you the needed information to construct and troubleshoot login scripts.

Sample Login Scripts

You can create login scripts from these sample login scripts using Novell iManager, ConsoleOne, or NetWare Administrator. Using a sample login script can help eliminate syntax errors, reducing the time it takes you to create your login scripts.

This section includes the following information:

- ◆ [Section 2.1, “Sample Container Login Script,” on page 19](#)
- ◆ [Section 2.2, “Sample Profile Login Script,” on page 20](#)
- ◆ [Section 2.3, “Sample User Login Scripts,” on page 20](#)
- ◆ [Section 2.4, “Sample Default Login Script,” on page 21](#)
- ◆ [Section 2.5, “Samples of Login Script Commands,” on page 22](#)

For more information on how to create login scripts, see [Section 1.4, “Creating or Modifying Login Scripts,” on page 10](#).

IMPORTANT: You must modify these sample login scripts to match the server names, directory paths, and specifications of your own network.

2.1 Sample Container Login Script

The container login script should contain any information that applies to all users. By using some or all of the commands included in the following sample container login script, you might find it easier to plan and create your own container login scripts.

For more detailed information about each type of login script command, see [“Login Script Commands and Variables” on page 27](#).

```
MAP DISPLAY OFF
MAP ERRORS OFF
MAP *1:=%HOME_DIRECTORY

IF "%1"="ADMIN" THEN MAP *1:SYS:SYSTEM

IF OS="WINNT" THEN
  MAP P:=SYS:PUBLIC
ELSE
  MAP INS S1:=SYS:PUBLIC
  MAP INS S2:=SYS:PUBLIC\MACHINE\%OS\%OS_VERSION
END

IF OS="WINNT" THEN
  MAP P:=SYS:USERS\%LOGIN_NAME\WINNT
  MAP INS S16:=SYS:APPS\WINAPPS\WINNT
  SET TEMP = "P:\USERS\%LOGIN_NAME\WINNT\TEMP"
END
```

```

IF OS="LINUX" THEN
  WRITE "Running on Linux"
  MAP mydocuments=server/voll:/documents
ELSE
  WRITE "Running on a machine other than Linux"
  MAP d:=server/voll:/documents
END

IF MAP INS S16:=VOL1:APPL\LOTUS
MAP INS S16:=SYS:EMAIL
MAP M:=VOL1:SHARED
MAP N:=VOL1:MODEMS

MAP O:=SYS:DOC

IF MEMBER OF "MANAGERS" THEN
  MAP *3:=VOL1:PROJECTS\REPORTS
END

```

IMPORTANT: The Novell Client for Linux is designed to work with scripts that were written for the Windows Client, so if you already have Windows login scripts, Linux workstations logging in to the network will execute any part of the login script that is labeled IF OS="WINNT".

2.2 Sample Profile Login Script

If you have groups of users with identical login script needs, you can create a Profile object and then create a login script for it. Then you can assign each user to be a member of that object.

The following login script shows an example of a profile login script you might create for users in the Profile object ACCOUNTING. This profile login script would execute after the container login script had executed.

For more detailed information about each type of login script command, see [“Login Script Commands and Variables” on page 27](#).

```

MAP DISPLAY OFF
MAP ERRORS OFF
MAP INS S16:=VOL1:APPL\DB
MAP *5:=VOL1:ACCOUNTS\NEW
MAP *6:=VOL1:ACCOUNTS\RECORDS

@GRPWISE5
MAP DISPLAY ON
MAP
WRITE
IF DAY_OF_WEEK="FRIDAY" THEN
  WRITE "Weekly progress report is due today."
  FIRE 2
END

```

2.3 Sample User Login Scripts

The following login script is an example of a login script created for user MARY. The user login script executes after the container and profile login scripts have executed. In addition, a user login script prevents the default login script from executing for this specific user.

Therefore, you should consider whether any commands in the default login script are necessary for setting the user's environment. If so, determine whether those commands should be placed into one of the other login scripts (container, profile, or user).

```
MAP DISPLAY OFF
MAP ERRORS OFF
MAP *7:=VOL1:MARY\PROJECTS\RESEARCH
MAP *8:=VOL1:FORMS
REM Mary needs access to FORMS while she's on the
REM troubleshooting team.
SET WP="/u-mjr/b-5"
SET USER="mrichard"
#SEND /A=N
```

For more detailed information about each type of login script command, see [“Login Script Commands and Variables”](#) on page 27.

2.3.1 Sample User Login Script for Mapping Drives

In addition to creating User login scripts in ConsoleOne, users can also add modify their own user login scripts from the N menu in the system tray. This is very useful if users want to add commands to their login scripts to map drives that they access frequently. For more information on editing user login scripts from the N menu, see [Section 1.6, “Modifying User Login Scripts from the N Menu,”](#) on page 14.

The following sample shows how Takashi included his drive mappings in his User login script.

```
MAP F:=\\MKTG.TOKYO.DIGITALAIRLINE.COM\DATA
MAP G:=\\MKTG.TOKYO.DIGITALAIRLINE.COM\HOME\KYAMATO
```

2.4 Sample Default Login Script

The default login script executes the first time User object ADMIN logs in. It also executes for any users who do not have user login scripts.

You can't modify the default login script because it is coded into the Novell LOGIN utility. Instead, you can create container, profile, or user login scripts.

The following sample displays the contents of a default login script.

```
MAP DISPLAY OFF
MAP ERRORS OFF
MAP *1:=%FILE_SERVER\SYS:
MAP *1:=%FILE_SERVER\SYS:%LOGIN_NAME
IF "%LOGIN_NAME"="SUPERVIS" OR "%LOGIN_NAME"="ADMIN" THEN
MAP *1:=%FILE_SERVER\SYS:SYSTEM
MAP INS S1:=%FILE_SERVER\SYS:PUBLIC
MAP INS S2:=%FILE_SERVER\SYS:PUBLIC\%MACHINE%\%OS%\%OS_VERSION
MAP DISPLAY ON
MAP
```

For more detailed information about each type of login script command, see [“Login Script Commands and Variables”](#) on page 27.

2.5 Samples of Login Script Commands

This section contains the following samples of login script commands:

- ◆ [Section 2.5.1, “If Member Of Script Sample,” on page 22](#)
- ◆ [Section 2.5.2, “MAP Command Script Sample,” on page 22](#)
- ◆ [Section 2.5.3, “Identifier Variables Script Sample,” on page 23](#)
- ◆ [Section 2.5.4, “Display Script Sample,” on page 24](#)
- ◆ [Section 2.5.5, “Fdisplay Script Sample,” on page 24](#)
- ◆ [Section 2.5.6, “Include Script Sample,” on page 25](#)

2.5.1 If Member Of Script Sample

The following is a sample of an IF...THEN statement that uses the identifier variable MEMBER. For more information, on these commands, see [Section 3.15, “IF...THEN,” on page 41](#) and [Section 3.2, “Using Identifier Variables,” on page 29](#) for more information on using identifier variables like MEMBER.

```
IF MEMBER OF ".USER.MYCOMPANY" THEN WRITE "You are a member of User"
IF NOT MEMBER OF ".USER.MYCOMPANY" THEN WRITE "You are not a member of User"
IF MEMBER OF ".GROUP10.MYCOMPANY" THEN WRITE "Group 10 is the Best!"
```

2.5.2 MAP Command Script Sample

The following is a sample of MAP command statements used to map to

For more information, on these commands, see [Section 3.18, “MAP,” on page 45](#).

```
MAP DISPLAY ON
MAP DISPLAY ON E:=FILE_SERVER/SYS:
MAP H:=.FILE_SERVER_SYS.MYCOMPANY
MAP D:=FILE_SERVER/SYS;G:=FILE_SERVER/SYS:
MAP ERRORS OFF D:=FILE_SERVER/SYS;G:=FILE_SERVER/SYS;J:=FILE_SERVER/SYS:/
JAVA
MAP X:=\\FILE_SERVER\SYS;G:=FILE_SERVER/SYS:
MAP INS K:=FILE_SERVER/SYS:/JAVA;Y:=FILE_SERVER\SYS\JAVA
MAP Z:=\\FILE_SERVER\SYS\JAVA
MAP INS J:=FILE_SERVER/SYS:/JAVA;Y:=\\FILE_SERVER\SYS\JAVA
MAP DEL C:
MAP K:=%HOME_DIRECTORY
MAP DISPLAY OFF
MAP INS
F:=\\FILE_SERVER\SYS\LOGIN;H:=\\FILE_SERVER\SYS\LOGIN\;Y:=FILE_SERVER/SYS:
MAP L:=\\FILE_SERVER\SYS\LOGIN\
MAP ROOT G:=FILE_SERVER/SYS:
MAP ERRORS ON
MAP DISPLAY OFF F:=FILE_SERVER/SYS:
MAP DISPLAY OFF INS F:=FILE_SERVER/SYS:
MAP DEL D:

MAP L:=.FILE_SERVER_SYS.MYCOMPANY/LINUX
MAP P:=.FILE_SERVER_SYS.MYCOMPANY:LINUX
MAP Q:=.FILE_SERVER_SYS.MYCOMPANY:/LINUX
MAP O:=X:=.CN=DATA.O=MYCOMPANY
```

2.5.3 Identifier Variables Script Sample

The following is a sample of how identifier variables can be used in a script. For more information, on these variables, see [Section 3.2, "Using Identifier Variables,"](#) on page 29.

```

WRITE "DAY %DAY"
WRITE "DAY OF WEEK %DAY_OF_WEEK"
WRITE "MONTH %MONTH"
WRITE "MONTH NAME %MONTH_NAME"
WRITE "NDAY OF WEEK %NDAY_OF_WEEK"
WRITE "SHORT_YEAR %SHORT_YEAR"
WRITE "YEAR %YEAR"

SET TESTING="ENVDATA"
WRITE "SET DATA IS: %<TESTING>"
WRITE "ACCESS SERVER: %ACCESS_SERVER"
WRITE "PARAMETER %1"

WRITE "DIALUPIS: ";DIALUP
WRITE "OFFLINE IS %OFFLINE"
WRITE "FILE_SERVER: %FILE_SERVER"
WRITE "NETWORK_ADDRESS%NETWORK_ADDRESS"
WRITE "SURNAME: %SURNAME"

WRITE "AM PM %AM_PM"
WRITE "GREETING TIME%GREETING_TIME"
WRITE "HOUR %HOUR"
WRITE "HOUR24%HOUR24"
WRITE "MINUTE %MINUTE"
WRITE "SECOND %SECOND"

WRITE "CN IS: %CN"
WRITE "LOGIN ALIAS CONTEXT%LOGIN_ALIAS_CONTEXT"
WRITE "FULL NAME IS: %FULL_NAME"
WRITE "LAST NAME IS: %LAST_NAME"
WRITE "LOGIN CONTEXT IS: %LOGIN_CONTEXT"
WRITE "LOGIN NAME IS: %LOGIN_NAME"
IF MEMBER OF "USERS.MYCOMPANY" THEN WRITE "USER IS MEMBER OF USERS.MYCOMPANY"
IF NOT MEMBER OF "USERS.MYCOMPANY" THEN WRITE "USER IS NOT A MEMBER OF
USERS.MYCOMPANY"
WRITE "PASSWORD EXPIRES: %PASSWORD_EXPIRES"
WRITE "REQUESTER CONTEXT: %REQUESTER_CONTEXT"
WRITE "USER ID %USER_ID"
WRITE "HOME DIRECTORY IS %HOME_DIRECTORY"WRITE "MACHINE IS: %MACHINE"
WRITE "NETWARE REQUESTER: %NETWARE_REQUESTER"
WRITE "OS IS: %OS"
WRITE "OS VERSION IS: %OS_VERSION"
WRITE "P STATION IS: %P_STATION"
WRITE "PLATFORM IS: %PLATFORM"
WRITE "SHELL TYPE IS; %SHELL_TYPE"
WRITE "SHELL VERSION IS: %SHELL_VERSION"
WRITE "SMACHINE IS: %SMACHINE"
WRITE "STATION IS: %STATION"
WRITE "WINVER IS: %WINVER"IF JUNK THEN WRITE "JUNK"
WRITE "TESTING FOR AN INVALID IDENTIFIER(MYID) %MYID"WRITE "DAY IS";DAY
WRITE "DAY %DAY"
WRITE "DAY OF WEEK %DAY_OF_WEEK"
WRITE "MONTH %MONTH"
WRITE "MONTH NAME %MONTH_NAME"

```

```

WRITE "NDAY OF WEEK %NDAY_OF_WEEK"
WRITE "SHORT_YEAR %SHORT_YEAR"
WRITE "YEAR %YEAR"SET TESTING="ENVDATA"
WRITE "SET DATA IS: %<TESTING>"
WRITE "ACCESS SERVER: %ACCESS_SERVER"
WRITE "PARAMETER %1"WRITE "DIALUPIS:";DIALUP
WRITE "OFFLINE IS %OFFLINE"
WRITE "FILE_SERVER: %FILE_SERVER"
WRITE "NETWORK_ADDRESS %NETWORK_ADDRESS"
WRITE "SURNAME: %SURNAME"WRITE "AM PM %AM_PM"
WRITE "GREETING TIME %GREETING_TIME"
WRITE "HOUR %HOUR"
WRITE "HOUR24 %HOUR24"
WRITE "MINUTE %MINUTE"
WRITE "SECOND %SECOND"WRITE "CN IS: %CN"
WRITE "LOGIN ALIAS CONTEXT %LOGIN_ALIAS_CONTEXT"
WRITE "FULL NAME IS: %FULL_NAME"
WRITE "LAST NAME IS: %LAST_NAME"
WRITE "LOGIN CONTEXT IS: %LOGIN_CONTEXT"
WRITE "PASSWORD EXPIRES: %PASSWORD_EXPIRES"
WRITE "REQUESTER CONTEXT: %REQUESTER_CONTEXT"
WRITE "USER ID %USER_ID"

WRITE "MACHINE IS: %MACHINE"
WRITE "NETWARE REQUESTER: %NETWARE_REQUESTER"
WRITE "OS IS: %OS"
WRITE "OS VERSION IS: %OS_VERSION"
WRITE "P STATION IS: %P_STATION"
WRITE "PLATFORM IS: %PLATFORM"
WRITE "SHELL TYPE IS; %SHELL_TYPE"
WRITE "SHELL VERSION IS: %SHELL_VERSION"
WRITE "SMACHINE IS: %SMACHINE"
WRITE "STATION IS: %STATION"
WRITE "WINVER IS: %WINVER"

```

2.5.4 Display Script Sample

The following is a sample of how the DISPLAY command can be used in a script. For more information, see [Section 3.9, "DISPLAY," on page 38](#).

```

SET SERVER="FILE_SERVER"

DISPLAY \\FILE_SERVER\SYS\VOL1\LOGINSRIPT.TXT
DISPLAY \\FILE_SERVER\SYS\VOL1\LOGINSRIPT.TXT\
DISPLAY \\%FILE_SERVER\SYS\VOL1\LOGINSRIPT.TXT
DISPLAY FILE_SERVER\SYS:\VOL1\LOGINSRIPT.TXT
DISPLAY %FILE_SERVER\SYS:\VOL1\LOGINSRIPT.TXT
DISPLAY %FILE_SERVER\SYS:VOL1\LOGINSRIPT.TXT
DISPLAY SYS:VOL1\LOGINSRIPT.TXT
DISPLAY SYS:/VOL1/LOGINSRIPT.TXT
DISPLAY /ETC/PAM.D/NWLOGIN
DISPLAY .MYCOMPANY

```

2.5.5 Fdisplay Script Sample

The following is a sample of how the FDISPLAY command can be used in a script. For more information, see [Section 3.12, "FDISPLAY," on page 39](#).


```
SET SERVER="FILE_SERVER"

FDISPLAY \\FILE_SERVER\SYS\VOL1\LOGINSRIPT.TXT
FDISPLAY \\%FILE_SERVER\SYS\VOL1\LOGINSRIPT.TXT
FDISPLAY FILE_SERVER\SYS:\VOL1\LOGINSRIPT.TXT
FDISPLAY %FILE_SERVER\SYS:\VOL1\LOGINSRIPT.TXT
FDISPLAY .MYCOMPANY
```

2.5.6 Include Script Sample

The following is a sample of how the INCLUDE command can be used in a script. For more information, see [Section 3.16, "INCLUDE," on page 43](#).

```
SET SERVER="FILE_SERVER"

INCLUDE \\FILE_SERVER\SYS\VOL1\LOGINSRIPT.TXT
INCLUDE \\FILE_SERVER\SYS\VOL1\LOGINSRIPT.TXT\
INCLUDE \\%FILE_SERVER\SYS\VOL1\LOGINSRIPT.TXT
INCLUDE %FILE_SERVER\SYS:\VOL1\LOGINSRIPT.TXT
INCLUDE %FILE_SERVER/SYS:/VOL1\LOGINSRIPT.TXT
INCLUDE .MYCOMPANY
```


Login Script Commands and Variables

This section lists login script commands alphabetically and by the type of tasks the commands perform. It also contains a list of identifier variables used in login scripts.

- ◆ Section 3.1, “Login Script Conventions,” on page 28
- ◆ Section 3.2, “Using Identifier Variables,” on page 29
- ◆ Section 3.3, “Login Scripts Commands by Task,” on page 33
- ◆ Section 3.4, “#,” on page 35
- ◆ Section 3.5, “@,” on page 36
- ◆ Section 3.6, “ATTACH,” on page 36
- ◆ Section 3.7, “BREAK,” on page 37
- ◆ Section 3.8, “CONTEXT,” on page 37
- ◆ Section 3.9, “DISPLAY,” on page 38
- ◆ Section 3.10, “DRIVE,” on page 38
- ◆ Section 3.11, “EXIT,” on page 39
- ◆ Section 3.12, “FDISPLAY,” on page 39
- ◆ Section 3.13, “FIRE or FIRE PHASERS,” on page 40
- ◆ Section 3.14, “GOTO,” on page 40
- ◆ Section 3.15, “IF...THEN,” on page 41
- ◆ Section 3.16, “INCLUDE,” on page 43
- ◆ Section 3.17, “LASTLOGINTIME,” on page 45
- ◆ Section 3.18, “MAP,” on page 45
- ◆ Section 3.19, “NO_DEFAULT,” on page 47
- ◆ Section 3.20, “PAUSE,” on page 48
- ◆ Section 3.21, “PROFILE,” on page 48
- ◆ Section 3.22, “REGREAD,” on page 48
- ◆ Section 3.23, “REMARK,” on page 49
- ◆ Section 3.24, “SCRIPT_SERVER,” on page 50
- ◆ Section 3.25, “SET,” on page 50
- ◆ Section 3.26, “SET_TIME,” on page 51
- ◆ Section 3.27, “SHIFT,” on page 52
- ◆ Section 3.28, “TREE,” on page 54
- ◆ Section 3.29, “WRITE,” on page 54

NOTE: Commands that work only on DOS or Windows 3.x workstations have not been included. These commands include CLS, COMSPEC, DOS VERIFY, MACHINE, NOSWAP, and SWAP. For information on using these commands, see the help file that accompanies the Novell Client for DOS and Windows 3.x software.

3.1 Login Script Conventions

The following table explains the conventions you should follow when creating login scripts.

Table 3-1 *Login Script Conventions*

Convention	Explanation
Minimum login script	No minimum. All types of login scripts are optional. Login scripts can vary from one line to many. There are no required commands.
Case	Either uppercase or lowercase is accepted. Exception: identifier variables enclosed in quotation marks and preceded by a percent sign (%) must be uppercase. See Section 3.2, "Using Identifier Variables," on page 29.
Characters per line	Maximum 512 characters per line, including any variables after they are replaced by their values; 78 characters per line (common screen width) is recommended for readability.
Punctuation and symbols	Type all symbols (#, %, ", _) and punctuation exactly as shown in examples and syntax.
Commands per line	Use one command per line. Start each command on a new line; press Enter to end each command and start a new command. Lines that wrap automatically are considered one command.
Sequence of commands	Generally, list commands in the order that you want them to execute, with the following restrictions: <ul style="list-style-type: none"> ◆ ATTACH commands (NetWare 3 only) must precede related MAP commands to avoid prompting the user for a username/password during login (see Section 3.6, "ATTACH," on page 36). ◆ If you use # (see Section 3.4, "#," on page 35) or @ (see Section 3.5, "@," on page 36) to execute an external program, the command must follow any necessary MAP commands. If sequence is not important, group similar commands, such as MAP and WRITE commands, together to make the login script easier to read.
Blank lines	Blank lines don't affect login script execution. Use them to visually separate groups of commands.
Remarks	Lines beginning with REMARK, REM, an asterisk (*), or a semicolon (;) are comments, which don't display when the login script executes (see Section 3.23, "REMARK," on page 49). Use remarks to record the purpose of each command or group of commands or to temporarily keep certain lines from executing.

Convention	Explanation
Identifier variables	Type identifier variables exactly as shown. To display the value of an identifier variable as part of a WRITE command, you must enclose the identifier in quotation marks and precede it by a percent sign (%). See Section 3.2, "Using Identifier Variables," on page 29 .
eDirectory attribute values	<p>Any eDirectory attribute value, including extended names, can be read from a login script. The syntax for accessing eDirectory attributes is identical to common script variables with a few exceptions:</p> <ul style="list-style-type: none"> ◆ The eDirectory attribute must be at the end of the string. ◆ If multiple variables are required, they must be in separate strings. ◆ You must use the actual eDirectory attribute value names. You cannot use localized names or nicknames. Some common eDirectory attribute names are listed in Section 3.2, "Using Identifier Variables," on page 29. ◆ You must have the Read right to read the value of objects other than values associated with your own User object. <p>If the name contains a space, you can replace it with an underscore (_) but it is not required. Both of the following examples are correct syntax:</p> <pre>map n %home directory map n %home_directory</pre>
eDirectory object mappings	<p>eDirectory objects, such as cluster-enabled volumes, can be mapped in the login script using the object's fully distinguished name and context preceded by a leading dot (.).</p> <p>To map to a cluster-enabled volume, you would use the following syntax:</p> <pre>MAP N:=.eDirectory_object's_fully_distinguished_name_including_context</pre> <p>For example:</p> <pre>MAP N:=.cluster2_vol1.xyz.provo.novell</pre> <p>For more information on mapping, see Section 3.18, "MAP," on page 45.</p>

3.2 Using Identifier Variables

Many login script commands allow you to take advantage of identifier variables to make login scripts more efficient and flexible.

Use identifier variables to enter a variable (such as LAST_NAME) rather than a specific name (such as Smith) in a login script command. When the login script executes, it substitutes real values for the identifier variables.

By using the variable, you can make the same login script command applicable to multiple users.

When using variables within login script commands, observe the following conventions:

- ♦ Type the variable exactly as shown.
- ♦ To use environment variables as identifiers, enclose them in angle brackets (<>).
- ♦ Identifier variables are used most often with commands such as `IF . . . THEN`, `MAP`, and `WRITE`. They can also be used with commands that you can specify a path for, such as `COMSPEC`.
- ♦ Identifier variables can be placed within literal text strings in a `WRITE` statement. However, the identifier variable must be in uppercase letters and preceded by a percent sign (%). (Literal text is the text that is displayed on the screen, such as “Sales report is due today.” Literal text must be enclosed in quotation marks.)

For example, using the `%LAST_NAME` variable substitutes the user's actual last name for the `LAST_NAME` variable in the command when the user logs in. For example:

```
WRITE "Hello, ";LAST_NAME
```

or

```
WRITE "Hello, %LAST_NAME"
```

displays the following message on Bob Smith's workstation screen when he logs in:

```
Hello, SMITH
```

The percent sign (%) is used only within literal text strings (that is, within quotation marks (“ ”)). The semicolon (;) is used to concatenate the literal text string and the identifier variable.

Using the `%GREETING_TIME` variable displays the time of day. If Bob Smith logs in during the morning, both of the following lines display the same message (Good morning, SMITH) on his screen:

```
WRITE "Good "; GREETING_TIME; ", "; LAST_NAME
```

```
WRITE "Good %GREETING_TIME, %LAST_NAME"
```

The following table lists the identifier variables that work for both Linux and Windows workstations.

Table 3-2 Identifier Variables for Linux and Windows

Category	Identifier Variable	Function
Date	DAY	Day number (01 through 31)
	DAY_OF_WEEK	Day of week (Monday, Tuesday, etc.)
	MONTH	Month number (01 through 12)
	MONTH_NAME	Month name (January, February, etc.)
	NDAY_OF_WEEK	Weekday number (1 through 7; 1=Sunday)
	SHORT_YEAR	Last two digits of year (99, 00, 01)
	YEAR	All four digits of year (1999, 2000, 2001)

Category	Identifier Variable	Function
DOS Environment	<i>variable</i>	Any DOS environment variable can be used in angle brackets. To use a DOS environment variable in MAP, COMSPEC, INCLUDE, DISPLAY, and FIRE PHASERS commands, add a percent sign (%) in front of the variable.
Miscellaneous	ACCESS_SERVER	Shows whether the access server is functional (TRUE = functional; FALSE = nonfunctional)
	ERROR_LEVEL	An error number (0 = no errors)
	<i>%n</i>	Replaced by parameters the user enters at the command line with the login utility See "Login Parameters with %n Variables" on page 32.
NetWare Mobile	DIALUP	0 = Not using DIALUP 1 = Using NetWare Mobile Client DIALUP profile
	OFFLINE	0 = Not offline 1 = Disconnected login
Network	FILE_SERVER	NetWare server name
	NETWORK_ADDRESS	Internal number assigned by the network specifying where a device can be located in the network cabling system
Object Properties	<i>property_name</i>	You can use property values of eDirectory objects as variables. Use the property values just as you do any other identifier variable. If the property value includes a space, enclose the name in quotation marks. To use a property name with a space within a WRITE statement, you must place it at the end of the quoted string: WRITE "Given name=%GIVEN_NAME" IF "MESSAGE SERVER"="MS1" THEN MAP INS S16:=MS1\SYS:EMAIL END
Time	AM_PM	a.m. or p.m.
	GREETING_TIME	Time of day (morning, afternoon, evening)
	HOUR	Hour (12-hour scale; 1 through 12)
	HOUR24	Hour (24-hour scale; 00 through 23)
	MINUTE	Minute (00 through 59)
	SECOND	Second (00 through 59)
User	CN	User's full login name as it exists in eDirectory
	LOGIN_ALIAS_CONTEXT	"Y" if REQUESTER_CONTEXT is an alias

Category	Identifier Variable	Function
	FULL_NAME	User's unique username. It is the value of the FULL_NAME property for both eDirectory and bindery-based NetWare. Spaces are replaced with underscores (_).
	LAST_NAME	User's surname in eDirectory or full login name in bindery-based NetWare
	LOGIN_CONTEXT	User's context
	LOGIN_NAME	User's unique login name (long names are truncated to eight characters)
	MEMBER OF "group"	Group object that the user is assigned to
	NOT MEMBER OF "group"	Group object that the user is not assigned to
	PASSWORD_EXPIRES	Number of days before password expires
	REQUESTER_CONTEXT	Context when login started
	USER_ID	Number assigned to each user
Workstation	MACHINE	Type of computer (IBM_PC, etc.)
	NETWARE_REQUESTER	Version of the NetWare Requester for OS/2 or VLM users
	OS	Type of operating system on the workstation
	OS_VERSION	Operating system version on the workstation
	P_STATION	Workstation's node number (12-digit hexadecimal)
	PLATFORM	Workstation's operating system platform
	SHELL_TYPE	Version of the workstation's DOS shell; supports NetWare 2 and NetWare 3 shells and NetWare 4 Requester for DOS.
	SHELL_VERSION	The version of the Novell Client, as displayed in the property pages. Provides a more effective testing of the Novell Client version from the login script.
	SMACHINE	Short machine name (IBM, etc.)
Workstation (cont'd)	STATION	Workstation's connection number
	WINVER	Version of the workstation's Windows operating system

3.2.1 Login Parameters with %n Variables

Some variables in a login script can be indicated by a percent sign (%) followed by a number from 0 through 9.

NOTE: Only four variables (%2 through %5) can be changed in the login screen.

When a user logs in, additional parameters can be entered that the LOGIN utility passes to the login script. The utility then substitutes these parameters for any %n variables in the login script. These variables are replaced in order by the parameters the user entered when logging in.

The %0 variable is replaced by the name of the NetWare server entered in the Login dialog box, and %1 is replaced by the user's fully distinguished login name. The remaining variables change, depending on what the user types when executing the LOGIN utility. The %n variables must precede all command line options.

The [SHIFT \(page 52\)](#) command allows you to change the order in which these %n variables are substituted.

3.3 Login Scripts Commands by Task

This list identifies which specific login script commands to use, depending on what you need your login scripts to accomplish.

- ♦ [Section 3.3.1, “Network Connection and Resource Access,” on page 33](#)
- ♦ [Section 3.3.2, “Login Script Execution,” on page 33](#)
- ♦ [Section 3.3.3, “Workstation Environment,” on page 34](#)
- ♦ [Section 3.3.4, “Text File Usage,” on page 34](#)
- ♦ [Section 3.3.5, “Other,” on page 35](#)

3.3.1 Network Connection and Resource Access

Action	Command
Establish a connection between a workstation and a NetWare server	Section 3.6, “ATTACH,” on page 36
Set a user's current context in the eDirectory tree	Section 3.8, “CONTEXT,” on page 37
Change the default drive while the login script is executing	Section 3.10, “DRIVE,” on page 38
This is not available for Novell Client for Linux.	
Map drives and search drives to network directories or to map to eDirectory objects such as cluster-enabled volumes	Section 3.18, “MAP,” on page 45
Attach to another eDirectory tree within the network and access its resources	Section 3.28, “TREE,” on page 54

3.3.2 Login Script Execution

Action	Command
Allow the user to terminate execution of the login script	Section 3.7, “BREAK,” on page 37
Emit a phaser sound or beep	Section 3.13, “FIRE or FIRE PHASERS,” on page 40

Action	Command
Execute a portion of the login script out of the regular sequence	Section 3.14, "GOTO," on page 40
Perform an action only under certain conditions	Section 3.15, "IF...THEN," on page 41
Execute independent files or another object's login script as a part of the login script currently being processed	Section 3.16, "INCLUDE," on page 43
Prevent the default user login script from running and do not create any user login scripts in a container or profile login script	Section 3.19, "NO_DEFAULT," on page 47
Create a pause in the execution of the login script	Section 3.20, "PAUSE," on page 48
Set or override a user's assigned or command line-specified profile script in a container script	Section 3.21, "PROFILE," on page 48
Set a home server where the bindery login script is read from	Section 3.24, "SCRIPT_SERVER," on page 50
This is not available for Novell Client for Linux.	
Change the order in which %n variables are interpreted in the login script	Section 3.27, "SHIFT," on page 52

3.3.3 Workstation Environment

Action	Command
Set an environment variable to a specified value	Section 3.25, "SET," on page 50
Set the workstation time equal to the time on the NetWare server that the workstation first connects to	Section 3.26, "SET_TIME," on page 51
This is not available for Novell Client for Linux.	

3.3.4 Text File Usage

Action	Command
Execute a program that is external to the login script	Section 3.4, "#," on page 35
Execute a program that is external to the login script and then continue with the script	Section 3.5, "@," on page 36
Show the contents of a text file when the user logs in	Section 3.9, "DISPLAY," on page 38
Terminate execution of the login script	Section 3.11, "EXIT," on page 39
Show the text of a word processing file when the user logs in	Section 3.12, "FDISPLAY," on page 39
In Linux, the file displays the binary form with all commands visible. It is better to use the <code>DISPLAY</code> command in Linux.	
Display messages on the workstation screen when a user logs in to the network	Section 3.29, "WRITE," on page 54

3.3.5 Other

Action	Command
Display the last time the user logged in	LASTLOGINTIME (page 45)
Include explanatory text in the login script or to keep a line from being executed during testing	REMARK (page 49)

3.4

Use the # command to execute a program that is external to the login script. The # command executes an external program and waits until it is finished running before continuing with other login script commands.

This command fails when

- ♦ The given directory is invalid
- ♦ Proper security rights are lacking
- ♦ The executable file cannot be found
- ♦ Insufficient workstation memory is available to load the file

IMPORTANT: Use the @ command instead of the # command to run an external program from a login script if that external program will remain open for any length of time. Otherwise, the login script remains open until that external program is closed. (Login scripts cannot be edited while they are open.)

Command Format

```
# [path] filename [parameter]
```

Replace *path* with a drive letter (Windows) or a valid path name (Linux) or, if you have specified NOSWAP on the command line or in the login script, you can replace variable with a full directory path beginning with the NetWare volume name.

Replace *filename* with an executable file (files that end in .exe, .com, or .bat, for example). It isn't necessary to include the extension, but doing so can speed up the execution of the external program.

Replace *parameter* with any parameters that must accompany the executable file.

Example

You can use Automatic Client Update (ACU) to update Novell Client software without having to physically visit each workstation and manually update the software.

ACU uses a text file that can be called from the login script. To call this file from the login script for a workstation running Novell Client for Windows NT/2000, place one of the following commands in the login script:

```
#Z:\PUBLIC\INSTALL\NTCLIENT\SETUPNW.EXE /ACU
```

or

```
#\[SERVER]\[VOLUME]\PUBLIC\INSTALL\NTCLIENT\SETUPNW.EXE /ACU
```

3.5 @

Use the @ command to execute a program that is external to the login script and then continue with the script (similar to the Startup group). Enter the @ command followed by the name of the file that you want to execute.

IMPORTANT: Use the @ command instead of the # command to run an external program from a login script if that external program will remain open for any length of time. Otherwise, the login script remains open until that external program is closed. (Login scripts cannot be edited while they are open.)

This command fails when

- ◆ The given directory is invalid.
- ◆ Proper security rights are lacking.
- ◆ The executable file cannot be found.
- ◆ Insufficient workstation memory is available to load the file.

Command Format

```
@ [path] filename [parameter]
```

Replace *path* with a drive letter (Windows) or a valid path name (Linux).

Replace *filename* with an executable file (files that end in .exe, .com, or .bat, for example). Do not include the extension.

Replace *parameter* with any parameters that must accompany the executable file.

Examples

If you want to start the GroupWise program from within the login script, you must have a search drive mapped to where the GroupWise application is stored. Enter the following command in the login script:

```
@GRPWISE
```

You do not need to enter a path in this case, because the executable program file for GroupWise (*grpwise.exe*) is located in a search drive.

If you do not have a search drive mapped to the directory where the program is located, include the path to that directory in the command. For example, if the program to run GroupWise is located in the APPS directory on drive G:, use the following command:

```
@SYS:\APPS\GRPWISE
```

3.6 ATTACH

Establishes a connection between a workstation and a NetWare server. If the server is not in the current tree, a bindery connection is made.

In networks running NetWare 3 or earlier versions, use the `ATTACH` command to connect to multiple file servers. In NetWare 4 and later, users no longer need to attach separately to multiple servers and do not need to use the `ATTACH` command. If users want to connect to multiple trees, use the `TREE` command (see [Section 3.28, “TREE,” on page 54](#)).

TIP: To create persistent drive mappings, use the `MAP` command (see [Section 3.18, “MAP,” on page 45](#)).

3.7 BREAK

Use `BREAK ON` to allow the user to terminate execution of the login script. The default is `BREAK OFF`. If `BREAK ON` is included in a login script, the user can press `Ctrl+C` or `Ctrl+Break` to abort the normal execution of the login script.

NOTE: When the `BREAK` option is `ON`, type-ahead keyboard input is not saved to the buffer.

DOS `BREAK ON/OFF` does the same thing.

Command Format

```
BREAK ON|OFF
```

3.8 CONTEXT

Use `CONTEXT` to set a user's current context in the eDirectory tree. Similar to the `CX` utility in DOS, you can use a complete name to move down through the context, or you can use periods to move up toward the root of the tree. However, `CONTEXT` does not support all options that the `CX` workstation utility does; `CONTEXT` only sets the context.

Command Format

```
CONTEXT context
```

To change the current eDirectory context, replace *context* with the context that you want the user to see after login.

Example

To change the context to the Organizational Unit `SALES`, under the Organization `NOVELL_US` add the following line to the login script:

```
CONTEXT .SALES.NOVELL_US
```

You can type a single period instead of a container name to indicate that you want to move up one level.

For example, if you are in the context `SALES.NOVELL_US` and you want to move up one level to the context `NOVELL_US`, add the following line to the login script:

```
CONTEXT .
```

To move up two levels, enter two periods, etc.

3.9 DISPLAY

Use `DISPLAY` to show the contents of a text file when the user logs in.

When you use `DISPLAY`, all characters in the file, including any printer and word processing codes, appear. This command works best with an ASCII file.

To display only the text and suppress codes, use [Section 3.12, “FDISPLAY,” on page 39](#).

NOTE: If the given path does not exist or if the file is not found, no error message appears on the screen when the user logs in.

Command Format

```
DISPLAY [path] filename
```

Replace *path* with either a drive letter or a full directory path beginning with the NetWare volume name.

Replace *filename* with the complete name (including the extension) of the file that you want to display.

Example

Suppose you put messages in a file called `sysnew.txt` in the `sys:public\messages` directory, and you want your users to see the messages when they log in on Monday. Add the following lines to the container login script:

```
IF DAY_OF_WEEK="Monday" THEN
DISPLAY SYS:PUBLIC\MESSAGES\SYSNEWS.TXT
END
```

3.10 DRIVE

Use `DRIVE` to change the default drive while the login script is executing.

NOTE: This is not fully functional for the Novell Client for Linux.

If this command is not included in the login script, the default drive is set to the first network drive, which is often assigned to the user's home directory upon login.

If you don't want the default drive to be the first network drive, map a drive in the login script to the directory you want to be the default; then use the `DRIVE` command to change the default drive.

Instead of specifying a drive letter such as F: or G:, you can use an asterisk followed by a number *n* to represent the *n*th network drive (for example, *3). This allows drive letters to reorder themselves automatically if previous drive mappings are deleted or added.

Command Format

```
DRIVE [drive | *n]
```

Replace *drive* with a local or network drive letter, or replace *n* with a drive number. The use of either is dependent on their already being assigned within the login script.

Example

Suppose a user will be working on only one project for several days and the files for that project are located on drive S:. Use the `DRIVE` command to set the default drive to S: so that the user doesn't need to change the default drive manually after each login.

First, make sure drive S: is mapped to the correct directory in the user's login script. Then add the following command to the login script:

```
DRIVE S:
```

3.11 EXIT

Use `EXIT` to terminate execution of the login script.

IMPORTANT: You cannot use `EXIT` in a login script to stop the login script and execute a program. `EXIT` only terminates the execution of the login script. If you want to execute a program after exiting the login script, you must use one of two commands: [Section 3.4, “#,” on page 35](#) or [Section 3.5, “@,” on page 36](#), followed on the next line by `EXIT`.

3.12 FDISPLAY

Use `FDISPLAY` to show the text of a word processing file when the user logs in.

To display both the text and the printer and word processing codes of a file, or to display an ASCII file, see [Section 3.9, “DISPLAY,” on page 38](#).

When you use `FDISPLAY` to display a word processing file, the text is filtered and formatted so that only the text is displayed. `FDISPLAY` does not display tabs.

NOTE: If the given path does not exist or if the file is not found, no error message appears on the screen when the user logs in.

Command Format

```
FDISPLAY [path] filename
```

Replace *path* with either a drive letter or a full directory path beginning with the NetWare volume name.

Replace *filename* with the complete name (including the extension) of the file that you want to display.

Examples

Suppose you put messages in a file called `sysnews.txt` in the `sys:public\messages` directory, and you want your users to see this file on their screens when they log in on Monday.

Add the following lines to the container login script:

```
IF DAY_OF_WEEK="Monday" THEN
FDISPLAY SYS:PUBLIC\MESSAGES\SYSNEWS.TXT
END
```

3.13 FIRE or FIRE PHASERS

FIRE or FIRE PHASERS emits a long beep or a phaser sound.

Use this command to generate the phaser sound whenever a user logs in. Use FIRE or FIRE PHASERS with the IF . . . THEN command to make the sound execute a different number of times depending on the circumstances of the login.

On Linux, this command prints a message stating BEEP BEEP BEEP to indicate that the beep has been sent.

Command Format

```
FIRE n soundfile
```

Replace *n* with the number of times that you want this sound to occur.

Replace *soundfile* with the name of the sound file that you want to play when this command is executed. (The sound file variable cannot be used on DOS workstations.) You can use any .wav or platform-compatible sound file.

Examples

The following line executes the phaser sound four times upon login:

```
FIRE 4
```

The following line executes the rifle sound three times upon login:

```
FIRE 3 RIFLE.WAV
```

To use a variable as the number of times to fire, use % before the variable, as follows:

```
FIRE %variable
```

For more information about using variables, see [Section 3.2, "Using Identifier Variables,"](#) on [page 29](#).

3.14 GOTO

Use GOTO to execute a portion of the login script out of the regular sequence.

Set BREAK ON in your login script before experimenting with GOTO loops so that you can break out of a login script if necessary. See [Section 3.7, "BREAK,"](#) on [page 37](#).

IMPORTANT: Do not use GOTO to enter or exit a nested IF...THEN ([page 41](#)) statement. This usage causes problems for the program.

Command Format

```
GOTO label
```

Use *label* to indicate where the login script should continue executing.

In Windows, the *label* can take formats *:label* (colon before) or *label:* (colon after). When the colon comes before the label, any words may be used with the label. When the colon comes after, do not use words that also represent a command or they are interpreted as a command.

Example

To execute a loop of commands, include the following lines in the login script. In this case, the commands to be executed are labeled AGAIN (as indicated in the second line).

```
SET X="1"
AGAIN:
SET X=<X> + "1"
;see compound strings for this
WRITE <X>
IF <X> < "9" THEN GOTO AGAIN
```

The GOTO command looks at the value of <X> (a DOS environment variable). If the value of <X> is less than 9, then <X> increments by 1 and GOTO loops back to the AGAIN label. When <X> gains the value of 9, the IF . . . THEN test becomes false, the GOTO is ignored, and the script continues normally.

3.15 IF...THEN

Use IF . . . THEN to perform an action only under certain conditions.

An example of a conditional statement is

```
IF MEMBER OF "CLERKS"
```

In this statement, some action is performed if the user who logged in belongs to the Group object named CLERKS.

The following is a different type of conditional statement:

```
IF DAY_OF_WEEK="MONDAY"
```

In this statement, the equal sign (=) indicates the relationship between the variable (DAY_OF_WEEK) and its value (Monday). Note that the value (Monday) is inside quotation marks.

When using IF . . . THEN statements, be aware of the following syntax rules:

- ◆ Use AND or OR to include two or more conditionals in an IF . . . THEN statement.
- ◆ Values of conditional statements must be enclosed in quotation marks.

- ◆ Values of conditional statements are compared with the assumption that the values are characters, not numeric values. The value of 21, therefore, would be considered greater than the value of 100 when comparing these two characters. To ensure the system properly calculates numeric values instead of character values, use the `VALUE` modifier in the `IF . . . THEN` statement.
- ◆ The `ELSE` statement is optional.
- ◆ `IF`, `ELSE`, and `END` must be on separate lines. `THEN` does not need to be on a separate line.
- ◆ If you include a `WRITE` command as part of the `IF . . . THEN` command, the `WRITE` command must be on a separate line.
- ◆ `IF . . . THEN` statements can be nested (up to 10 levels in Windows and 100 levels in Linux). However, `GOTO` should not be used in a nested `IF . . . THEN` statement to enter or exit from the body of an `IF . . . THEN` statement.
- ◆ If your `IF . . . THEN` statement consists of only one line, you do not need to include `END` even if that line wraps. If your `IF . . . THEN` statement must be on more than one line (for example, if you used `ELSE` or `WRITE`, which must be on separate lines), you must include `END`.
- ◆ Six relationships are possible between the elements of an `IF . . . THEN` statement. Represent these relationships with the following symbols:
 - = Equals (can also be written as `==`, `EQUALS`, `EQUAL` or `IS`)
 - < > Does not equal (can also be written as `!=` or as `NOT NOTEQUALS`)
 - > Is greater than (can also be written as `GREATER THAN`)
 - >= Is greater than or equal to
 - < Is less than (can also be written as `LESS THAN`)
 - <= Is less than or equal to

Command Format

```
IF conditional [AND|OR [conditional]] THEN
commands

[ELSE
command]

[END]
```

Replace *conditional* with identifier variables. For information about identifier variables, see [Section 3.2, "Using Identifier Variables," on page 29](#).

Replace *commands* with any login script commands that you want to be executed if the specified condition is true.

Examples

If you place the following command in a login script, the message `Status report is due today` appears when the user logs in on Monday and `Have a nice day!` on other days:

```
IF DAY_OF_WEEK="MONDAY" THEN
    WRITE "Status report is due today."
ELSE
    WRITE "Have a nice day!"
END
```

The following lines mean “If the hour (on a 24-hour scale) is greater than or equal to 12, then write ‘afternoon’”:

```
IF VALUE HOUR24>="12" THEN
    WRITE "afternoon"
END
```

The following command executes the CAPTURE utility on the fourth day of the week (Wednesday):

```
IF NDAY_OF_WEEK="4" THEN
    #CAPTURE Q=FAST_Q NB TI=10 NFF
END
```

The following example shows nested IF . . . THEN statements. Notice that there are two IF statements, so each one must have its own END statement:

```
IF DAY_OF_WEEK="MONDAY" THEN
    MAP *6:=VOL1:APPL\WP
    IF MEMBER OF CLERKS THEN
        WRITE "Your report is due immediately!"
    END
END
```

Conditionals can be joined with commas, the word AND, or the word OR to form compound conditionals.

The first line of the following IF . . . THEN statement is a compound conditional that means “If it is the evening of the first day of the month”:

```
IF GREETING_TIME="EVENING" AND DAY="01" THEN
    WRITE "The system will be backed up tonight."
END
```

An IF . . . THEN statement can include several commands that must be executed if the conditional is true.

The following example shows two commands that are executed on Tuesdays: a WRITE command that displays a message about a staff meeting, and an INCLUDE command that tells the login script to process any commands or messages contained in the file sys:public\update.txt.

```
IF DAY_OF_WEEK="TUESDAY" THEN
    WRITE "Staff meeting today at 10 a.m."
    INCLUDE SYS:PUBLIC\UPDATE.TXT
END
```

3.16 INCLUDE

Use INCLUDE to execute independent files or another object's login script as a part of the login script currently being processed.

These subscripents can be text files that contain valid login script commands (any of the commands explained here) or login scripts that belong to a different object you have rights to.

Text files that contain login script commands, as well as other objects' login scripts, can be used as subscripents. Use these subscripents to supplement the main login script.

You can create and edit text file subscripents using any text editor. Subscripents do not need to have any particular filenames or extensions.

The `INCLUDE` command executes the login script commands contained in the subscript. It does not display the text of the subscripts.

`INCLUDE` nesting is limited only by available memory. This means that one subscript file can include another subscript file, which can include yet another subscript file, etc. In DOS, however, the maximum number of subscript files that you can nest is 10.

If the subscript is a text file, users must have at least File Scan and Read rights to the directory containing the subscript.

If you are using another object's login script as a subscript, users must have the Browse right to the object whose script you are including and the Read right to the object's Login Script property.

You should include the path file name. In Linux, this could be a UNC path, regular mapping, or an eDirectory object name (either a simple eDirectory object name such as `.user.company` or a fully distinguished name such as `.cn=user.o=company`).

Command Format

```
INCLUDE [path]filename
```

or

```
INCLUDE object_name
```

To use a text file as a subscript, replace *path* with either a drive letter or a full directory path beginning with the NetWare volume name.

Replace *filename* with the complete name (including the extension) of the text file.

To execute another object's login script as part of a login script, replace *object_name* with the name of the object whose login script you want to use.

Examples

To execute a text file called `script.new` (located in volume `vol1`) as a subscript, add the following line to your main login script:

```
INCLUDE VOL1:ADMIN\USERS\SCRIPT.NEW
```

Suppose you are creating a container login script for all users under the Organizational Unit object `SALES_LA`. You recently created a container login script for users under the Organizational Unit object `SALES_PV`.

You've decided that the `SALES_LA` users could use the same login script as the `SALES_PV` users, but with a few more drive mappings.

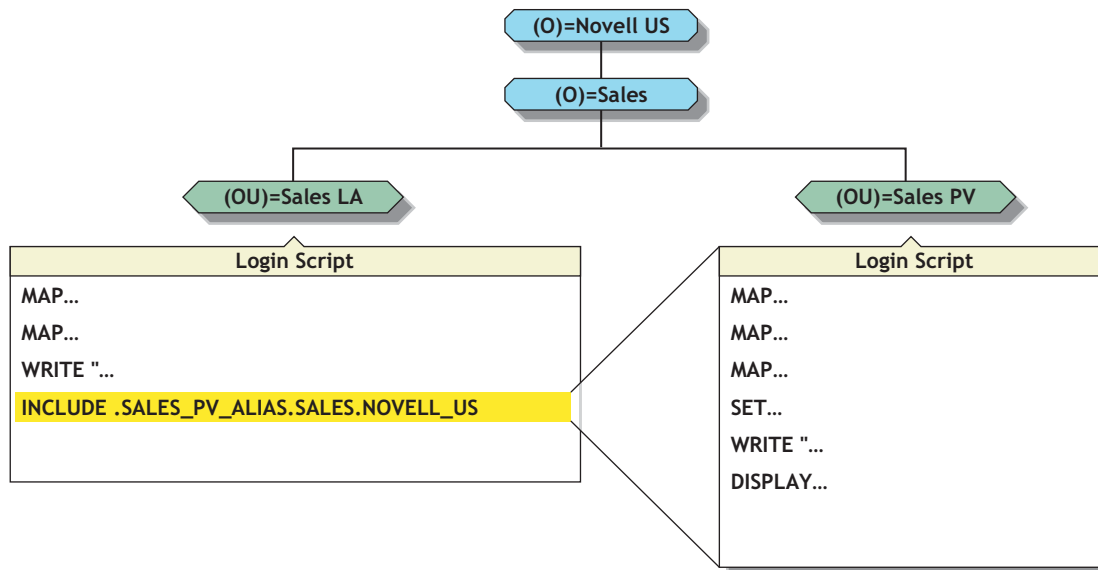
In the `SALES_LA` login script, you could add the additional drive mappings and then use the `INCLUDE` command to execute the entire `SALES_PV` login script as a part of the `SALES_LA` login script, as follows:

1. Create an alias for the `SALES_PV` Organizational Unit in the `SALES_LA` Organizational Unit.
2. Add this line to the `SALES_LA` Organizational Unit's login script:

```
INCLUDE .SALES_PV_ALIAS.SALES.NOVELL_US
```

The following figure illustrates how the INCLUDE command executes the SALES_PV login script as part of the SALES_LA login script.

Figure 3-1 How an INCLUDE Command Executes



3.17 LASTLOGINTIME

Use `LASTLOGINTIME` to display the last time the user logged in.

If you include this command in the login script, the time of the last login is displayed on the workstation screen.

Command Format

```
LASTLOGINTIME
```

3.18 MAP

NOTE: This is not fully functional for the Novell Client for Linux.

Use `MAP` to map drives and search drives to network directories or to map to eDirectory objects such as cluster-enabled volumes.

If you use `MAP` to automate drive map assignments during execution of the login script, users don't need to map drives every time they log in.

If you do not want the result of each mapping to be displayed as it is executed, add the `MAP DISPLAY OFF` command at the beginning of the login script. When all drive map assignments have been completed, add the line `MAP DISPLAY ON` and `MAP` to your login script. This sequence provides a cleaner display for users as they log in.

Instead of specifying drive letters such as F: or G:, you could use an asterisk followed by a number *n* to represent the *n*th network drive. For example, if the first network drive is F:, then using MAP *3:= would assign H: {1 2 3 = F G H}. Or, if the first network drive is D:, then using MAP *4:= would assign G: {1 2 3 4 = D E F G}.

This allows drive letters to reorder themselves automatically when local drives are removed or added or when the first network drive is changed. This also allows users to log in from workstations with a different number of local drives than their regular workstation.

You can map a local drive (usually A: through C:) to a network directory, but you cannot access the local drive until you remove the network drive mapping. Do not map over the local drive containing the Windows directory. Do not map a drive to a network drive such as a CD-ROM drive.

You can also map to a UNC path that contains a forward slash at the end or to one that does not contain a forward slash. Or, you can map to a volume without the server information. In Linux, this could be a UNC path, regular mapping, or an eDirectory object name (either a simple eDirectory object name such as *.user.company* or a fully distinguished name such as *.cn=user.o=company*).

Command Format

```
MAP [[options]] [parameter][drive:=path]
```

Replace *drive* with any valid network drive letter, local drive letter, or search drive number.

Replace *path* with either a drive letter, a full directory path, a Directory Map object, or an eDirectory object such as a cluster-enabled volume.

The UNC path should have a backslash and should not have a colon. It may have an optional forward slash at the end. You can also map to an eDirectory object.

More than one command can be on the map line if the commands are separated by a semicolon (;), as shown in the following example:

```
MAP *1:=SYS:PUBLIC;*2:=SYS:PUBLIC\DOS
```

When mapping a drive to a directory on an eDirectory server, begin the path with either the Volume object name or *server\volume*.

When mapping to a directory on a bindery-based server or to an eDirectory server that isn't the current server, begin the path with the server's name.

When mapping to a directory with spaces in its name, put quotation marks (“”) around the directory name (for example, "Forms and Resources").

When mapping to an eDirectory object, use the object's fully distinguished name preceded by a leading period (.).

Replace *option* with one of the following:

- ♦ DISPLAY ON|OFF determines whether drive mappings are displayed on the screen when the user logs in. The default setting is ON. This option is valid only in login scripts.
- ♦ ERRORS ON|OFF determines whether MAP error messages are displayed when the user logs in. MAP ERROR OFF must be placed before MAP commands in the login script. The default setting is ON. This option is valid only in login scripts.

Replace *parameter* with one of the following:

- ◆ INS inserts a drive mapping between existing search mappings.

This is not available on the Novell Client for Linux.

- ◆ DEL deletes a drive mapping, making that drive letter available for other mapping assignments.
- ◆ ROOT or R maps a fake root. Windows 2000/XP are always mapped to the root. Some applications require their executable files to be located in a root directory.

Because you might not want users to have rights at the root directory, you can map a fake root to a subdirectory instead.

The Windows NT/2000 native environment forces a map root on all drives. To prevent a forced map root in a Windows NT/2000 environment, set the MAP ROOT OFF = 1 environment variable. All drives are then mapped as specified, and only explicit map root drives are rooted.

This is not available on the Novell Client for Linux.

- ◆ C (CHANGE) changes a search drive mapping to a regular mapping or a regular mapping to a search drive mapping.

This is not available on Novell Client for Linux.

- ◆ P (PHYSICAL) maps a drive to the physical volume of a server rather than to the Volume object's name.

A Volume object name might conflict with a physical volume name. (For example, object ACCT is an Accounting volume, but there is also a physical volume named ACCT.) Therefore, if you prefer to map a drive to the physical volume name, use MAP P.

This is not available for Novell Client for Linux.

- ◆ N (NEXT) maps the next available drive when used without specifying a drive number or letter.

3.18.1 MAP Command Differences on Linux

For the most part, the MAP command works the same on both Windows and Linux workstations. However, a few differences do exist.

- ◆ Mapping search drives (`MAP s1:=server/vol:`) creates symbolic links rather than adding the drives to the path environment.
- ◆ `Map physical`, `map change`, `map ins` are not supported on Linux.
- ◆ When you create a mapped drive, you can also use a descriptive name instead of a drive letter since Linux supports descriptive names in addition to drive letters.

In this case, `Map "mydocuments" :=server/vol:` would be a valid drive mapping.

For example, `map MyServer:=server/vol:` results in a symbolic link as `MyServer`

Single Drive letters result in upper case symbolic links. This means that `map d:=server/vol:` results in a symbolic link as `D`.

3.19 NO_DEFAULT

Use `NO_DEFAULT` in a container or profile login script if you do not want the default user login script to run and you do not want to create any user login scripts.

NOTE: If you have created a user login script for a user, that login script executes whether or not the `NO_DEFAULT` command is in the container or profile login script. You can add the [EXIT](#) command to the end of a container login script to prevent execution of all user login scripts.

Command Format

`NO_DEFAULT`

3.20 PAUSE

Use `PAUSE` to create a pause in the execution of the login script.

You can add `PAUSE` to the login script following a message so that the user has time to read the message before it scrolls off the screen.

If you include `PAUSE`, the message `Strike any key when ready...` appears on the workstation screen. NetWare Login then waits for a key to be pressed before it executes the rest of the login script.

Command Format

`PAUSE`

3.21 PROFILE

Use `PROFILE` in a container script to set or override a user's assigned or command line-specified profile script. This is useful when defining a group profile.

Command Format

`PROFILE profile_object_name`

Example

To override the profile script assigned to a user, and to cause the user to execute a `PROFILE` script called `team_profile`, use the following command:

```
PROFILE team_profile
```

3.22 REGREAD

Use `REGREAD` to read values from the Windows registry through a Novell login script on Novell Clients 3.0x and 4.5 and higher for Windows.

Command Format

`REGREAD "HIVE,KEY,VALUE"`

IMPORTANT: Case is important, and no spaces are allowed after the commas.

HIVE is HKLM, HKCU, HKU, etc.

KEY is the path to the value. For example: Network\Novell\System Config\NetWare DOS Requester\Name Context.

VALUE is the name of the value if you want to read (a value other than default); otherwise, leave it blank.

Example

```
REGREAD "HKLM,Network\Novell\System Config\NetWare DOS Requester\Name
Context,0"
```

This reads the data from the Value Name 0. The data read is placed in the variable, %99. The value can then be used in subsequent login script logic.

The following is a sample script that you can use to test this feature:

```
WRITE "Running REGREAD TEST Script"
REGREAD "HKLM,Network\Novell\System Config\NetWare DOS Requester\Name
Context,0"
WRITE "Value = %99"
SET REGVAL="%99"
PAUSE
EXIT
```

3.23 REMARK

To include explanatory text in the login script or to keep a line from being executed during testing, begin a line with **REMARK**, **REM**, an asterisk (*), or a semicolon (;). Any text that follows these symbols is ignored when NetWare Login executes the login script. Remarks do not appear on the screen.

IMPORTANT: This command and its associated text must be the only entry on a line. Placing remarks on the same line as other login script commands can cause errors.

If a remark is several lines long, begin each line with the remark keyword.

Command Format

```
REM[ARK] [text]
```

or

```
* [text]
```

or

```
; [text]
```

Replace text with the comment you want to include in the login script.

Example

The following are examples of explanatory text that you might use with the **REMARK** command and its variants:

```
* This is Richard's login script
```

```
; Mapped network drives follow:
REM The next mapping is a fake root.
REMARK This login script is for new users.
```

3.24 SCRIPT_SERVER

NetWare 2 and NetWare 3 users can use `SCRIPT_SERVER` to set a home server where the bindery login script is read from.

`SCRIPT_SERVER` has no effect on NetWare 4 and later users or on Linux servers

Command Format

```
SCRIPT_SERVER server_name
```

3.25 SET

Use `SET` to set an environment variable to a specified value.

When you use `SET` in a login script, you must include quotation marks (“ ”) around values.

If a variable is set to a path that ends in a backslash and quote (\\”), these two characters are interpreted as an embedded quote preceded by an escape character. To avoid this problem, use two backslashes before the ending quotes (\\\”).

You do not need to include `SET` commands in login scripts. For example, you might decide to place some `SET` commands in the workstation's `autoexec.bat` file. Where you use `SET` commands depends upon your individual needs.

This command does not work in a login script if the DOS workstation's environment is too small. In this case, you should set the environment size in the `CONFIG.SYS` file.

After you use the `SET` command to set a value for an environment variable, you can use that variable in other login script commands.

To include an environment variable as an identifier variable in a command, enclose the name of the variable in angle brackets (for example, <emailuser>).

Command Format

```
[TEMP or DOS] SET name="value"
```

Replace *name* with an environment parameter that identifies the environment you want to change.

Replace *value* with identifier variable substitutions. Values must be enclosed in quotation marks.

To change the environment for the login script, but not for the workstation itself after the login script has finished executing, use the optional keyword `TEMP`.

NOTE: In Linux, all of the `SET` commands are not persistent and only apply to the specific login session they are associated with, as is standard with Linux.

Examples

You can use `SET` to make a prompt display the current directory path (such as `F:\HOME\MARY>`) rather than just the drive letter. To do this, add the following line to the login script:

```
SET PROMPT="$P$G"
```

“\$P” lists the current directory path and “\$G” displays a greater-than sign (>).

To set a path for a program called `DAILY`, which is in the `REPORTS` subdirectory under drive `G:`, you would add the following line:

```
SET PATH="G:\REPORTS\DAILY"
```

This sets the variable `PATH` to `g:reports\daily`.

Setting the variable `PATH` in the login script removes any search drives previously assigned. Use `SET PATH` only before you map search drives. `SET PATH` also overwrites any paths set in the user's `autoexec.bat` file.

To display this path, you can include `PATH` as an identifier variable in a `WRITE` command. For example, the following line displays `My path is G:\REPORTS\DAILY`:

```
WRITE "My path is ";path
```

To include an environment variable in a `MAP` command, precede the variable with a percent sign (%). For example, you could include the following lines in a login script to set and map a drive to the variable `NWS`:

```
SET NWS="C:\XYZ"
```

```
MAP S16:=%<NWS>
```

3.26 SET_TIME

Use `SET_TIME` to control whether the Novell Client should attempt to synchronize the workstation time with the primary NetWare server connection after login script processing.

Windows XP/2003 and Earlier Workstations

Time synchronization at the end of login script processing only occurs during a GINA-based login to both eDirectory and Windows, or during an eDirectory-only login when the *Clear current connections* option is enabled and selected on the *eDirectory* tab of the Novell Login dialog box.

In the absence of an explicit `SET_TIME ON` or `SET_TIME OFF` statement in the login script, the default for whether time synchronization will be attempted after login script processing is controlled by the *Set Station Time* setting in the *Advanced Settings* tab of the Novell Client Configuration dialog box (right-click the Red N menu, click *Novell Client Properties*, then click the *Advanced Settings* tab). The default for the *Set Station Time* setting is On.

`SET_TIME` only controls the attempt to synchronize time after login script processing. In addition, the Novell Client GINA (NWGINA) performs time synchronization with the primary NetWare server connection immediately after the eDirectory user login (before login scripts are executed). Whether or not this pre-login script time synchronization occurs is also controlled by the *Set Station Time* setting in the *Advanced Settings* tab of the Novell Client Configuration dialog box.

The attempt to synchronize the workstation time after login script processing occurs with the interactive Windows user's permissions. If the current Windows user does not have permission to change the workstation time, the time synchronization attempt controlled by SET_TIME will not succeed.

The attempt to synchronize time performed by the Novell Client GINA (NWGINA) immediately after the eDirectory user login occurs using Windows system permissions, and is therefore possible even if the Windows user logging in does not have permission to change the workstation time.

Windows Vista and Later Workstations

If the Windows User Account Control (UAC) feature is enabled, even a Windows user who is an Administrators group member will not have permission to change the workstation time without UAC elevation. See [Windows Vista Application Development Requirements for User Account Control \(http://msdn2.microsoft.com/en-us/library/aa905330.aspx\)](http://msdn2.microsoft.com/en-us/library/aa905330.aspx) for more information.

Rather than potentially cause a UAC elevation consent or credential prompt during login processing, the Novell Client simply attempts to synchronize time with the current Windows user permissions. If UAC is enabled, this attempt will likely be unsuccessful.

Alternatives to Novell Client Time Synchronization

For Windows XP/2003 and later workstations that are not part of a domain, you can use the *Internet Time* tab on the *Date and Time* control panel applet to update the time directly from an NTP-based time source. You can configure your workstations to update from the same NTP time source that your Novell servers use as their time standard.

For more information, see the Microsoft Windows XP documentation on [Synchronizing Your Computer Clock \(http://www.microsoft.com/resources/documentation/windows/xp/all/proddocs/en-us/windows_date_it_overview.msp\)](http://www.microsoft.com/resources/documentation/windows/xp/all/proddocs/en-us/windows_date_it_overview.msp).

Linux Workstations

The SET_TIME command is not available for the Novell Client for Linux.

Command Format

```
SET_TIME ON|OFF
```

3.27 SHIFT

Use SHIFT to change the order in which %n variables are interpreted in the login script. SHIFT allows users to enter login parameters in any order. For more information on %n variables, see [“Login Parameters with %n Variables” on page 32](#).

You can shift up to 10 login script variables from %0 to %9.

When users execute NetWare Login, they can include additional parameters. Each of these parameters is assigned a %n variable; in this way, the parameter's real value can be substituted for the %n variable that appears in the login script.

In the login script, you can add SHIFT with a positive or negative number to move the variables in either direction. For example, SHIFT -3 moves each %n variable three positions to the right.

Command Format

```
SHIFT [n]
```

Replace *n* with the number of places that you want the variable to shift. The default is SHIFT 1.

Examples

When Mary logs in, she wants to access her word processing program, change the way it is set up, and map a drive to her work directory called ACCNTS.

Mary also has a command in her login script to map a drive to her DATABASE directory, but she does not need it today. The commands in Mary's login script are shown here:

```
:LOOP
IF "%2"="WP" THEN
    SET WP="\U-CML\B-10\D"
    MAP S16:=SYS:APPL\WP\SETUP
END
IF "%2"="ACCNTS" THEN MAP G:=SYS:ACCNTS
IF "%2"="DATABASE" THEN MAP S16:=SYS:APPL\DATABASE
SHIFT
IF "%2"<>">" THEN GOTO LOOP ***THIS IS A LABEL :LOOP (free to use whatever
string wanted) or LOOP: (have to use non-conflicting strings--commands)***
```

(In the last line,

```
IF "%2" < >
```

is followed by closed quotation marks, which means "If %2 isn't blank".)

With these commands in her login script, and assuming a command line login, Mary can log in to the primary file server (named FS1) using her username, MARY, as follows:

```
LOGIN FS1\MARY WP ACCNTS
```

The parameters in Mary's login command are given the following values:

```
%0=FS1
```

```
%1=MARY
```

```
%2=WP
```

```
%3=ACCNTS
```

Mary's login script looks for %2, which is WP, and sets the word processing environment. Then the login script shifts the variables one to the left so that %2 now becomes ACCNTS. Upon executing the loop, the login script maps a drive to the ACCNTS directory.

Mary could also change the order of her login command without affecting the way her work environment is set up, as follows:

```
LOGIN MARY ACCNTS WP
```

The parameters in this login command are given the following values:

```
%0=FS1
```

```
%1=MARY
```

%2=ACCNTS

%3=WP

In this case, Mary's login script looks for %2, which is now ACCNTS. The login script maps a drive to the ACCNTS directory. Then the login script shifts the variables to the left so that %2 now becomes WP.

Upon executing the loop, the login script sets the word processing environment.

3.28 TREE

The `TREE` command can be used only with clients that support multiple eDirectory tree attachments.

Use `TREE` to attach to another eDirectory tree within the network and to access its resources.

The `TREE` command changes the focus of the login script so that all eDirectory object references in subsequent script commands (for drive mappings, print captures, etc.) apply to the eDirectory tree specified in the `TREE` command.

You can include multiple `TREE` commands within a login script, either to attach to additional trees or to switch the login script's "focus" back to a tree that the user is already attached to.

Command Format

```
TREE [EXTERNSYNC] tree_name[/complete_name[:password]]
```

Replace *tree_name* with the name of the eDirectory tree that you want the user to attach to.

Replace *complete_name* with the user's complete name (Distinguished Name) for the eDirectory tree that the user is attaching to. The complete name establishes the user's context in the tree. If you do not include the complete name, the user is prompted for a complete name when the `TREE` command is executed from the login script.

Replace *password* with the correct password for that user and tree. If the username and password are the same as the primary login username and password, you can omit the password and not be prompted for it.

IMPORTANT: Use caution when including passwords in a login script. It is more secure to eliminate the password. Then, at the point in the login script where the `TREE` command is executed, the user is prompted for the password.

Example

To attach the user with the complete name MRICHARD.ACME (whose password is BUTTERFLY) to an eDirectory tree named CORP, add the following line to the login script:

```
TREE EXTERNSYNC corp/.mrichard.acme:butterfly
```

3.29 WRITE

Use `WRITE` to display messages on the workstation screen when a user logs in to the network. Text that you want to display must be enclosed in quotation marks (" ").

There are several ways to display variables in the text message. The way you enter the variable in the `WRITE` command determines the display format, as follows:

- ♦ If you type the identifier variable as shown, with no special punctuation, only the variable is displayed on the screen.
- ♦ If you enclose the identifier variable inside quotation marks, precede the variable with a percent sign (%) and type it in uppercase letters. This method is often used to combine regular text with an identifier variable, because both the text and the variable can be enclosed in the same quotation marks.
- ♦ To join several text strings and identifier variables into a single display without enclosing the variables in quotation marks, use a semicolon (;) between the text and the variables.
- ♦ If you have several `WRITE` commands, each one appears on a separate line on the user's workstation. However, if you put a semicolon at the end of all but the last `WRITE` commands, the commands all appear as one continuous sentence or paragraph (although they might wrap onto additional lines on the workstation's screen).

Text strings can include the following special characters:

Character	Meaning
\r	Causes a carriage return
\n	Starts a new line of text
\"	Displays a quotation mark on the screen
\7	Makes a beep sound

In addition to the semicolon, you can use other operators to form compound strings (in other words, to join text and identifier variables into one command). These operators are listed in the following table, in order of precedence:

Operator	Meaning
* / %	Multiply, divide
+ -	Add, subtract
>> <<	Shift left or right (1000 >> 3 becomes 1)

Command Format

```
WRITE "[text][%identifier]" [;][identifier]
```

Replace *text* with the words you want to display on the screen.

Replace *identifier* with a variable you want to display, such as a user's login name. See [Section 3.2, "Using Identifier Variables," on page 29](#) for a complete list of variables.

Examples

To display the message `Hello`, add the following line to the login script:

```
WRITE "Hello"
```

To display the user's surname along with a greeting, add the identifier `LAST_NAME` to the command. To do this, either join the text and the identifier with a semicolon (;) or include the variable in the quotation marks with the text.

For example, either of the following lines displays `Hello, Smith` when user Bob Smith logs in:

```
WRITE "Hello, ";LAST_NAME
```

```
WRITE "Hello, %LAST_NAME"
```

To make a beep sound occur while the phrase `Good morning` appears on the screen, add the following line to the login script:

```
WRITE "Good %GREETING_TIME \7"
```


Troubleshooting Login Scripts

Although login scripts are useful in setting up drive mappings, search mappings, the user's printing environment, and displaying important messages and other commands, they can sometimes be a source of frustration when they don't work as expected.

A majority of the problems that occur with login scripts are associated with mapping drives and capturing printers. Usually, these problems can be attributed to syntax and spelling errors. Correcting spelling errors and using variables in the right way resolve many problems. For example, you must put quotes around a login name in an `IF . . THEN` statement.

- ♦ [Section 4.1, “Locating the Problem Statement in the Windows Login Script,” on page 57](#)
- ♦ [Section 4.2, “Turning Off the MAPROOT Function in Windows 2000/XP,” on page 58](#)
- ♦ [Section 4.3, “Limitations of Tree Command in Login Scripts,” on page 58](#)
- ♦ [Section 4.4, “Lowercase Passwords Not Supported When Using the Tree Command in Login Scripts,” on page 58](#)
- ♦ [Section 4.5, “Other Common Login Script Problems,” on page 58](#)

4.1 Locating the Problem Statement in the Windows Login Script

Try the following to locate the problem statement in the login script:

- ♦ Set `MAP DISPLAY` and `MAP ERRORS` to `ON` in the login script.

By setting `MAP DISPLAY` and `MAP ERRORS` to `ON`, the errors display, often providing clues as to why a certain command did not execute as expected. After seeing that the login script performs all map commands without error, the `MAP DISPLAY` and `MAP ERRORS` parameters can be turned `OFF`.

- ♦ Use the `WRITE` or `MAP` commands together with the `PAUSE` command prior to the script command which doesn't work as expected.

By adding the `PAUSE` command after the `WRITE` or `MAP` command, you have an opportunity to see what is happening when the script is executed.

For example, if the login script didn't seem to be completing an `IF . . THEN` statement, put both a `WRITE` and a `PAUSE` statement immediately before the `IF . . THEN` statements to verify that the script executed to that point. Then, place a `WRITE` and `PAUSE` inside the `IF . . THEN` to see if it gets past the `IF` correctly. It would also be helpful to have the `WRITE` statement give the value of the variables being tested to make sure that the variables are correct going into the script. For example, `WRITE "This is the login name: %LOGIN_NAME"`.

You can also use the `PAUSE` command with the `MAP` command to determine when and where a certain mapping was created in a login script.

- ♦ Make a test login script file either on the local drive or a network drive using any DOS text editor.

Test this script file by using the `/S` parameter at the DOS prompt:

```
LOGIN /S drive:\filename servername/username
```

If this login script works correctly, copy each statement from this login script into the login script that doesn't work correctly. This way, problems in login scripts can be dealt with by elimination.

4.2 Turning Off the MAPROOT Function in Windows 2000/XP

In Windows 2000/XP, all drive mappings created using NetWare LOGIN are root mapped. Because of this, programs cannot access directories above the directory that the drive is mapped to. If necessary, you can turn off the default by adding SET MAPROOTOFF="1" as the first line in the login script. This will globally force all Windows workstations using the login script to not map root drives.

4.3 Limitations of Tree Command in Login Scripts

When a TREE command is issued from a login script and attempts to map a drive to an eDirectory tree using any login method, you will receive -1673 and 34970 errors. Do not use the Tree command in login scripts while using a login method.

When a TREE command is issued from a login script, only the default login sequence defined by the NMAS server and user's default NMAS sequence configuration located in eDirectory is attempted. The NMAS tabbed page on the login dialog that initiated login to the first NDS tree does not control which NMAS sequence is used when the TREE command causes authentication to additional NDS trees.

If an NMAS method requires collecting a PIN or password from the user, the NMAS method user interface appears during login script processing of the TREE command. If the initial transparent login attempt by the TREE command fails, the username and password prompt that appears during login script processing does not override the NMAS sequence for logging into the additional eDirectory tree.

To log in to an additional NDS tree using a specific NMAS method, run `loginw32.exe` or right-click the Red N > *Novell Login* and log in to the additional NDS tree while specifying the required NMAS method on the NMAS page.

4.4 Lowercase Passwords Not Supported When Using the Tree Command in Login Scripts

If the login script tree command includes a password for login, uppercase characters are required. Currently, lowercase passwords are not supported and the login will prompt for username and password.

4.5 Other Common Login Script Problems

The following is a list of other common login script problems:

- ◆ [Section 4.5.1, "Losing Path Statements after Login," on page 59](#)

- ◆ [Section 4.5.2, “Cannot Use the LOGIN and NLIST Utilities,” on page 59](#)
- ◆ [Section 4.5.3, “Cannot Execute External Command,” on page 59](#)
- ◆ [Section 4.5.4, “LOGIN.EXE Problems,” on page 59](#)
- ◆ [Section 4.5.5, “EXIT Command Doesn't Work,” on page 59](#)
- ◆ [Section 4.5.6, “Login Script Does Unexpected Things,” on page 60](#)

4.5.1 Losing Path Statements after Login

After each login, the user would lose a part of the path specified in the `autoexec.bat` file. The user had a `PATH` statement in `autoexec.bat` and then mapped some search drives in the system login script (`MAP S1:= MAP S2:=`). `PATH` statements are set up as search mappings when logged in to the network starting with `s1, s2, etc.` When you specifically `MAP (S1:=)`, then you overwrite the existing search mapping (`PATH`). Solution: Doing a `MAP INS` on the search drives pushes the existing statements down the line without overwriting. Using `MAP INS S16:=` appends the map statements to the end of the line without overwriting those at the beginning.

4.5.2 Cannot Use the LOGIN and NLIST Utilities

Don't delete the login directory (`sys:login`) created during network installation. It contains the Novell `LOGIN` and `NLIST` utilities. If users run command line utilities, they can use these utilities to log in and view a list of available NetWare servers.

4.5.3 Cannot Execute External Command

This error occurs with external commands (such as `CAPTURE`) trying to run inside a login script. To troubleshoot this problem, make sure the `COMSPEC` is set. Then, make sure `login.exe` is being swapped out correctly.

4.5.4 LOGIN.EXE Problems

Because the language-enabled `login.exe` is so large, it must be swapped out before large executables can run. `capture.exe` is a good example of an external program frequently called in a login script. By default, `login.exe` tries to swap to extended memory first, then to expanded memory, and then to the current drive. If writing to a drive, be sure you have at least the Read and Write rights. If you are using a diskless workstation, this task can be accomplished by using the `SWAP` command right before the external command. `SWAP` out to a place on the server you have already mapped to and have been given the appropriate rights (for example, `SWAP F:\USERS\%LOGIN_NAME`). This allows `login.exe` to be swapped out and give the external program memory to execute. Also, when running an external command, you must either provide an explicit path to the file or have a search drive mapped to the location of the file before running the command. Typically, this will be `sys:\public`.

4.5.5 EXIT Command Doesn't Work

Make sure the syntax is right. `EXIT "path:command"` with the quotes is the right syntax. Ensure that the path and command you put in the quotes are not more than 14 characters long. The early versions of `login.exe` in NetWare 3.1x and the `login.exe` in NetWare 4.1 don't support more than 14

characters in the path. Also, remember that `EXIT` will exit you completely out of the login script, not allowing any other login scripts to run. If there is a user or profile login script that a user needs to execute, you should not use `EXIT` to get out of the system/container login script.

4.5.6 Login Script Does Unexpected Things

Make sure there are no viruses on the computer. Viruses have caused numerous strange problems with login scripts that have previously executed or should now execute correctly.

Also, temporarily delete any TSRs, because some have been known to cause login problems.

Using an `ATTACH` command to create an attachment to another NetWare 4.1x server in the same tree can also cause unexpected results such as intermittent premature termination of the login script. The `ATTACH` command makes a bindery connection that causes any previous eDirectory connections to that server to be destroyed. Using `CAPTURE` with the `Server` parameter also causes a bindery attachment to occur.

A

Documentation Updates

This section contains information on documentation content changes made in this guide since the last release of the Novell Client for Linux and Windows. The information will help you keep current on updates to the documentation.

The documentation was updated on the following dates:

- ♦ [Section A.2, “September 21, 2007,”](#) on page 61
- ♦ [Section A.3, “December 23, 2005,”](#) on page 61

A.1 August 19, 2008

- ♦ Updated the title page in the PDF version.

A.2 September 21, 2007

- ♦ Added [Section 3.22, “REGREAD,”](#) on page 48.
- ♦ Updated [Section 3.26, “SET_TIME,”](#) on page 51.
- ♦ Removed outdated TERM command from [Chapter 3, “Login Script Commands and Variables,”](#) on page 27.

A.3 December 23, 2005

- ♦ Page design reformatted to comply with revised Novell documentation standards.

