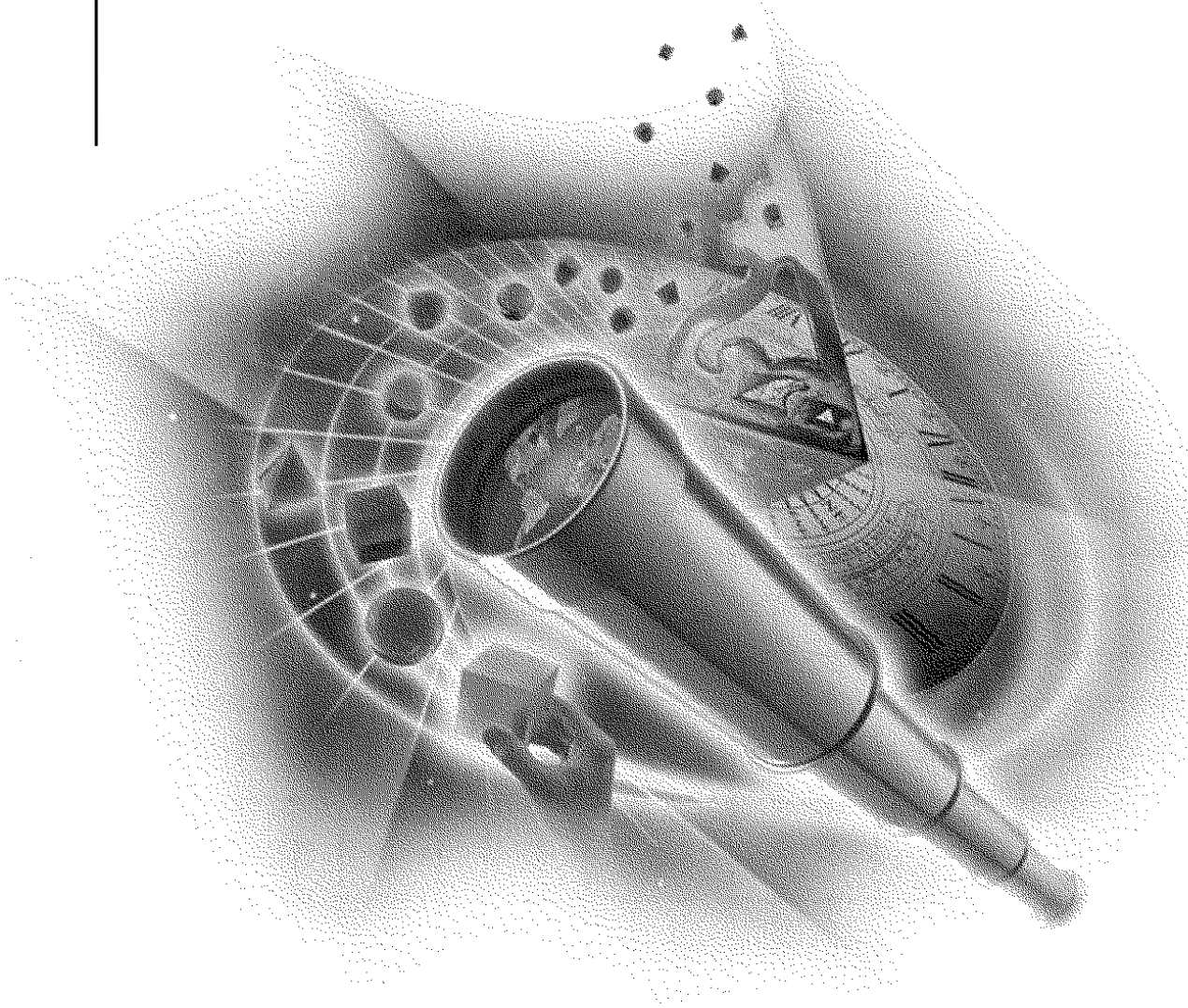


VERSION 2.0

Synchronicity
for NT
Administrator Guide



Synchronicity[™]
NETWORK DIRECTORY INTEGRATION SOFTWARE

Novell[®]

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Contents

Overview

Product Overview	v
Product Components	vi
Additional Documentation Resources.	vii

1 Managing the Synchronization Process

Accessing the Details Property Pages	1
Domain Identification	2
Managing Synchronization Settings.	4
Windows NT Synchronization Settings	5
Managing Resynchronization Actions.	9

2 Creating and Managing Linked Objects

Creating a Linked User Object	15
Creating a Linked Group Object	16
Managing a Linked User Object.	16
NDS User Object Mappings	17
Managing a Linked Group Object	18
NDS Group Object Mappings	19
Deleting Linked User and Group Objects	19

3 Creating and Managing NT-Only Objects

Creating NT-Only User and Group Objects	21
Managing an NT-Only User Object	22
Managing an NT-Only Global Group Object	22
Managing an NT-only Local Group Object	23
Deleting NT-Only User and Group Objects	24

4 Managing Domain or Workgroup Server Information

Managing the Account Policy	25
Managing the Audit Policy	26
Managing GES Connection Configuration	27
GES Connection and Reconnection Options.	28
Reconnect Settings.	29

Overview

This section contains the following information:

- “Product Overview” on page v
- “Product Components” on page vi
- “Additional Documentation Resources” on page vii

Product Overview

Synchronicity™ is a solution that automatically synchronizes account and password information for multi-vendor networks. This document provides the necessary information to properly install the various Synchronicity products. The installation process described is the combined installation program capable of installing all of the Synchronicity products at one time.

Before installing any of the Synchronicity products, consult NetVision’s web site to determine if the product versions on the enclosed CD-ROM or floppy disks are still the most recent versions. NetVision’s web site is located at <http://www.netvision.com>. The Product Version Information dialog presented during the installation process clearly indicates the versions of the individual products and components that are part of the installation program being executed.

Product Components

There are four product components.

Component	Description
Global Event Services Broker (NVGES.NLM)	A NetWare® Loadable Module™ (NLM™) for NetWare 4.1 and later that provides event notification as changes are made to NDS™.
Synchronization service for NT (SYNCDSNT.EXE)	A Windows NT® service that receives NDS change notifications from the Global Event Services™ NLM and synchronizes those changes with the NT Server account database. The synchronization service requires Windows NT version 3.51 or later. Both NT server and NT Workstation are supported.
Synchronicity Snapin Modules for 32-bit Netware Administrator for Windows 95/98 and Windows NT	These NetWare Administrator snapin modules provide capabilities for managing native Exchange accounts from NDS. In addition, these snapins also support management of the Global Event Services NLM. 32-bit Novell® NetWare Administrator for Windows 95/98 and Windows NT® are supported.
Synchronicity Password Utilities for Windows 95/98 and Windows NT	These program files can be executed by users and network administrators to easily change network passwords in a manner which supports synchronization with all products linked with Synchronicity products.

Additional Documentation Resources

For additional information, see the following resources:

To learn more about	See
The installation process that is common to all Synchronicity products	<i>Synchronicity Overview and Installation Guide</i> . This document can be found in electronic form on the CD-ROM or on the NetVision web site, http://www.netvision.com .
The procedures to get started installing the Synchronicity products right away	<i>Quick Starts</i> . This document can be found in electronic form on the CD-ROM or on the NetVision web site, http://www.netvision.com .
Details about using Synchronicity	Online help. Online help for the Synchronicity product is available within NetWare Administrator. To access Help, select Tools > Synchronicity Product > Help Topics on Synchronicity Product from the NetWare Administrator menu bar. You may also click Help within any dialog for context-sensitive help.
The configuration and operation of the Global Event Services Broker NLM	<i>Global Event Services Administrator Guide</i> . This document can be found in electronic form on the product CD-ROM or on the NetVision web site, http://www.netvision.com .
Vital program information such as changes to the program, files, or documentation	Readme files.

1 **Managing the Synchronization Process**

You can control how the synchronization process will function with respect to the selected domain or workgroup server by entering data on the Details property pages in NetWare[®] Administrator. For information on any dialog boxes not explained in this document, click the Help button on the dialog box.

If you want to change the settings for the Synchronicity[™] for NT service agent, click Start > Settings > Control Panel > Synchronicity Services.

Accessing the Details Property Pages

To access the Synchronicity Details pages,

1. **Right-click the NT Domain or NT Workgroup Server object in Novell's NetWare[®] Administrator, then click Details.**

Note that Synchronicity has added details pages to the dialog box. If these detail screens do not appear properly or the various NT objects appear with a question mark graphic (unknown object) instead of the graphic displayed in the various figures, the NetWare Administrator snapin module supplied with Synchronicity for NT may not be properly installed. Detailed descriptions of each field in the property pages can be displayed by clicking Help or pressing the F1 key.

Domain Identification

Important If the name of a workgroup server includes a period, RPC functions will not be available because the client server cannot read the period as part of the name.

The following fields appear on the identification details page for an NT domain or Workgroup Server.

- **Name in NDS.** This read-only field contains the name of the currently selected NT object. The name of the NT object is specified when it is created and must match exactly with the actual name of the Windows NT domain or Workgroup Server.
- **Computer Name of Synchronization Agent Service.** Enter the name of the computer where the NT service agent is installed.
- **Description.** This field contains the description of the currently selected NT object.
- **RPC Port Number.** Displays the port number used as configured in the Synchronicity Services control panel.
- **Statistics.** Displays information about the synchronization service agent, which is particularly helpful for troubleshooting. See Figure 1-1 below for a sample of the type of information you can view when you click Statistics.

Figure 1-1
Synchronicity Service Statistics

Synchronicity Service Details

Synchronization Agent Information

Version: 2.0.48

Time Since Agent Started: 0:00:00:29

Category	Value
Time Since Last GES Event Received	0:00:00:33
Total GES Requests Received	0
GES Entry Requests Received	0
GES Value Requests Received	0
GES Custom Requests Received	0
GES Disconnect Requests Received	0
NDS Create Requests Received	0
NDS Delete Requests Received	0
NDS Move Requests Received	0
NDS Rename Requests Received	0
NDS Delete Attribute Requests Received	0
NDS Delete Attribute Value Requests Received	0
NDS Add Attribute Value Requests Received	0
GES Current Local Queue Size	0
GES Max Local Queue Size	0
RPC Requests Received	17
RPC Requests Failed	0

Reset Refresh OK Help

Managing Synchronization Settings

Each NT Domain and NT Workgroup Server object contains a property page named Synchronization Settings that is used to configure the synchronization process, as shown in Figure 1-2 below. For each NT Domain or NT Workgroup Server, multiple synchronization settings can be created, but each must specify a unique portion of the NDS™ tree.

Figure 1-2
Managing Synchronization Settings

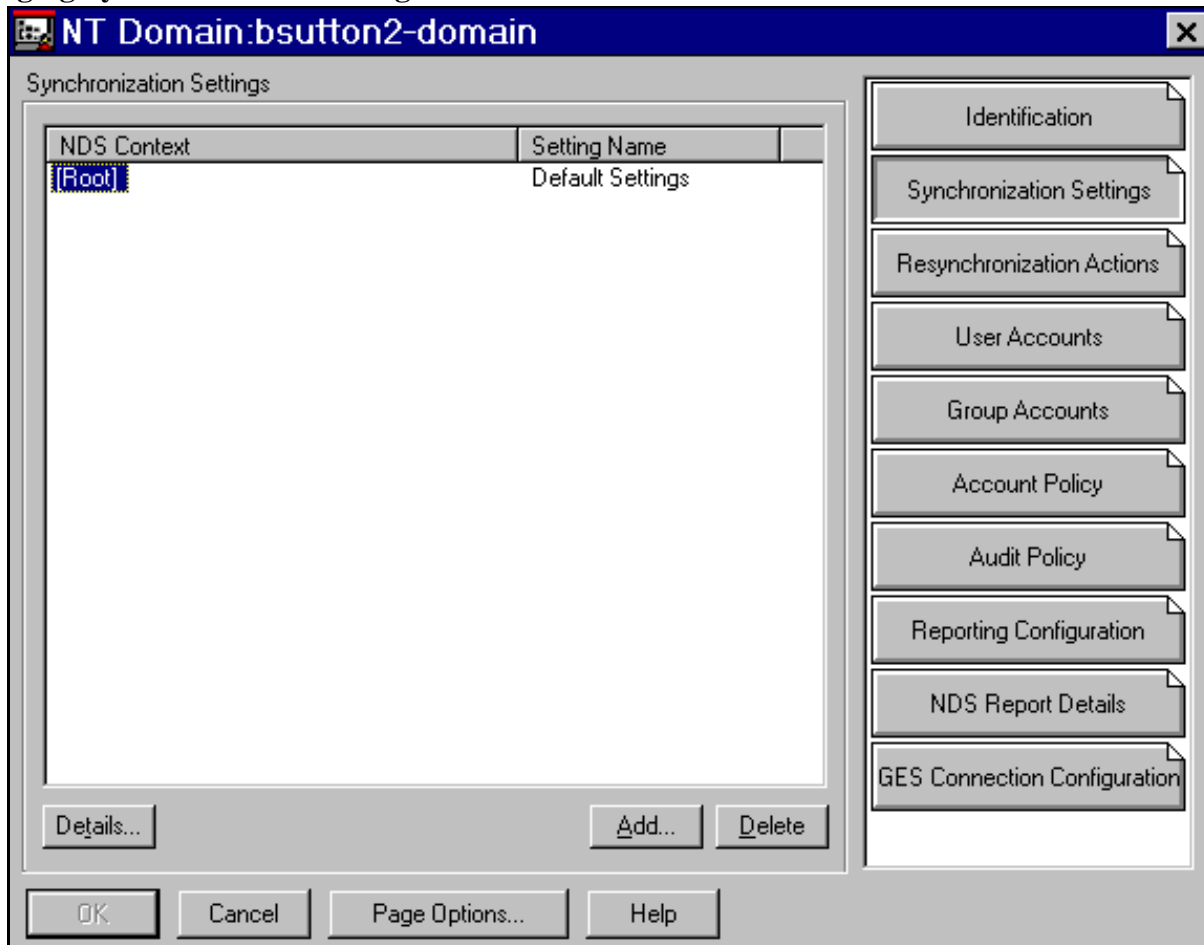
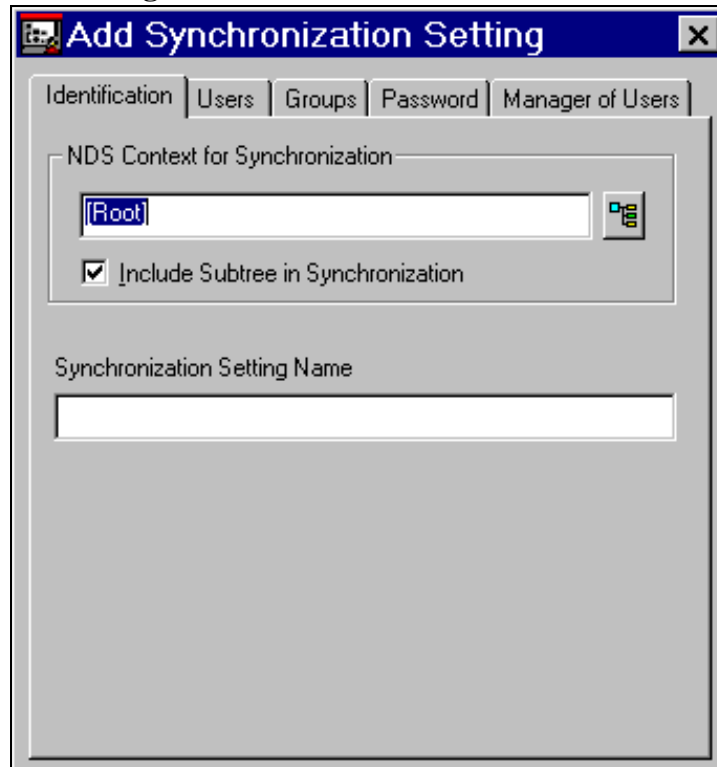


Figure 1-3 below shows the dialog box that is displayed when you click Add on the property page. The fields labeled NDS Context for Synchronization and Include Subtree in Synchronization specify the portion of the NDS tree for which this synchronization setting is active.

Figure 1-3
Adding a Synchronization Setting



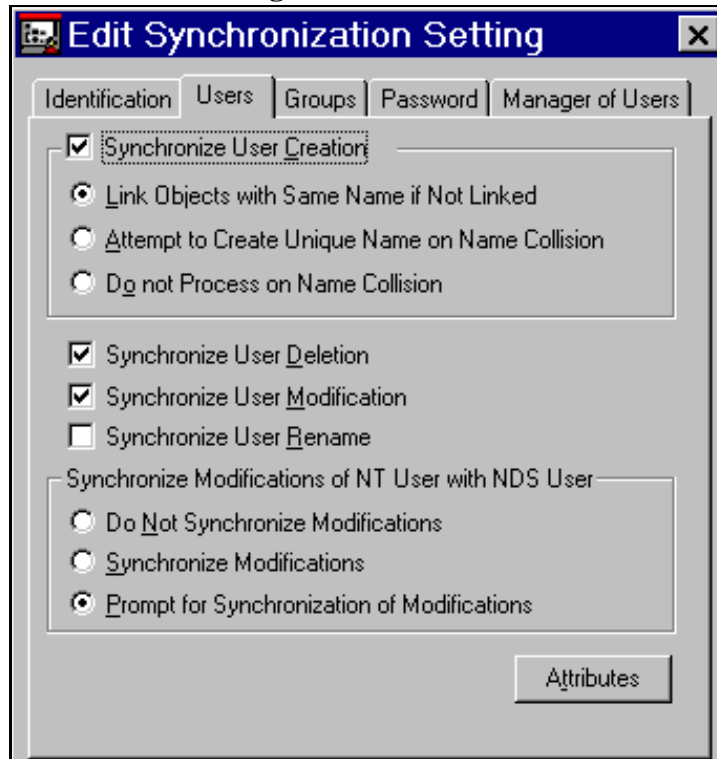
Windows NT Synchronization Settings

The property pages described in this section are used to configure the way Synchronicity for NT will synchronize changes made in the specified portion of the NDS tree with Windows NT.

User Synchronization Settings

The property page displayed in Figure 1-4 below is used to control the way NDS user accounts are synchronized with the selected NT domain or workgroup server. The radio buttons under Synchronize Modifications of NT User with NDS User control how changes made to an NT user linked to an NDS user affect the NDS user.

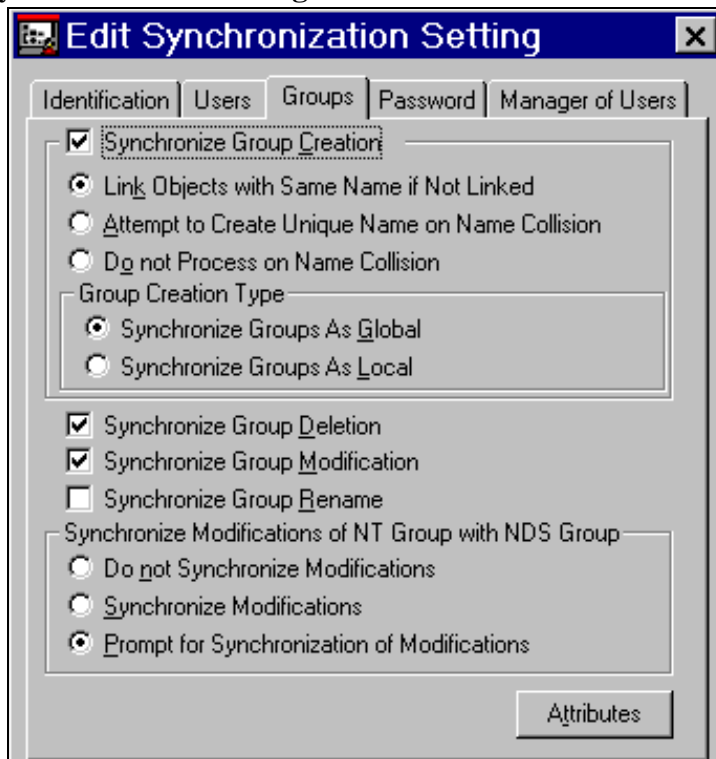
Figure 1-4
Windows NT User Synchronization Settings



Group Synchronization Settings

The property page displayed in Figure 1-5 below is used to control the way NDS group accounts are synchronized with the selected NT domain or workgroup server. The radio buttons under Group Creation Type control whether newly created NDS group objects are represented as NT Local Groups or NT Global Groups. The radio buttons grouped under Synchronize Modifications of NT Group with NDS Group control how changes made to an NT group linked to an NDS group affect the NDS group.

Figure 1-5
Windows NT Group Synchronization Settings



Initial Password Settings

The property page displayed in Figure 1-6 below is used to control the way the initial passwords are set when new user accounts are created in the selected NT domain or workgroup server.

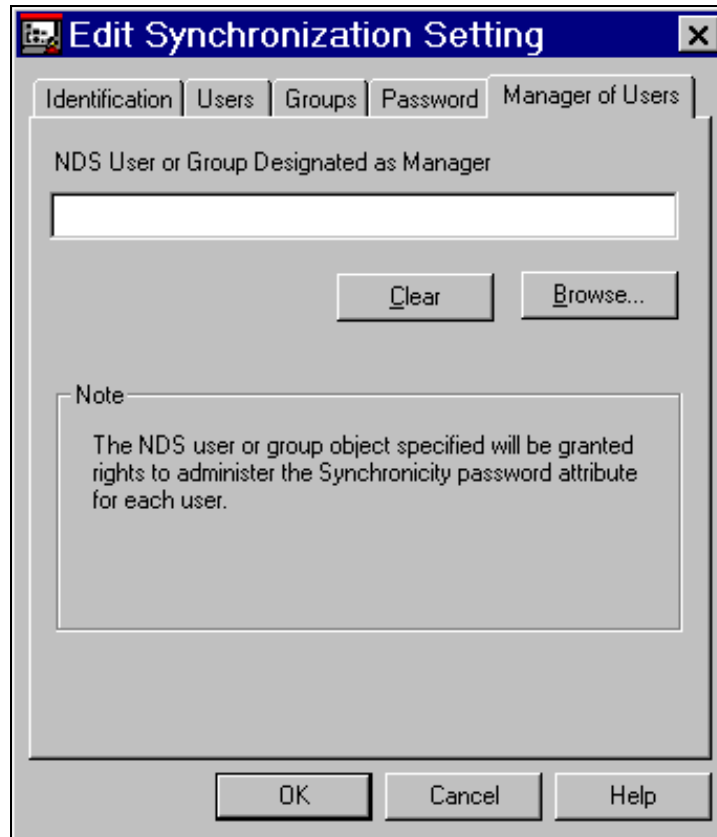
Figure 1-6
Windows NT Initial Password Settings



Manager of Users

The Manager of Users property page (see Figure 1-7) is used to specify which user or group object will have the rights to administer the Synchronicity password attribute. The object specified will also have access to the NDS User object created in the NDS tree.

Figure 1-7
Manager of Users

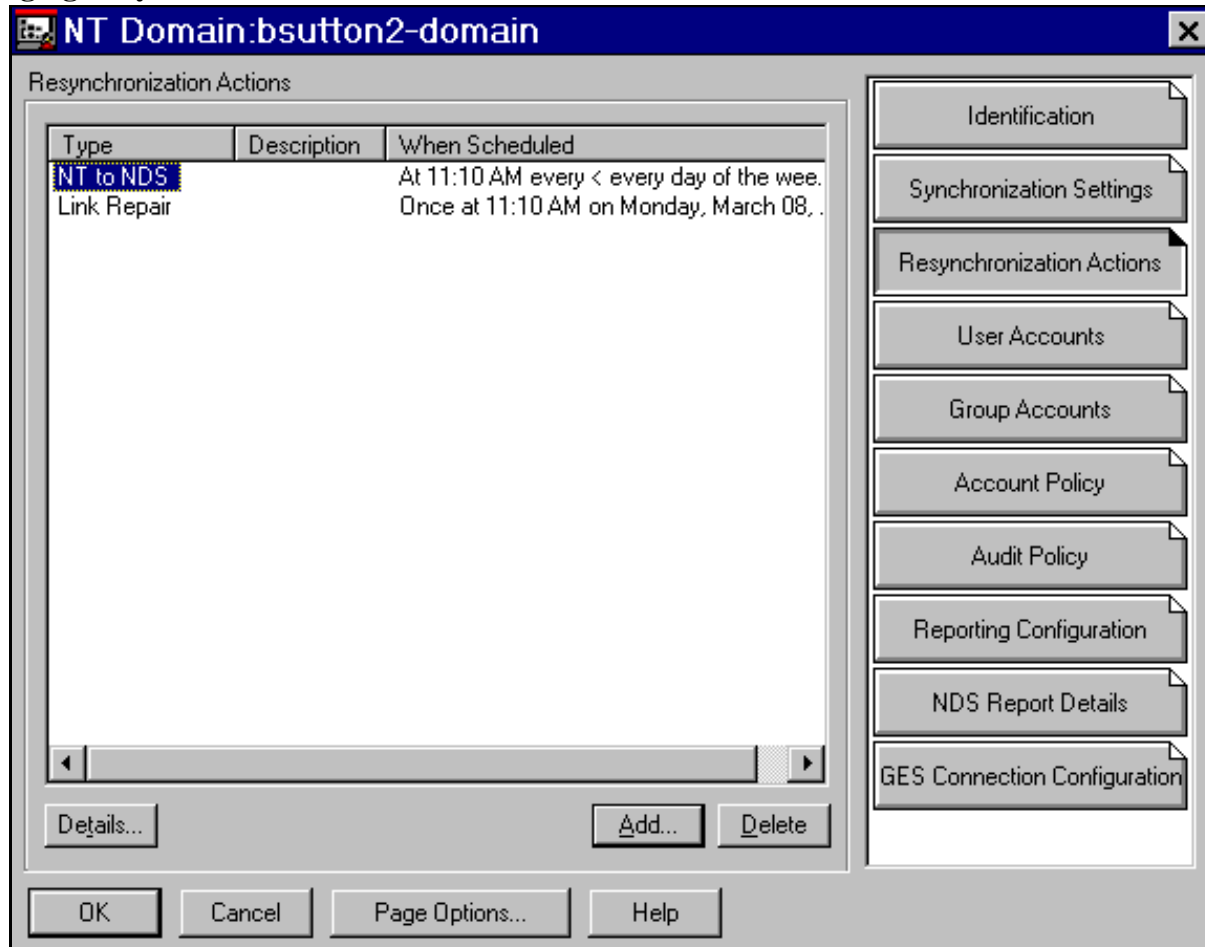


Managing Resynchronization Actions

Resynchronization actions allow schedulable actions to be performed to resynchronize the NDS and Windows NT account databases.

Resynchronization actions are added, edited, and deleted by selecting the Resynchronization Actions property page in the details for an NT Domain or NT Workgroup Server object. Resynchronization actions are designed to allow automatic resynchronization in the case of server failures or administrative actions performed using unsupported administration tools, such as Microsoft's User Manager for Domains and Microsoft's Exchange Administrator.

Figure 1-8
Managing Resynchronization Actions



Adding a Resynchronization Action

The following steps describe the creation of a new resynchronization action:

1. **Select the NT Domain or NT Workgroup Server where the resynchronization action will be executing.**
2. **Select the Resynchronization Actions details page for the NT Domain or NT Workgroup Server.**
This detail page lists all currently scheduled resynchronization actions.
3. **Click Add to create a new action.**
4. **Select an action and type a description that will show in the list on the first dialog box.**

5. Click Next to select the detailed options for the resynchronization action type specified.
6. Click Next to specify when the resynchronization action is to execute. The default (Once) will be scheduled for immediate execution. The scheduling option dialog is shown in “Scheduling a Resynchronization Action” on page 13.

Figure 1-9
Adding a Resynchronization Action

Add Resynchronization Action

Description

Resynchronization Action Type

- Resynchronize NT Objects to NDS
- Check Object Link Integrity / Repair Bad Links
- Resynchronize NDS Objects to NT

< Back Next > Cancel Help

Types of Resynchronization Actions

The following table contains a list of the various types of resynchronization actions that can be scheduled.

Action type	Description
NT to NDS resynchronization	This type of action will synchronize NT user and group accounts with the specified portion of the NDS tree.
Link integrity check / repair	This type of action will examine the links between NT and NDS accounts. Options are also available to repair any encountered bad links.
NDS to NT resynchronization	This type of action will synchronize users and groups in the specified portion of the NDS tree with the corresponding Windows NT domain or Windows NT Server.

Figure 1-10
Scheduling a Resynchronization Action

Schedule Resynchronization Action

Scheduling Type

Once Weekly

Hourly Monthly

Daily At Service Startup

Which Days...

Settings

11:13:18 AM on Monday, March 08, 1999

< Back Finish Cancel Help

Scheduling Options for Resynchronization Actions

The following table contains a list of the various methods that can be used to schedule a resynchronization action.

Action Type	When the action will execute
Once (default)	At the specified time on the specified month, day, and year. Once the action has completed, it will be automatically removed from the resynchronization action list.
Hourly	Each hour at the specified number of minutes after the hour.
Daily	Each specified day of the week at the specified hour and minute. Click Which Days to specify which days of the week the action will execute.
Weekly	Each week on the specified day and time.
Monthly	Each month on the specified date and time.
At Service Startup	Each time the NT service agent is started.

2 **Creating and Managing Linked Objects**

Once Synchronicity™ for NT is properly installed and configured, creation of NDS™ User and Group objects may also result in the creation of corresponding Windows NT® representations for the objects. The current synchronization settings for each NT domain or workgroup server running Synchronicity for NT will determine if a representation of the newly created object will be created in that particular Windows NT domain or workgroup server. Any method, not just NetWare® Administrator with the supplied snapins, can be used to create, modify, and delete NDS objects which are to be linked.

Creating a Linked User Object

When creating a new NDS user account, the answers to the following questions will determine whether or not a corresponding NT user account will be created in a specific NT domain or NT workgroup server.

- Is the synchronization service running on the NT domain or workgroup server in question and actively synchronizing?
- Is the newly created NDS user account in an NDS container for which a synchronization setting is defined for the NT domain or NT workgroup server in question?
- Is the best matching synchronization setting configured to enable synchronization of user creations with Windows NT?
- Does the user already exist in Windows NT, and if so, is the synchronization application configured to attempt to assign a unique name in the case of a name collision?

Creating a Linked Group Object

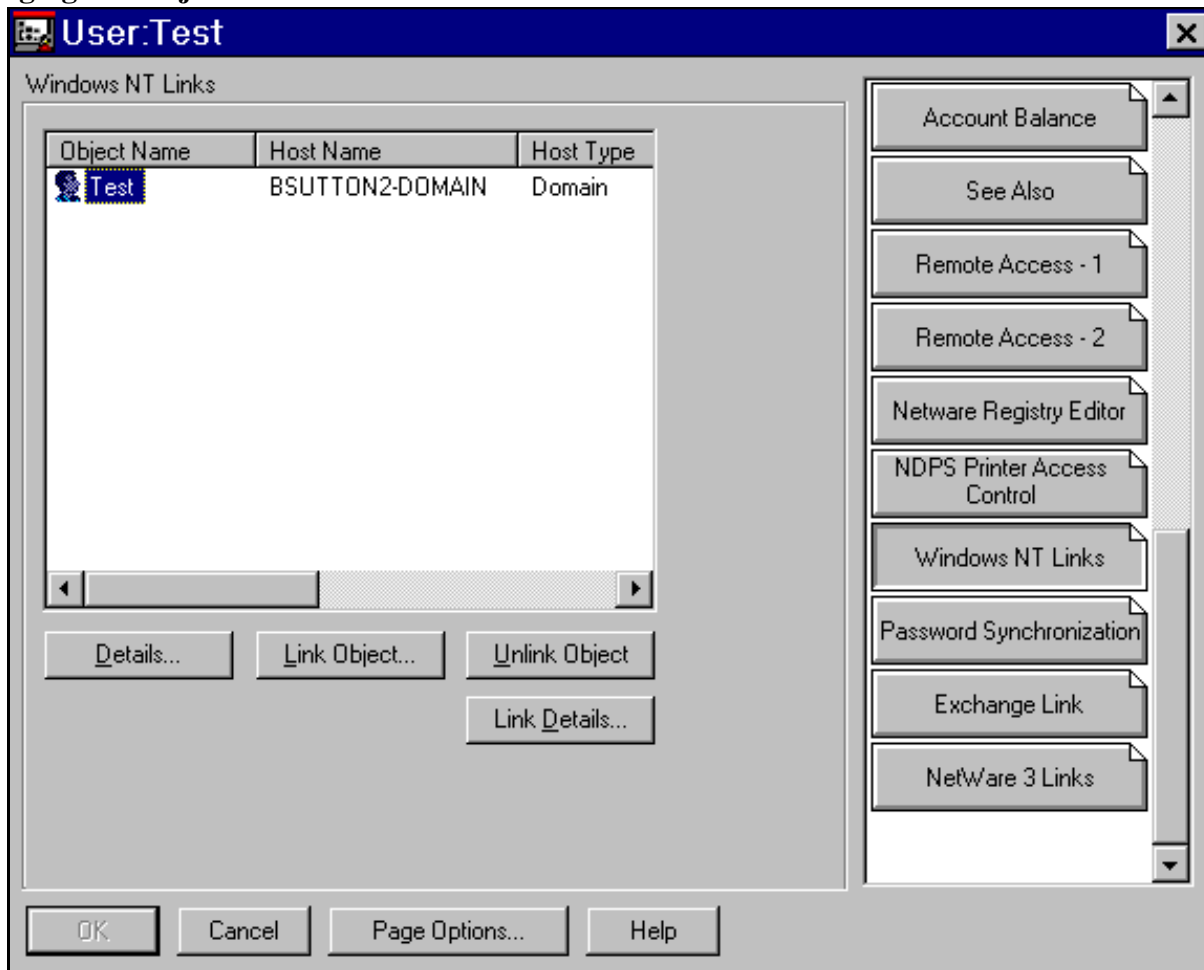
When creating a new NDS group account, the answers to the following questions will determine whether or not a corresponding NT group account will be created in a specific NT domain or NT workgroup server.

- Is the newly created NDS group account in an NDS container for which a synchronization setting is defined for the NT domain or NT workgroup server in question?
- Is the synchronization service running on the NT domain or workgroup server in question and actively synchronizing?
- Is the best matching synchronization setting configured to enable synchronization of group creations?
- Does the user already exist in NT, and if so, is the synchronization application configured to attempt to assign a unique name in the case of a name collision?

Managing a Linked User Object

Figure 2-1 below contains a view of the Windows NT Links property page added to the definition of the standard NDS User object. This property page shows all Windows NT objects that are linked to the selected NDS object. The links between NDS and NT objects can be manually broken or created using the appropriate buttons in the property page. A special button is also present to allow the passwords of all of the accounts to be synchronized. For NDS Group objects, a similar property page named NT Group Name Mapping is present.

Figure 2-1
Managing NT Objects Linked to an NDS User



NDS User Object Mappings

The following items are property page names from Novell's NetWare Administrator and identify which NDS attributes are synchronized with corresponding NT attributes. Any pages that are not listed do not contain any attributes that are currently part of the synchronization process.

- Identification Page
The full name and description attributes are synchronized with the corresponding attributes, which are displayed in User Manager for Domains.
- Windows NT Links

This page (added by the Synchronicity snapin) displays all the NT user objects this NDS User object is currently being synchronized with.

- Login Restrictions

The Account Disabled and Expiration Date and Time attributes are synchronized with the corresponding attributes for an NT user account. The expiration date and time you specify here will map to the end of the day specified for the corresponding NT user account.

- Password Restrictions

The Allow user to change password attribute is synchronized with the corresponding attribute displayed in User Manager for Domains.

- Login Time Restrictions

The login time you specify on the time map is synchronized with the corresponding attribute displayed in User Manager for Domains. The NDS attribute allows specification of one-half hour increments, while the NT attribute allows only one hour resolution. As a result, if the NDS attribute settings allow access in only a half-hour period, NT login will be permitted during that entire hour.

- Intruder Lockout

The Account locked attribute is synchronized with the corresponding attribute displayed in User Manager for Domains.

- Group Membership

Group memberships are synchronized if both the NDS User object and the NDS Group object are being synchronized with the domain or workgroup server on which the synchronization service is acting.

Managing a Linked Group Object

The Windows NT Links property page for an NDS Group object shows all NT group accounts that are linked to the selected NDS Group object. The links between NDS and NT objects can be manually broken or created using the appropriate buttons in the property page.

NDS Group Object Mappings

The following items are property page names from Novell's NetWare Administrator that identify which NDS attributes are synchronized with corresponding NT attributes. Any pages that are not listed do not contain any attributes that are currently being synchronized.

- **Identification.** The description attribute is synchronized with the description attribute displayed in User Manager for Domains.
- **Windows NT Links.** This page is added by the Synchronicity snapin. It displays all NT group objects this NDS Group object is currently being synchronized with.
- **Members.** Group members are synchronized if both the NDS User object and the NDS Group object are being synchronized with the domain or workgroup server on which the synchronization service is acting.

Deleting Linked User and Group Objects

When NDS user and group accounts are deleted by any means, the linked NT user and group accounts will also be deleted as long as the following conditions are met:

- The synchronization service must be running on each NT domain and NT workgroup server where a linked object was present and must be actively synchronizing.
- The synchronization service has been configured to synchronize deletions for the type of object being deleted.

3 **Creating and Managing NT-Only Objects**

Besides creating and managing linked accounts, Synchronicity™ for NT also allows the creation and management of NT-only user and group accounts from NetWare® Administrator. This provides a single point of administration for managing NDS-only accounts, linked NDS<—>NT accounts, and NT-only accounts.

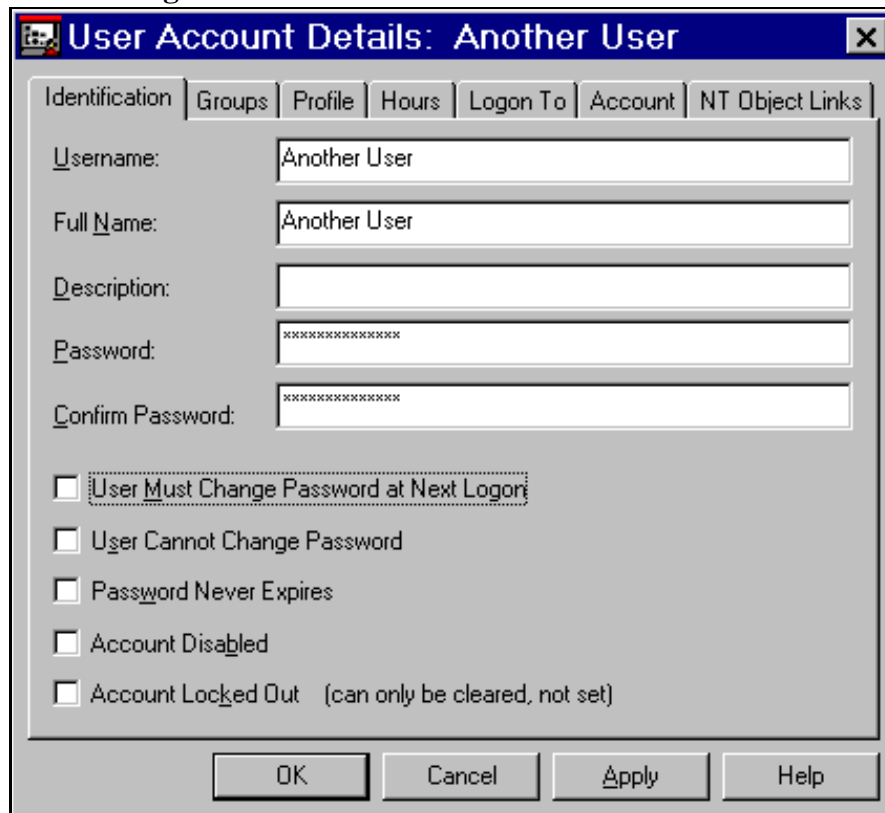
Creating NT-Only User and Group Objects

Only NT Users or Groups can be created inside an NT Domain or Workgroup Server. To create a new NT-only user or group object,

1. **Right-click the appropriate NT Domain or Workgroup Server object in the NDS tree, then click Details.**
2. **Select User Accounts or Group Accounts, then click Add.**
3. **Enter the information you want in the fields on the Identification page, then click each tab and repeat the process.**

See Figure 3-1 below. For specific information about the fields in each of these pages, open a page and click the Help button or press F1.

Figure 3-1
Add/Edit User Details Dialog Box



Managing an NT-Only User Object

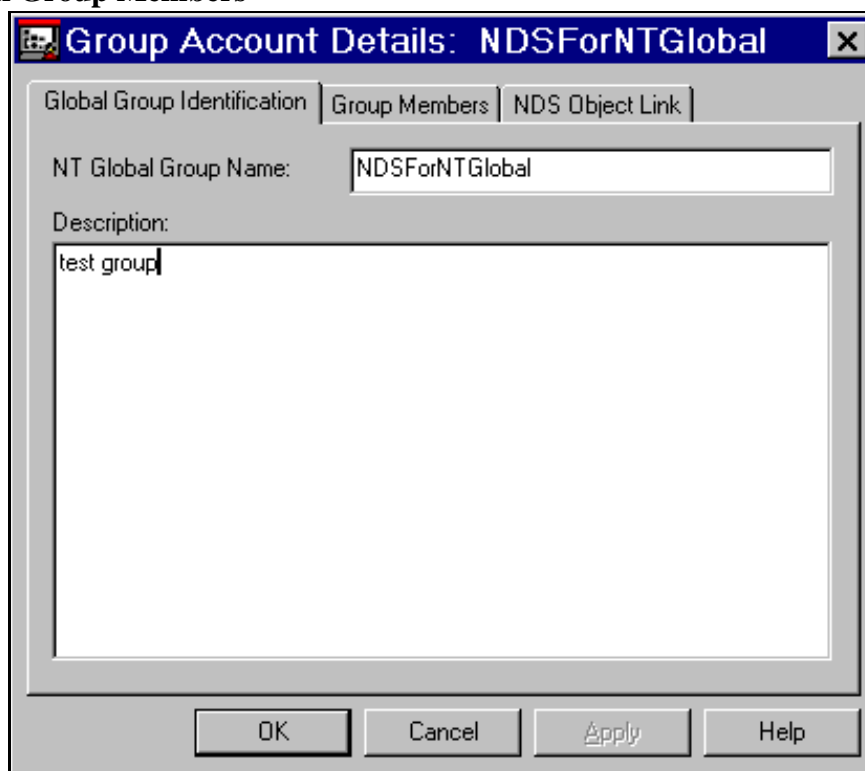
The dialog shown in Figure 3-1 above is also used to display identification and account status information for the selected NT User object. This dialog allows editing of the information associated with an NT-only User from NetWare Administrator. If changes are made to a Windows NT User object that is linked to an NDS user account, these changes may propagate upward, depending on the configuration settings for the NT domain to which this NT User belongs and on which field was modified.

Managing an NT-Only Global Group Object

The dialog displayed in Figure 3-2 lets you assign members to the selected NT Global Group object and edit information associated with an NT-only Global Group using Novell's NetWare Administrator. If changes are made to a Windows NT Global Group object which is linked to an NDS group account, these changes may propagate upward, depending on the configuration settings

for the NT domain to which this NT Global Group belongs and which field was modified.

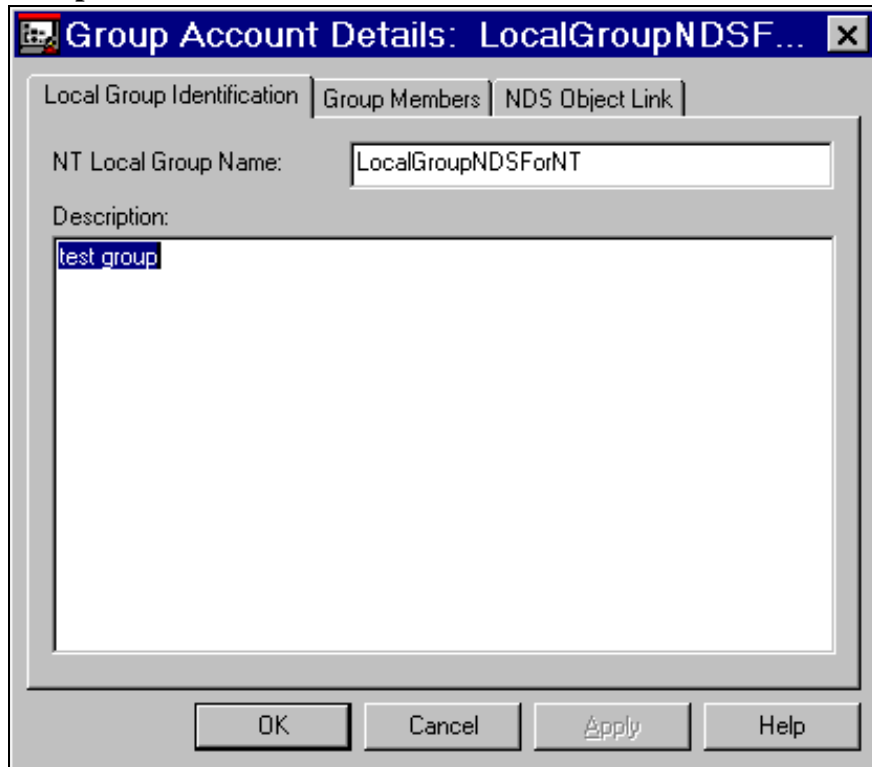
Figure 3-2
Managing Global Group Members



Managing an NT-only Local Group Object

The dialog displayed in Figure 3-3 is used to assign members to the selected NT Local Group object. This dialog lets you edit information associated with an NT-only Local Group using Novell's NetWare Administrator. If changes are made to a Windows NT Local Group object which is linked to an NDS group account, these changes may propagate upward, depending on the configuration settings for the NT domain to which this NT Local Group belongs and which field was modified.

Figure 3-3
Managing Local Group Members



Deleting NT-Only User and Group Objects

When an NT user or group account is deleted, the corresponding NDS user or group account will also be deleted as long as the following condition is met:

- The synchronization service must be running on the NT domain or NT workgroup server to which the deleted object belonged.

4 ***Managing Domain or Workgroup Server Information***

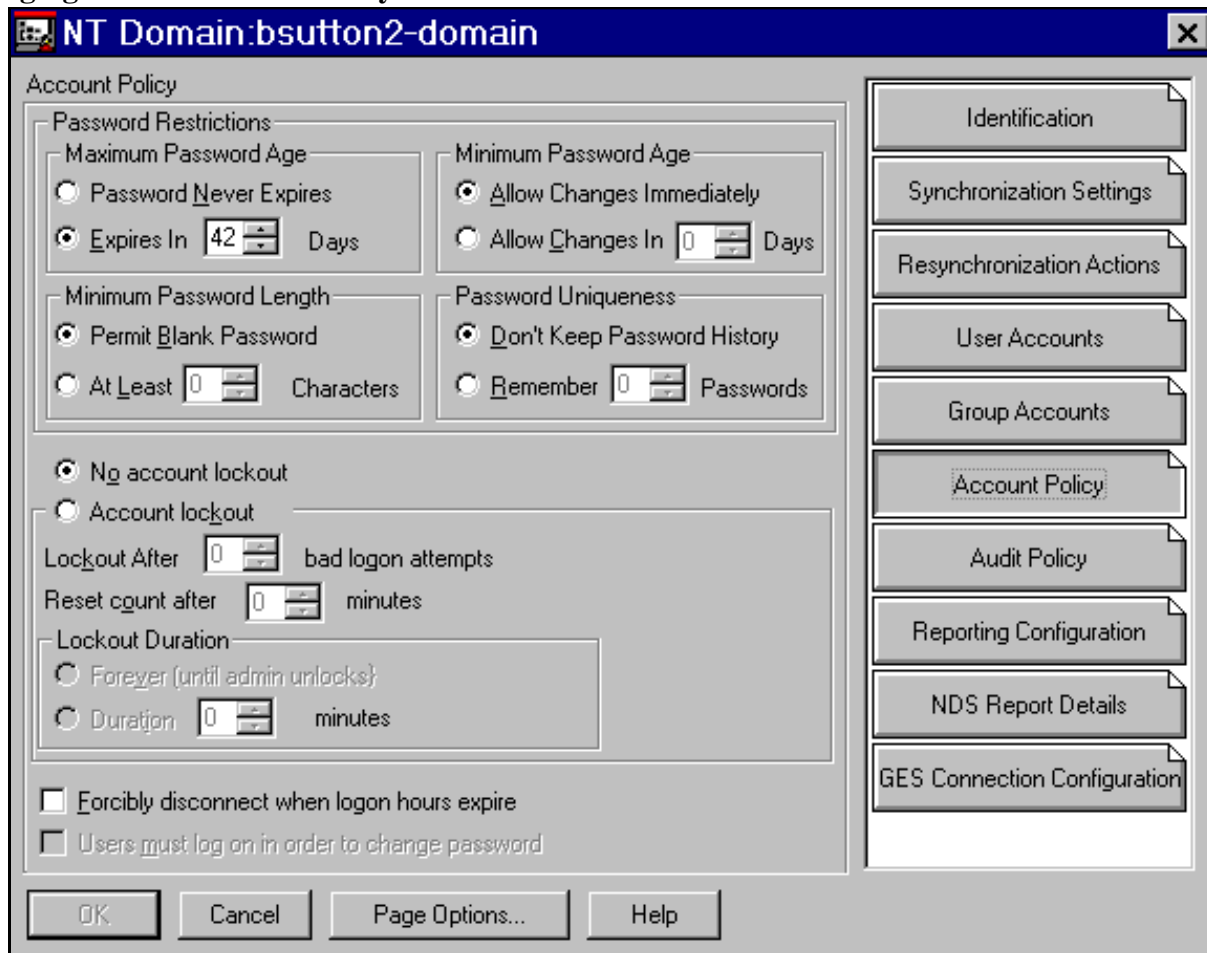
Various kinds of information about an NT domain or workgroup server can be managed from NetWare[®] Administrator. You can view the property pages described in this section by selecting the details for an NT Domain or NT Workgroup Server object.

Managing the Account Policy

The property page displayed in Figure 4-1 is used to modify the account policy information for the NT domain or workgroup server.

These fields control password settings for all users that are part of the selected NT domain or workgroup server.

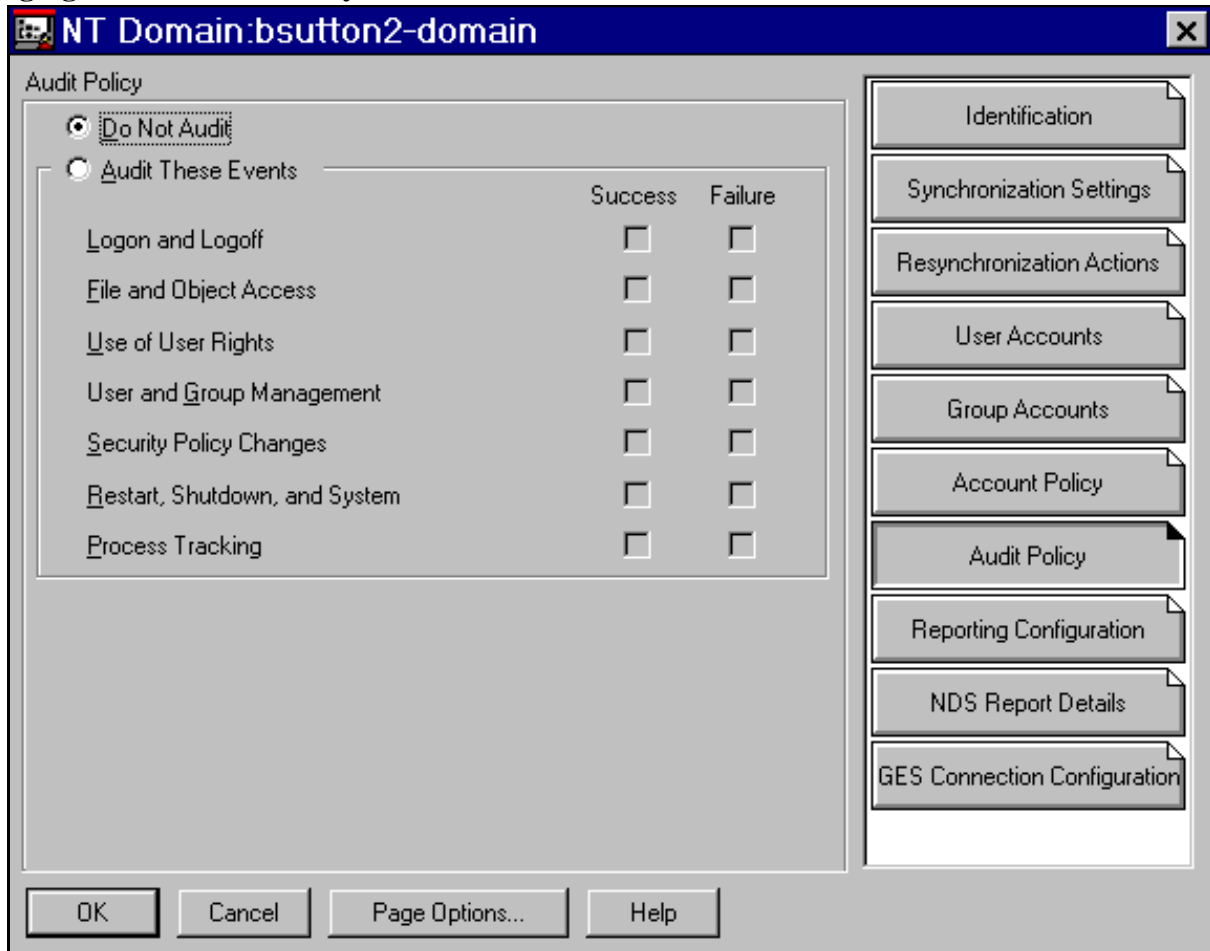
Figure 4-1
Managing the NT Account Policy



Managing the Audit Policy

The property page displayed in Figure 4-2 is used to modify the audit policy information for the selected NT domain or workgroup server. The fields control which system operations will have auditing enabled. When auditing is enabled, a corresponding entry will be made to the NT system event log when the specified event occurs. The NT system event log can be viewed by executing the Event Viewer application.

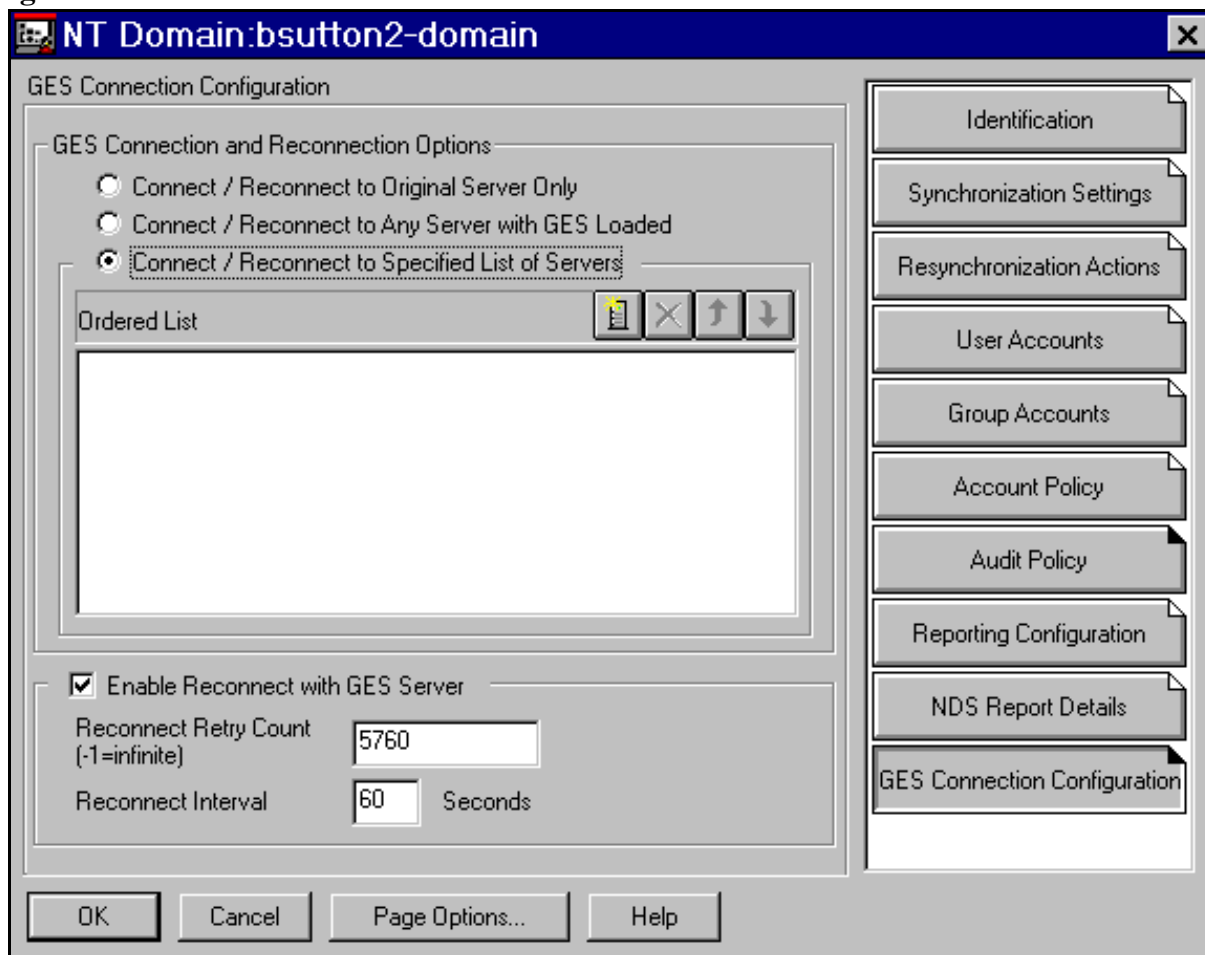
Figure 4-2
Managing the NT Audit Policy



Managing GES Connection Configuration

GES Connection Configuration is a property of NT Server objects in the NDS tree. The options in the Enable Reconnect with GES Server group box (Figure 4-3) let you define how the synchronization agent should connect and handle a lost or broken connection.

Figure 4-3
Specifying GES Connection Configuration
Settings



For synchronization to work correctly, the synchronization agent must be connected and logged into a NetWare server that is running the Global Event Services NetWare Loadable Module (NLM), NVGES.NLM. If this connection is lost, synchronization will stop until the agent successfully logs into Global Event Services again.

GES Connection and Reconnection Options

There are three different ways connection and reconnection can occur between the synchronization agent and Global Event Services.

- **Connect / Reconnect to Original Server Only** - When the synchronization agent is run for the first time, it stores the name of the Global Event

Services server that it logs into. This option specifies that the synchronization agent should only attempt to log into that server.

- **Connect / Reconnect to any Server with GES loaded** - This option instructs the synchronization agent to attempt to log into any server having Global Event Services loaded.
- **Connect / Reconnect to Specified List of Servers** - When this option is selected, it enables the server list controls. Use this option to add Global Event Services servers to an ordered list. The synchronization agent attempts to reconnect to the first server in the list when the connection is lost. If this attempt fails, the synchronization agent attempts to connect to the next server listed until successfully connecting. If all attempts to connect to listed servers are unsuccessful, the synchronization agent continues the listed servers until successful or until the retry count number has been reached.

Reconnect Settings

These settings specify how many times and how often the synchronization agent should attempt to reconnect. All lost connections are reported as errors to the configured reporting locations. The first attempt at reconnection will log an additional error if unsuccessful, but will not log further errors unless different from the first. The successful reconnection is also reported.

The Reconnect Retry Count field defines the number of attempt in seconds that the synchronization agent should make before shutting down. If the value is set to -1, the synchronization agent will attempt to reconnect nonstop.

The Reconnect Interval specifies how often the synchronization agent should attempt to reconnect to Global Event Services. This field is displayed in seconds.

