VERITAS NetBackup™ 3.4 for Lotus Notes

System Administrator's Guide

UNIX

May 2000
100-001488

VERITAS

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Printed in the USA, May 2000.

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Preface

This guide explains how to configure and use NetBackup for Lotus Notes on UNIX to perform online backups and restores of Lotus databases.

For specific information about the NetBackup Server software, refer to *NetBackup System Administrator's Guide - Windows NT Server* if you have a Windows NT server or the *NetBackup System Administrator's Guide - UNIX* if you have a UNIX server.

This document is the same as NetBackup_AdminGuide_LotusNotes_Unix.pdf distributed with the NetBackup for Lotus Notes on UNIX software.

Audience

This guide is intended for system administrators responsible for configuring and maintaining systems using Lotus databases.

This guide assumes:

- A basic understanding of system administration.
- You have a working understanding of the NetBackup client and server software and are familiar with the information covered in the following NetBackup manuals:
  - *NetBackup User's Guide - UNIX*
  - *NetBackup System Administrator's Guide - UNIX* if you are using a UNIX server or the *NetBackup System Administrator's Guide - Windows NT Server* if you are using a Windows NT server.
  - *NetBackup Troubleshooting Guide - UNIX* if you are using a UNIX server or the *NetBackup Troubleshooting Guide - Windows NT Server* if you are using a Windows NT server.
- A thorough understanding of the following Lotus topics:
  - Database file types and their relationships at recovery time
  - Data recovery scenarios

Organization

This guide is organized as follows:

- Chapter 1, "Introduction," describes the features of NetBackup for Lotus Notes on UNIX.
- Chapter 2, "Installation," provides details on installing NetBackup for Lotus Notes on UNIX.
- Chapter 3, "Configuration," provides details for configuring NetBackup for Lotus Notes on UNIX.
- Chapter 4, "Operating Instructions," contains a description of NetBackup backup and restore options for NetBackup for Lotus Notes on UNIX. It also contains troubleshooting tips.
- Chapter 5, "Troubleshooting," offers a comprehensive set of activity logs for troubleshooting problems that may occur during NetBackup operations.

Related Documents

The following documents provide related information. For a more detailed listing of NetBackup documents, refer to *NetBackup Release Notes*.

If you have a UNIX server, refer to these documents:

- *NetBackup System Administrator's Guide - UNIX*

  Explains how to configure and manage NetBackup on a UNIX system.

- *NetBackup Media Manager System Administrator's Guide - UNIX*

  Explains how to configure and manage the storage devices and media on UNIX NetBackup servers. Media Manager is part of NetBackup.

- *NetBackup Troubleshooting Guide - UNIX*

  Provides troubleshooting information for UNIX-based NetBackup products. You can also refer to www.veritas.com knowledge base for tech notes.

If you have a Windows NT/2000 server, refer to these documents:

- *NetBackup System Administrator's Guide - Windows NT/2000*

  Explains how to configure and manage NetBackup on a Windows NT/2000 server system.

- *NetBackup Media Manager System Administrator's Guide - Windows NT/2000*

  Explains how to configure and manage the storage devices and media on Windows NT/2000 NetBackup servers. Media Manager is part of NetBackup.

- *NetBackup Troubleshooting Guide - Windows NT/2000*

  Provides troubleshooting information for Windows NT/2000-based NetBackup products. You can also refer to www.veritas.com knowledge base for tech notes.

Conventions

The following explains typographical and other conventions used in this guide.

Type Style

Table 1. Typographic Conventions

Typeface	Usage
`Bold fixed width`	Input. For example, type **`cd`** to change directories.
`Fixed width`	Paths, commands, filenames, or output. For example: The default installation directory is `/opt/VRTSxx`.
Italics	Book titles, new terms, or used for emphasis. For example: *Do not* ignore cautions.
Sans serif (italics)	Placeholder text or variables. For example: Replace *filename* with the name of your file.
Sans serif (no italics)	Graphical user interface (GUI) objects, such as fields, menu choices, etc. For example: Enter your password in the Password field.

Notes and Cautions

Note This is a Note and is used to call attention to information that makes it easier to use the product or helps you to avoid problems.

Caution This is a Caution and is used to warn you about situations that can cause data loss.

Key Combinations

Some keyboard command sequences use two or more keys at the same time. For example, you may have to hold down the Ctrl key before you press another key. When this type of command is referenced, the keys are connected by plus signs. For example:

Press Ctrl+t

Command Usage

The following conventions are frequently used in the synopsis of command usage.

brackets [ ]

The enclosed command line component is optional.

Vertical bar or pipe (|)

Separates optional arguments from which the user can choose. For example, when a command has the following format:

`command` *arg1*|*arg2*

the user can use either the *arg1* or *arg2* variable.

Getting Help

For updated information about this product, including system requirements, supported platforms, supported peripherals, and a list of current patches available from Technical Support, visit our web site:

`http://www.veritas.com/products/vhsm/`

For product assistance, contact VERITAS Customer Support.

US and Canadian Customers: 1-800-342-0652

International Customers: +1 (650) 335-8555

VERITAS Customer Support can also be reached through electronic mail at:

`support@veritas.com`

Introduction 1

NetBackup for Lotus Notes on UNIX extends the capabilities of NetBackup to include on-line backups and restores of Lotus databases when Lotus Notes R5 has been installed. This capability is provided as an add-on or extension to the NetBackup for UNIX client software. Because this product is tightly integrated with the NetBackup client for UNIX product, this document only gives an overview of NetBackup functionality. In general, backup and restore operations for Lotus files are identical to other NetBackup file operations, except where noted in this document.

Features

On-line Backup	Lotus and transaction logs can be backed up without taking the Lotus databases. This ensures the availability of Lotus services and data during the Lotus backup.
Restore Operations	Using a few simple operations, an administrator using the NetBackup client can browse Lotus backups and select the ones to be restored.
Transaction Logging	NetBackup for Lotus Notes on UNIX takes advantage of the ability of Lotus Notes R5 to log transactions against one or more Lotus R5 databases. Transaction Logging may be either circular style or archive style.
Point in Time Recovery	Transaction logging enables NetBackup for Lotus Notes on UNIX to perform a point-in-time recovery of a logged Lotus R5 database(s).
Tight NetBackup Integration	Tight integration with NetBackup means two things: ◆ An administrator already familiar with NetBackup procedures and software will have no problems configuring and using NetBackup to perform backup and restore operations. ◆ All of the rich features and strengths of the NetBackup product suite are available to the Lotus backup user.
Central Administration	Administrators can define Lotus Notes classes, backup and restore Lotus from a central location.
Media Management	Lotus backups are saved directly to a wide variety of storage devices supported by the NetBackup master server.
Automated Backups	Administrators can set up schedules for automatic, unattended backups for local or remote clients across the network. These backups can be full or incremental and are managed entirely by the NetBackup server from a central location. The administrator can also manually back up clients.
Domino Partitioned Server Backup	Administrators can back up databases from Domino partitioned servers by specifying a `NOTES_INI_PATH=` file list directive in the NetBackup file list. Users can restore databases backed up from Domino partitioned servers by specifying the `absolute` path for the NOTES.INI file associated with the server instance to be used by the restore in the Lotus Notes tab on the Restore Marked Files dialog box.

Lotus Database

Lotus Database Configurations

NetBackup for Lotus Notes on UNIX supports the backup and restore of three database configurations that are supported by Lotus. These configurations can be divided into two categories, Domino Server databases and Local databases.

Domino Server Databases:	Domino Server databases are managed by the Domino Server. Domino Server databases are located at or in a directory in the Domino data directory, typically `/db/notesdata/`. Domino Server databases may also be linked to this Domino data directory using Lotus Linked Databases. Domino Server databases can be Logged or Unlogged.
Logged Domino Server Databases:	A feature of Domino R5 Server is the ability to log transactions against one or more Lotus databases. If transaction logging is enabled on the server, all logged database transactions go into a single transaction log, consisting of one or more files or extents. Where archive style transaction logging is used, the archived log files serve as the incremental backup for the logged databases. Transaction logging must be enabled in order to initiate the recovery of logged databases using NetBackup for Lotus Notes on UNIX.
Unlogged Domino Server Databases:	An unlogged database is one in which transaction logging is not enabled, or has been disabled for specific server database(s). Unlogged Domino Server databases will be backed up when a full backup, a differential incremental backup or a cumulative incremental backup is performed. The database can be restored only to the point of the latest database backup.
Local Databases:	Local databases are Lotus databases that are not found in the Domino data directory, cannot be shared, and cannot be logged. For this type of database, it is necessary to backup the database itself for all backup types (full, differential incremental, and cumulative incremental). The database can be restored only to the point of the latest database backup.

Lotus Database Files

This section describes the set of files that may be backed up during a backup operation.

Database Files

NetBackup for Lotus Notes on UNIX will support the following database types:

`.NTF` Lotus Notes Template Files

`.NSF` Lotus Notes Server Files

`.BOX` Lotus Mail Box Files

Transaction Logs

Lotus Domino Server R5 has the ability to log transactions against one or more Lotus R5 databases. Earlier database versions cannot take advantage of transaction logging and are considered unlogged databases.

All Lotus R5 databases are logged by default when:

- Transaction logging is enabled by the administrator
- The database is in the Domino data directory

All logged database transactions go into a single *transaction log*, consisting of one or more files or extents.

Transaction logging may be of either circular style or archive style. When archive style transaction logging is used, the archive log files may serve as the incremental backup for logged databases.

Note Transaction logging must be enabled in order to implement the recovery of logged Lotus databases.

What Lotus Domino Server Files Are Backed Up?

Recycling a Transaction Log

The Domino Server manages when a transaction file is actually recycled. During some backup operations we mark transaction logs as ready to be recycled.

Circular and Archive Style Logging

When logging is enabled on the Domino Server, two styles of logging can be selected for all logged databases: circular and archive logging. When circular logging is selected, the log file will be reused when a specified log file size is reached. By reusing the log file, you

are saving resources, but limiting your recovery options. Since circular log files are not backed up by NetBackup for Lotus Notes on UNIX, you will be able to recover only to the point where transactions have not been overwritten.

Archive logging, when enabled, will produce a transaction log only limited by the capacity of your mass storage. When archive style transaction logging is used, the archived log files serve as the incremental backup for the logged databases.

Backup Operations

This section presents overview information on NetBackup for Lotus Notes on UNIX backup operations.

Requirements

Lotus Domino Server R5 must be installed on the NetBackup client before a backup operation can be performed. Transaction logging must be enabled in order to initiate the recovery of logged databases.

Methods

NetBackup provides three methods to perform backups: automatic, manual, and user-directed. This section contains an overview of these methods. For more information on these backup methods and other administrator-directed activities, refer to the *NetBackup System Administrator's Guide - UNIX* if you are using a UNIX server or to the *NetBackup System Administrator's Guide - Windows NT/2000* if you are using a Windows NT/2000.

Automatic Backups

The NetBackup administrator can schedule backups that occur automatically and unattended, under the control of the NetBackup master server. Automatic backups will meet most of your backup requirements.

Manual Backups

The manual backup allows the administrator to initiate a full backup, cumulative incremental backup or differential incremental backup that has been setup in the policy manager. The manual backup option can be useful for the following situations:

- Testing a configuration
- When workstations miss their regular backups
- Before installing new software (to preserve the old configuration)
- Preserving records before a special event such as when companies split or merge

In some cases, it may be useful to create a class and schedule that you use only for manual backups. You can do this by creating a class with a single schedule that has no backup window defined (and therefore never executes automatically).

User-Directed Backups

A user-directed schedule is not required for Lotus Notes backups to work. Lotus Notes backups operate like files system backups, which do not require user-directed schedules for the scheduled backups to work.

Performing user-directed backups of Lotus databases is similar to using the NetBackup client for UNIX to back up normal files. The example described in “Performing a Backup” on page 52 uses the NetBackup client for UNIX graphical user interface to perform an online backup of a Lotus database.

Actions performed for a user backup are identical to a full backup except that the transaction logs are not marked as ready to be recycled after they are successfully backed up. Because transaction logs are not recycled, user backups are like taking a snapshot of the databases at a given point in time without impacting the content of ongoing full and incremental backups.

A user backup is not automatically scheduled and must be initiated on the target client machine.

You may want to consider creating a separate class for User Backup schedule types. This will allow you to easily separate user-directed and scheduled backups when restoring files. If you decide to create separate classes for User Backup schedule types, the considerations are similar to those for automatic backups. One difference is that you do not need a file list because users select the files before starting the operation.

Restore and Recovery Operations

Using a few simple operations, an administrator using the NetBackup client can browse NetBackup for Lotus Notes backups and select the ones to be restored and recovered.

NetBackup for Lotus Notes on UNIX will support both restore and recovery operations. A restore operation will allow a user to restore any previously backed up Lotus databases. The operations performed during a database restore are:

- the existing database is taken offline and deleted
- the database is restored
- changed records recorded during the backup of the database are restored and applied to the database, and if the database is unlogged or local the database is brought back online

  If the database is a logged database, the database name is added to a list for recovery after all databases (unlogged / local and logged) have been restored.

Following the restore operation, the recovery operation will begin automatically and will attempt to recover all logged databases restored during the restore operation. The logged databases that have been restored will be rolled forward to a specific point-in-time using the appropriate transactions from the required transaction logs, before being brought back online. As part of the recovery operation, any required transaction logs that have been previously backed up and recycled will be restored automatically as part of the recovery operation.

Requirements

Transaction logging must be enabled in order to implement the recovery of logged databases.

Methods

NetBackup provides three methods to perform restores:

- server directed
- alternate client
- alternate directory

These methods are supported in the Restore and Recovery Operations. An overview of these methods is given in the following sections. For more information on these restore methods and other administrator-directed activities, refer to the *NetBackup System Administrator's Guide - UNIX* or *NetBackup System Administrator's Guide - Windows NT/2000*.

Server-Directed Restore

An administrator can browse NetBackup for Lotus Notes on UNIX files and select the ones to be restored. When the administrator initiates the restore, the request is passed from the client to the NetBackup master server. Once the server validates the request, the restore operation becomes fully managed by the server, which identifies the storage device and the volume containing the Lotus databases by querying the NetBackup database. The server then transmits the data back to the client.

NetBackup restores Lotus databases and transaction logs from a range of backups. By default, this range includes the last full backup and all cumulative incremental backups and differential incremental backups since that full backup.

NetBackup will allow you to select the NetBackup server from which files will be restored.

NetBackup will allow you to view the backup history and select items to restore for:

- a specific client
- other clients that were backed up by that client

Alternate Client Restore

An alternate-client restore restores files or directories to a different client than the one from which they were backed up. This is possible only if the NetBackup administrator sets up the configuration to allow it. The administrator on the NetBackup master server or Administration Client can direct restores to any NetBackup client (regardless of which client the files came from). Please see the appropriate NetBackup manuals for the configuration needed for alternate client restores

Alternate Directory Restore

Alternate directory restores allow a user to restore Lotus files to directories other than the ones from which the databases were backed up.

Installation 2

This chapter describes the NetBackup for Lotus Notes on UNIX installation procedure. It includes a section on installation prerequisites. It also contains sections on installing Oracle7 Enterprise Backup Utility and Oracle8 Recovery Catalog.

To determine which Lotus database version levels are supported, refer to the Database Extension Matrix in the *NetBackup Release Notes*.

Installation Prerequisites

Before installing NetBackup for Lotus Notes on UNIX, be sure to complete the following procedures:

1. Install NetBackup server software on the server.

   The NetBackup server platform can be any of those that NetBackup supports.

   For a BusinesServer installation, refer to the *NetBackup BusinesServer Getting Started Guide - UNIX* or the *NetBackup BusinesServer Getting Started Guide - Windows NT/2000* for details.

   For a DataCenter installation, refer to the *NetBackup DataCenter Installation Guide - UNIX* or the *NetBackup DataCenter Installation Guide - Windows NT/2000*.

2. Install the NetBackup client software on the client where you will be backing up the databases.

   For a BusinesServer installation, refer to the *NetBackup BusinesServer Getting Started Guide - UNIX* for installation instructions on UNIX clients.

   For a DataCenter installation, refer to the *NetBackup DataCenter Installation Guide - UNIX* for installation instructions on UNIX clients.

Now you are ready to install NetBackup for Lotus Notes on UNIX on the client where you will be backing up the databases. Refer to the next section for detailed instructions on installing NetBackup for Lotus Notes on UNIX.

Install NetBackup for Lotus Notes on UNIX

There are two ways to install database extension software.

- Remote Installation

  Loads the software on a master server. The user will then push the database software out to affected clients.

  Refer to the following section.

- Local Installation

  Loads and installs the software only to the local machine.

  Refer to “Local Installation of NetBackup for Lotus Notes on UNIX” on page 18.

Remote Installation of NetBackup for Lotus Notes on UNIX

During a remote installation, NetBackup for Lotus Notes on UNIX files are loaded onto the current machine, which must be a master server. The software will then be distributed to the clients and installed.

Before performing a remote install, make sure:

- There is adequate disk space on each client that will receive the software.

  Less than one megabyte of additional disk space is required in the client's *install_path*`/netbackup` directory. However, more disk space may be necessary at run time.

- NetBackup version 3.4 client software is installed and operational on each Lotus Notes client.

  This also means that the directory *install_path*`/netbackup` already exists on each Lotus Notes client.

- Lotus Notes R5.0 has been installed on each client to which you will be pushing NetBackup for Lotus Notes on UNIX software.

Remote Install Procedure

1. Log in as the root user on the server.

   If you are already logged in, but are not the root user, execute the following command.

   ```
   su - root
   ```

2. Make sure a valid license key for NetBackup for Lotus Notes on UNIX has been registered.

Use the command *install_path*`/netbackup/bin/admincmd/get_license_key` to list and add keys.

3. Insert the CD-ROM into the drive.

4. Change the working directory to the CD-ROM directory.

   `cd /CD_mount_point`

5. Load the software on the server by executing the `install` script.

   `./install`

   The following prompt will appear:

   ```
   Do you want to do a local installation? (y/n) [n]
   ```

   a. Answer **`n`**.

      You are presented with a menu of all database extensions available on the CD-ROM.

   b. Select the NetBackup for Lotus Notes option.

   c. Enter **`q`** to quit selecting options.

      A prompt will appear asking if the list is correct.

   d. Answer **`y`**.

      The `install` script identifies the types of client software loaded during the installation of the NetBackup server. By default, any matching NetBackup for Lotus Notes on UNIX software will automatically be loaded. If there are more platforms available, the script displays a menu giving you the opportunity to add more client types to the default list. Once the list is complete, database extension version files, compressed tar files and the `install_dbext` script are copied to directory *install_path*`/netbackup/dbext`.

6. Distribute and install the NetBackup for Lotus Notes on UNIX software on each client.

Note It is expected that the NetBackup version level (for example, 3.4) running on each client that you wish to update matches the version level of the database extension being installed.

---

a. Execute the command to distribute the NetBackup for Lotus Notes on UNIX software to the clients. This command varies, depending upon the type of install you will perform.

There are two types of installs.

- *initial install*
  Use an initial install if the clients you intend to update have not been configured into classes of type Lotus-Notes.
- *upgrade install*
  Use an upgrade install if all the clients you intend to update already have been configured into classes of type Lotus-Notes.

Initial Install Procedure

1. Execute the following command to create a file containing a list of clients currently configured in the NetBackup database.

cd *install_path*`/netbackup/bin`
`./admincmd/bpclclients -allunique -noheader >` *filename*

where *filename* is the name of the file to contain the list of unique clients. If no clients have been configured in the NetBackup database, and therefore *filename* is empty, create *filename* using the same format as that generated by `bpclclients`.

`bpclclients` generates output in following format:

hardware operating_system client_name

where

hardware is the hardware name. For examples, execute the `ls` command in directory *install_path*`/netbackup/client`.

operating_system is the operating system name. For examples, execute the `ls` command in directory *install_path*`/netbackup/client/`*hardware*.

client_name is the name of the client.

For example, the contents of *filename* might look like this:

```
Solaris Solaris2.6 curry.min.ov.com
RS6000 AIX4.3 cypress
```

2. Edit *filename*.

This is an optional step. Use it if the contents of *filename* need to be changed. Edit *filename* to contain only those clients you wish to update with NetBackup for Lotus Notes on UNIX software.

3. Specify *filename* on the `update_dbclients` command.

   For example:

   `cd` *install_path*`/netbackup/bin`
   `./update_dbclients Lotus_Notes -ClientList` *filename*

   Only clients listed in *filename* will be updated.

Upgrade Install Procedure

Execute the following command.

`cd` *install_path*`/netbackup/bin`
`./update_dbclients Lotus_Notes ALL ALL`

This command will look at all possible clients and only update the ones currently in a Lotus-Notes class type.

Instead of `ALL ALL`, you may use `-ClientList` *filename* as explained in "Initial Install Procedure" on page 15.

Note With an initial or upgrade install, some clients may be skipped and not updated. Possible reasons are:
- the client is a PC client (which cannot be updated from a UNIX server),
- NetBackup for Lotus Notes on UNIX does not support that client's platform type,
- the NetBackup for Lotus Notes on UNIX software for that client type was not loaded onto the server in step 5,
- (if using the `ALL ALL` method) the client does not belong to a Lotus-Notes class type.

All skipped clients are available in a file whose name is displayed by `update_dbclients`.

---

b. The number of updates required to distribute the software to the clients is displayed.

If more than one update will occur, you will see the following prompt:

`Enter the number of simultaneous updates you wish to take place. 1` *max dflt*

where:

max is the maximum number of simultaneous updates that is allowed. The value displayed will be a number ranging from 1 to 30.

dflt is the default number the program will use if you press Enter. The value displayed will be a number ranging from 1 to 15.

Example 1

If three client updates will be performed, the *max* and *dflt* values shown would be 3.

Example 2

If 50 client updates will be performed, the *max* value shown would be 30 and the *dflt* value shown would be 15.

`update_dbclients` will start the number of updates that you specify. If this number is less than the total number of client updates to be performed, new updates will start as the previous updates finish until all of the updates have been completed.

Based on your answer, the time it will take to update the clients is displayed, followed by this question:

```
Do you want to upgrade the clients now? (y/n) [y]
```

c. Enter **`y`** or **`n`** for the prompt.

If you answer **`n`**, `update_dbclients` will quit and leave the list of clients it would have updated in a file. This file can later be used by the `-ClientList` parameter mentioned previously.

Answer **`y`** to continue the installation process.

If the `update_dbclients` command was successful in distributing the software to the client, it will automatically run the `install_dbext` script on the client. If `install_dbext` has successfully completed, there will be a version file in directory *install_path*`/netbackup/ext` that contains the version of NetBackup for Lotus Notes on UNIX that was installed and an installation timestamp. The `update_dbclients` command displays a note on whether the update was successful for each client. When the `update_dbclients` command has completed, it displays a file name that contains a complete log of what happened for each client. If the update failed for any client, the log file should be examined to determine the problem.

Local Installation of NetBackup for Lotus Notes on UNIX

During a local installation, the NetBackup for Lotus Notes on UNIX files are extracted and installed. The local machine can be a client or a master server that also happens to be a client.

Before performing a local install, make sure:

- The local machine has adequate disk space.

  Less than one megabyte of additional disk space is required in the *install_path*`/netbackup` directory. However, more disk space may be necessary at run time.

- NetBackup version 3.4 client software is installed and operational.

  This also means that the *install_path*`/netbackup` directory already exists.

- Lotus Notes R5.0 has been installed on the local machine.

Local Install Procedure

1. Log in as the root user on the machine.

   If you are already logged in, but are not the root user, execute the following command.

   ```
   su - root
   ```

   - If the local machine is a client, go to step 3.
   - If the local machine is a server, go to step 2.

2. Make sure a valid license key for NetBackup for Lotus Notes on UNIX has been registered.

   Use the command *install_path*`/netbackup/bin/admincmd/get_license_key` to list and add keys.

3. Insert the CD-ROM into the drive.

4. Change the working directory to the CD-ROM directory.

   ```
   cd /CD_mount_point
   ```

5. Load and install the software by executing the `install` script.

Note It is expected that the NetBackup version level (for example, 3.4) running on the local machine matches the version level of the database extension being installed.

```
./install
```

The following prompt will appear:

```
Do you want to do a local installation? (y/n) [n]
```

a. Answer **y**.

You are presented with a menu of all database extensions available on the CD-ROM.

b. Select the NetBackup for Lotus Notes option.

c. Enter **q** to quit selecting options.

A prompt will appear asking if the list is correct.

d. Answer **y**.

The following actions will occur:

- The version file, compressed tar file and `install_dbext` script will be loaded to directory *install_path*`/netbackup/dbext`.
- The `install` script will automatically execute the `install_dbext` script.
- If `install_dbext` has successfully completed, there will be a version file in directory *install_path*`/netbackup/ext/` that contains the version of NetBackup for Lotus Notes on UNIX that was installed and an installation timestamp.

Configuration 3

This section provides an overview of how to configure NetBackup to perform backup and restore operations for Lotus databases and transaction logs.

To use NetBackup for Lotus Notes on UNIX, you must add at least one Lotus-Notes class to NetBackup, then define the appropriate schedules for that class. This section contains the following:

- A description of each backup type valid for Lotus-Notes classes
- Class configuration procedures for the NetBackup Java Interface and the NetBackup Windows NT/2000 interface

Most requirements for Lotus-Notes classes are the same as for file system backups. Refer to the *NetBackup System Administrator's Guide - UNIX* or the *NetBackup System Administrator's Guide - Windows NT/2000* for detailed configuration instructions.

Configure the bp.conf file

NetBackup for Lotus Notes on UNIX needs to know the path where the Lotus Domino server data is located, where the Lotus program files reside, and the location of the Lotus Domino resource files. This information is extracted from the LOTUS_NOTES_PATH variable in the *install_path*`/netbackup/bp.conf` file. A sample of the LOTUS_NOTES_PATH variable is shown below.

```
LOTUS_NOTES_PATH = /export/home/notesdata:/opt/lotus/notes/latest
/sunspa:/opt/lotus/notes/latest/sunspa/res/c
```


Schedules - Types of Backup

Full backup

This schedule type is used to back up all the Lotus databases identified in the file list and/or the transaction logs if the BACKUP_TRANSACTION_LOGS directive is encountered in the file list. All transaction logs, identified as available for backup by the Domino server, will be marked as ready to be recycled after they are successfully backed up. The Domino server handles the actual recycling of transactions logs.

Differential incremental backup

A differential incremental backup will perform differently depending on the type of Lotus database.

unlogged databases or local databases

A differential incremental backup will back up all unlogged or local databases identified in the file list that have been modified since the last full or differential incremental backup. The last modification date is determined by the time the database was last modified, not the time/date stamp of the database file.

logged databases

A differential incremental backup will back up only those logged databases identified in the file list that have been assigned a new DBIID since the last full or differential incremental backup.

transaction logs

When the BACKUP_TRANSACTION_LOGS file list directive is encountered in the file list, a differential incremental backup will back up all transaction logs identified as available for backup by the Domino server. The transaction logs will be marked as ready to be recycled upon successful completion of the backup.

Cumulative incremental backup

A cumulative incremental backup will perform differently depending on the type of Lotus database.

unlogged databases or local databases

A cumulative incremental backup will backup all unlogged or local databases identified in the file list that have been modified since the last full backup. The last modification date is determined by the time the database itself was modified, not the time/date stamp of the database file.

logged databases

A cumulative incremental backup will backup only those logged databases identified in the file list that have been assigned a new DBIID since the last full backup.

transaction logs

When the BACKUP_TRANSACTION_LOGS file list directive is encountered in the file list, a cumulative incremental backup will backup all transaction logs identified as available for backup by the Domino server. The transaction logs will not be marked as ready to be recycled upon successful completion of the backup.

User backup

Actions performed for a user backup are identical to a full backup except that the transaction logs are not marked as ready to be recycled after they are successfully backed up. Because transaction logs are not recycled, user backups are like taking a snapshot of the databases at a given point in time without impacting the content of ongoing full and incremental backups.

A user backup is not automatically scheduled and must be initiated on the target client machine.

You may want to consider creating a separate class for User Backup schedule types. This will allow you to easily separate user-directed and scheduled backups when restoring files. If you decide to create separate classes for User Backup schedule types, the considerations are similar to those for automatic backups. One difference is that you do not need a file list because users select the files before starting the operation.

Class Configuration Procedures

NetBackup classes define the criteria for the backup. These criteria include:

- file list
- clients
- clients and the NetBackup for Lotus Notes on UNIX script files to be executed on the clients
- storage unit and media to use
- backup schedules

Procedures in this section describe how to configure a class for NetBackup for Lotus Notes on UNIX on a NetBackup server. There are other attributes for a class to consider. Refer to the *NetBackup System Administrator's Guide - UNIX* or the *NetBackup System Administrator's Guide - Windows NT/2000* for details on how to configure all the attributes.

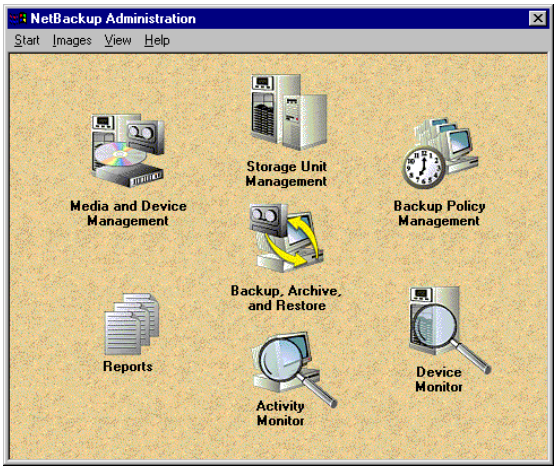
NetBackup Administration - Windows NT/2000 Interface

A NetBackup class defines the backup policies for a specific group of one or more clients. A configuration can have a single class that includes all clients or there can be many classes, some of which include only one client. A NetBackup client must be in at least one class but can be in more than one.

Use this procedure when configuring a class from a Windows NT/2000 server or from the NetBackup Administration Client host.

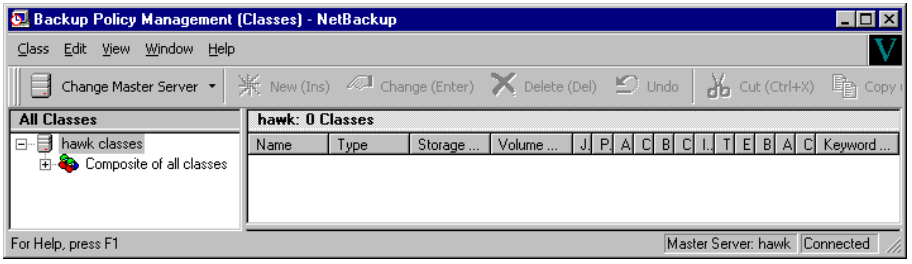
1. Log onto the server as Administrator.

2. From the Start menu, select Programs, VERITAS NetBackup, NetBackup Administration. The NetBackup Administration interface appears.



3. Click the Backup Policy Management icon.

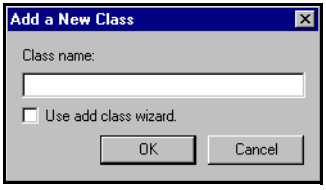
   The Backup Policy Management (Classes) - NetBackup dialog appears.



4. Perform the following steps to add a new class.

   The class wizard automates the class configuration process. To configure classes without using the class wizard, perform the following steps.

   a. On the Class menu click New. The Add a New Class dialog box appears.

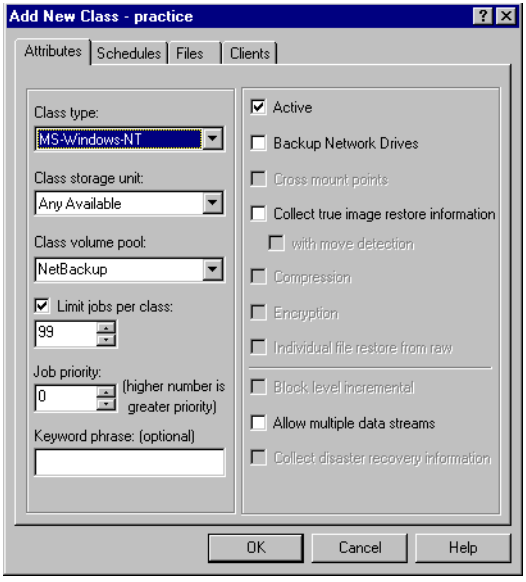


b. Confirm that the Use add class wizard check box is not checked.

c. Type the new class name in the Class name box.

d. Click OK.

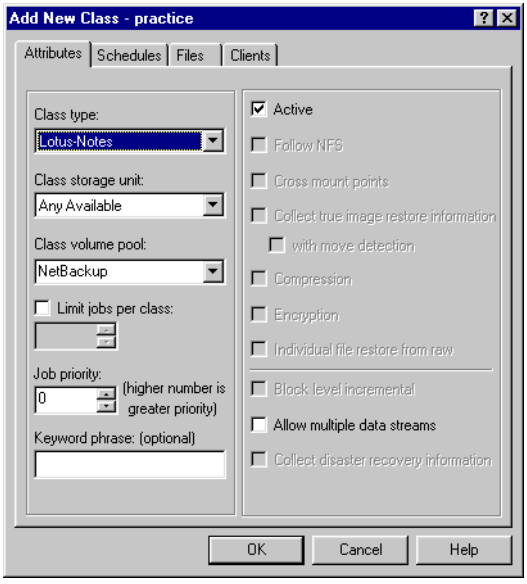
The Add New Class dialog box appears. The class name you specified appears in the title bar.



5. Perform the following steps to configure the general attributes:

a. Select the Lotus-Notes class type.

The Add New Class dialog box changes as follows.



b. Make your selections in the general attributes property sheet.

The following listing describes the selections available to you on the general attributes property sheet. The attributes for a class determine the general characteristics of all backups that will be performed for clients in that class.

Class type

Determines the type of clients that can be in the class and in some cases the types of backups that can be performed on those clients.
To use NetBackup for Lotus Notes on UNIX, you must have defined at least one Lotus-Notes class.

Class storage unit

Storage unit to use for backups (for example, dlt or 8-mm tape).
A storage device can attach to the master server or to a media server. Different classes can use different storage units. For example, one class can use an 8-mm tape stacker (TS8) and another class can use a DLT Library (TLD).

Class volume pool

A volume pool is a distinct set of media that the administrator can assign for use by specific classes or schedules. For example, it is possible to have one volume pool for weekly backups and another for quarterly backups.

Limit jobs per class

The number of concurrent backup jobs that can occur for the class.

Job priority

Specifies the priority that NetBackup will assign to automatic-backup jobs for this class. When a drive becomes available, NetBackup assigns it to the first client in the highest priority class. To set the priority, type any positive integer in the Job Priority text box. Higher values have higher priority. The default is 0.

Keyword phrase

A textual description of a backup. Useful for browsing backups and restores.

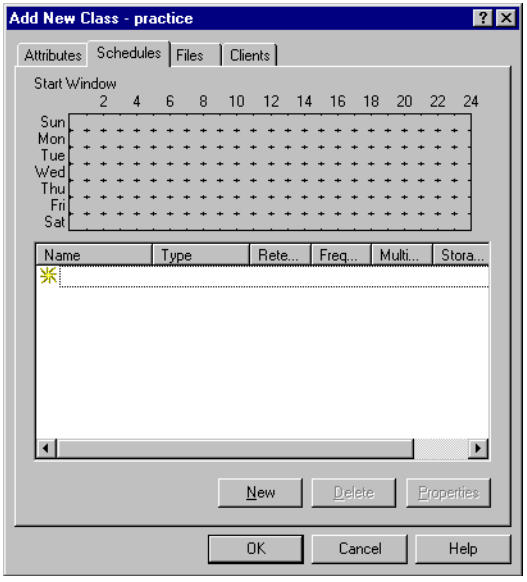
General attributes

Lotus-Notes will recognize the general attributes available to a class: Active and Allow multiple data streams.

6. Perform the following steps to configure the schedules for your class.

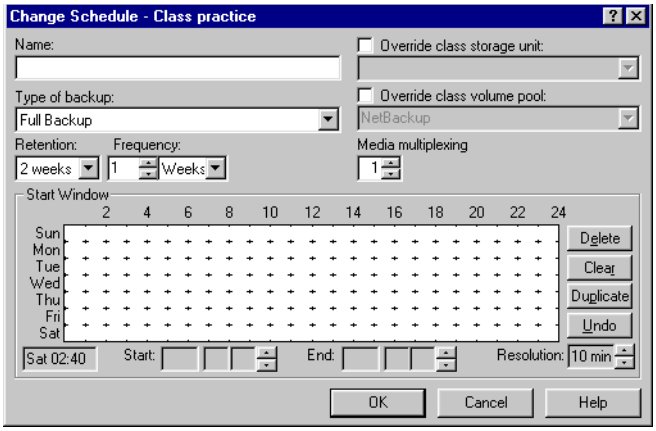
a. Click Schedules tab.

The Schedules property sheet appears.



b. Click New to configure a new schedule.

The Change Schedules dialog box appears.



The following table describes the fields for configuring a schedule.

Name:

Each schedule requires a unique name.

Type of backup:

Specifies the type of backup that this schedule will control. Click in the box and select from the list. The selection list shows only the backup types that apply to the class you are configuring. Backup types that are available for the Lotus-Notes class are: full backup, cumulative incremental backup, differential incremental backup and user backup.

Retention:

The retention period refers to the length of time that NetBackup keeps backup images. Set the time period to retain at least two full backups of your database. In this way, if one full backup has been lost, you will have another full backup to fall back on.

For example, if your database is backed up once every Sunday morning, you should select a retention period of at least 2 weeks.

Frequency:

Refers to the time period to wait between backups. This is used only for scheduled backup types, not for a user backup backup type.

Media Multiplexing:

The Media Multiplexing box sets the number of jobs from this schedule that NetBackup can multiplex onto any one drive.

Start: End:

These settings define the backup window, which is the time period during which backups can occur for this schedule. The start time defines the times and days of the week when the window opens. The End time defines when the window will close.

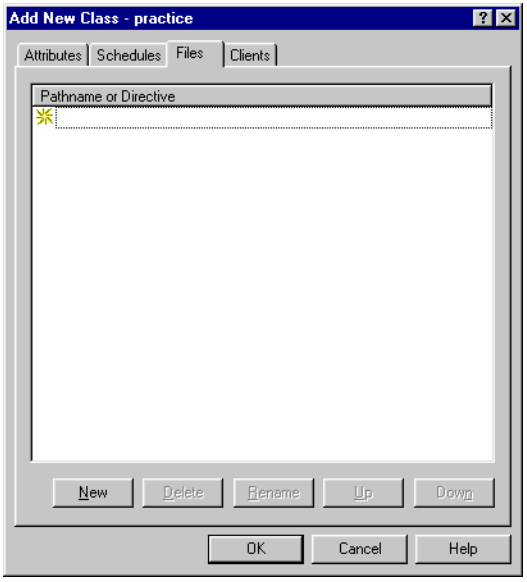
c. Click OK.

The Change Schedule dialog box closes.

7. Perform the following steps to configure the list of Files.

a. Click Files tab.

The Files property sheet appears.



You can specify the following in the file list:

- folders
- files
- file list directives

b. Click the New button.

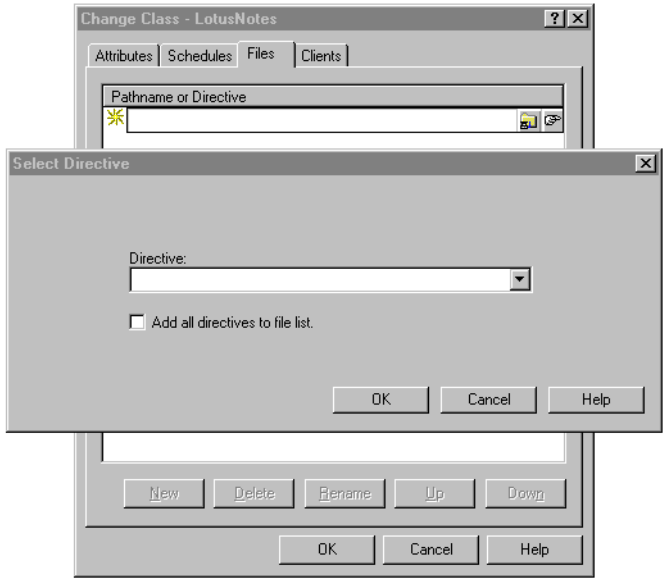
The Remote Folder and Directive buttons appear.

If you want to specify a directory or file in the file list, specify the name of the directory or file in the Pathname or Directive text box. Or click the Remote Folder button to browse for the specific directories or files.

If you want to specify a file list directive in the file list, perform steps **c** through **f**.

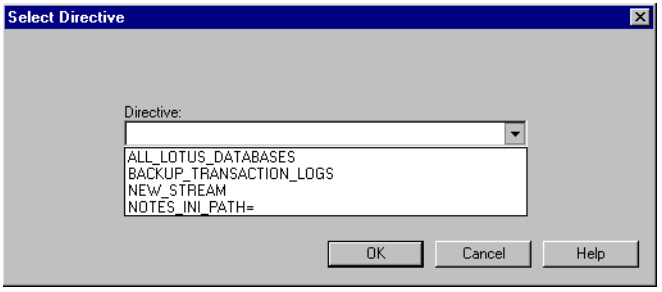
c. Click the Directive button.

The Select Directive dialog box appears.



d. Open the Directive scroll box.

The list of file list directives for Lotus-Notes classes appear.



e. Select the file list directives you want to add to the file list.

Selecting the ALL_LOTUS_DATABASES list directive will cause the backup to be performed on all Lotus databases on each of the selected clients. ALL_LOTUS_DATABASES means local databases and Domino Server databases. Using the ALL_LOTUS_DATABASES file list directive can have tremendous performance issues on clients with large or multiple local drives. In this case, it is suggested that more specific folders or databases be added to the file list; for example, the Domino data directory.

Specifying the BACKUP_TRANSACTION_LOGS file list directives, means that all transaction logs identified by the Domino server as available for backup will be backed up.

If you are configuring a backup from Domino partitioned servers, you would use the NOTES_INI_PATH= file list directive where:

NOTES_INI_PATH=*absolute path for the NOTES.INI file associated with the server instance to be used*

This file list directive identifies the location of the NOTES.INI file associated with the particular server partition that will be used to perform the backup. The sever partition specified will have an impact on the how a database is backed up (logged or unlogged) and which set of transaction logs will be backed up.

To perform a scheduled backup of more than one Domino partitioned server from a single class, you must back up each Domino partitioned server with a separate data stream. You would do this by using the NEW_STREAM file list directive and the appropriate NOTES_INI_PATH= file list directive for each data stream.

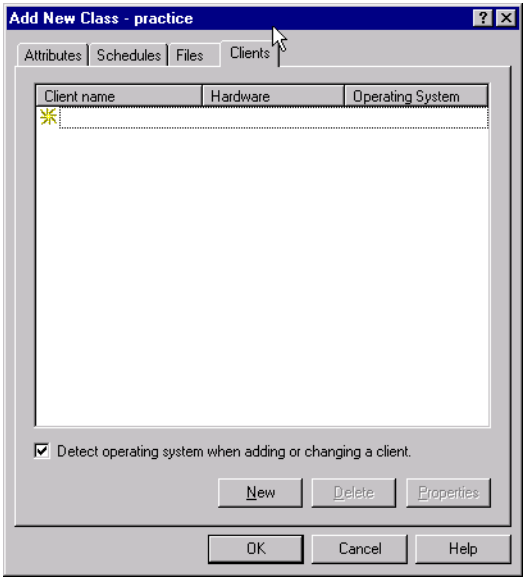
NEW_STREAM is used to define different partitions for a partitioned server, and multiple streams for a non-partitioned server. For more information on the NEW_STREAM file list directive, see the NetBackup System Administrator's Guide that applies to your master server.

f. Click OK to close the Select Directive dialog box.

8. Perform the following steps to configure the Client list.

a. Click Clients tab.

The Clients property sheet appears.



b. Click New.

The Client Names box appears.

c. Type the name of the client that has:

- the Lotus database installed
- NetBackup for Lotus Notes on UNIX installed

d. Click OK.

The Client Hardware and Operating system dialog box appears.

e. Select the hardware and operating system for the client.

f. Click OK.

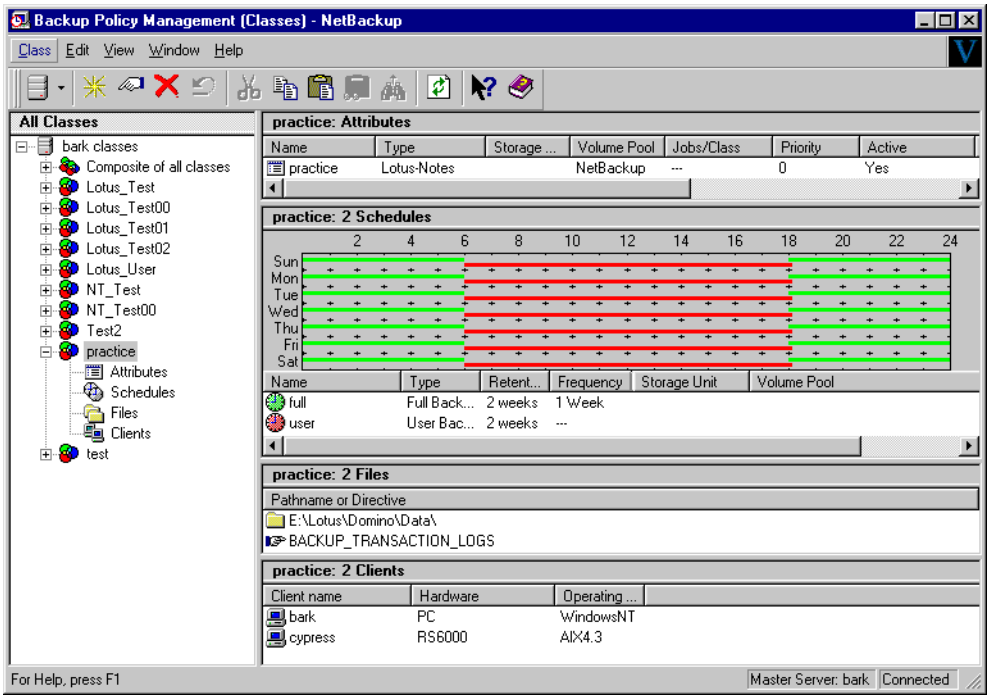
The Client Hardware and Operating system dialog box closes.

9. Click OK.

The Changing Class dialog box closes. The Backup Policy Management (Classes) - NetBackup dialog box remains open.

Also notice that the configuration settings you entered are displayed in the class pane. Use the scroll bar at the bottom of the pane to view all settings.

Sample Configuration



NetBackup Administration - Java Interface

A NetBackup class defines the backup policies for a specific group of one or more clients. A configuration can have a single class that includes all clients or there can be many classes, some of which include only one client. A NetBackup client must be in at least one class but can be in more than one.

Use this procedure to configure a class on the NetBackup Administration - Java Interface on HP or Solaris operating systems.

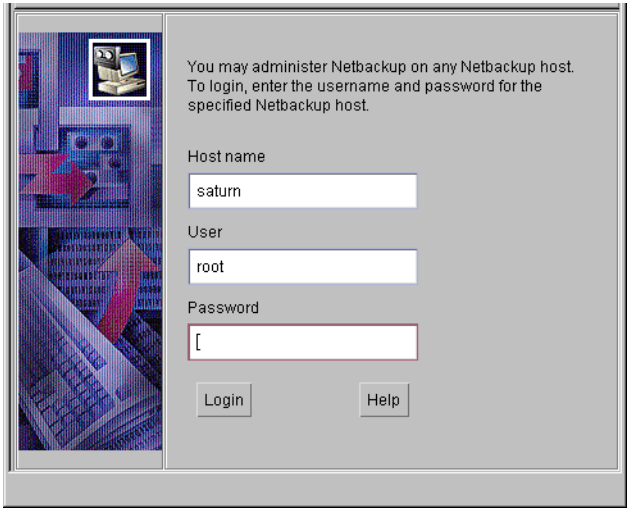
1. Log onto the server as root.
2. Start the NetBackup administrator interface by entering:

   install_path`/netbackup/bin/jnbSA &`

   For additional usage information, enter:

   `jnbSA -h`

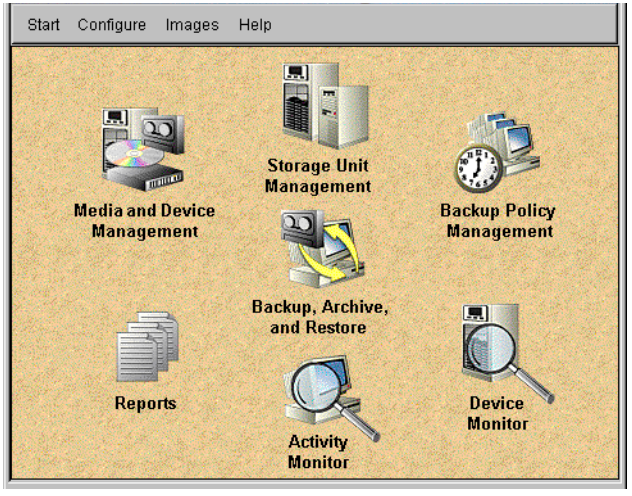
   The Login dialog box appears.



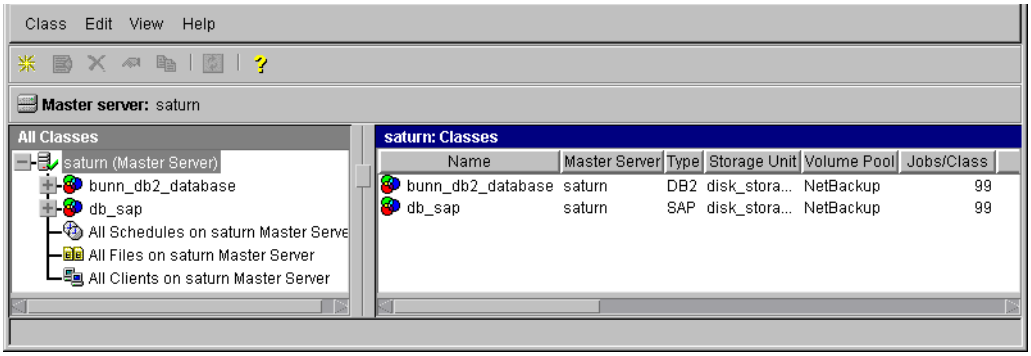
3. Type the password.
4. Press Login.

The Login dialog closes and the NetBackup Assistant displays.

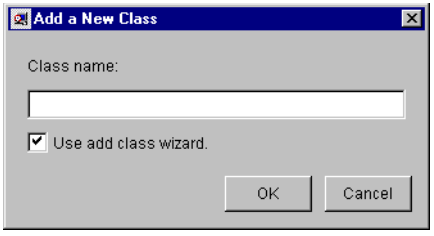
5. Click Close. The launch screen displays.



6. Click the Backup Policy Management icon. The Backup Policy Management (Classes) - NetBackup dialog appears.



7. On the Edit menu click New. The Add a New Class dialog box appears.



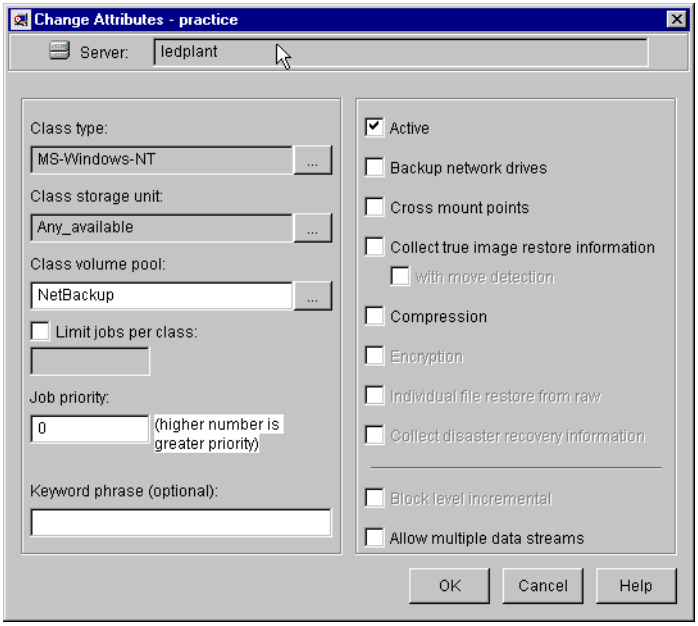
The class wizard automates the class configuration process. To configure classes without using the class wizard, use the following instructions.

8. Clear the Use add class wizard check box.

9. Type the new class name in the Class name box.

10. Click OK.

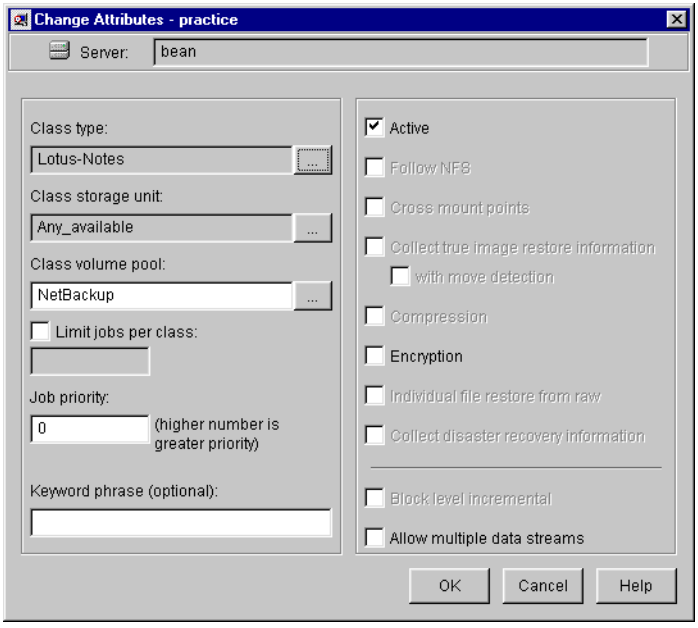
The Change Attribute dialog box appears.



a. Select the Lotus-Notes class type.

b. Click OK.

The Change Attribute dialog box changes as follows.



The following listing describes the selections available to you on the general attributes property sheet. The attributes for a class determine the general characteristics of all backups that will be performed for clients in that class.

Class type

Determines the type of clients that can be in the class and in some cases the types of backups that can be performed on those clients.
To use NetBackup for Lotus Notes on UNIX, you must have defined at least one Lotus-Notes class.

Class storage unit

Storage unit to use for backups (for example, dlt or 8-mm tape).
A storage device can attach to the master server or to a media server. Different classes can use different storage units. For example, one class can use an 8-mm tape stacker (TS8) and another class can use a DLT Library (TLD).

Class volume pool

A volume pool is a distinct set of media that the administrator can assign for use by specific classes or schedules. For example, it is possible to have one volume pool for weekly backups and another for quarterly backups.

Limit jobs per class

The number of concurrent backup jobs that can occur for the class.

Job priority

Specifies the priority that NetBackup will assign to automatic-backup jobs for this class. When a drive becomes available, NetBackup assigns it to the first client in the highest priority class. To set the priority, type any positive integer in the Job Priority text box. Higher values have higher priority. The default is 0.

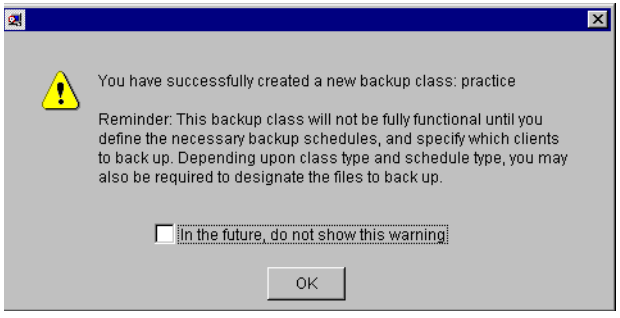
Keyword phrase

A textual description of a backup. Useful for browsing backups and restores.

General attributes

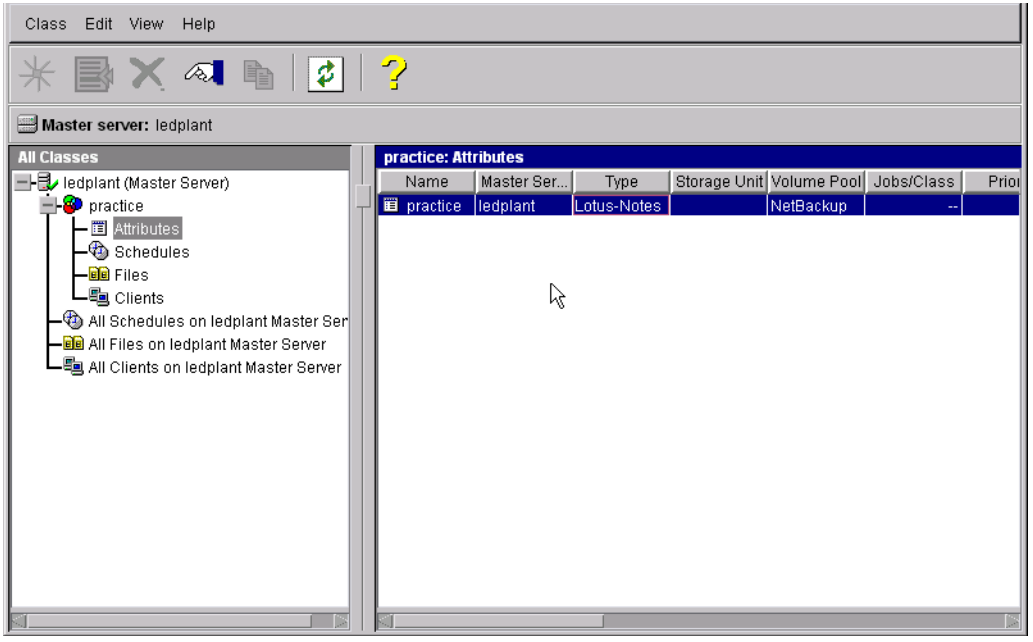
Lotus-Notes will recognize the general attributes available to a class; Active and Allow multiple data streams.

c. Click OK to close the Change Attribute dialog box. The following Warning appears.



d. Click OK to close the Warning box.

Notice that the newly created class appears in the All Master Servers pane in the Backup Policy Management (Classes) - NetBackup dialog box.

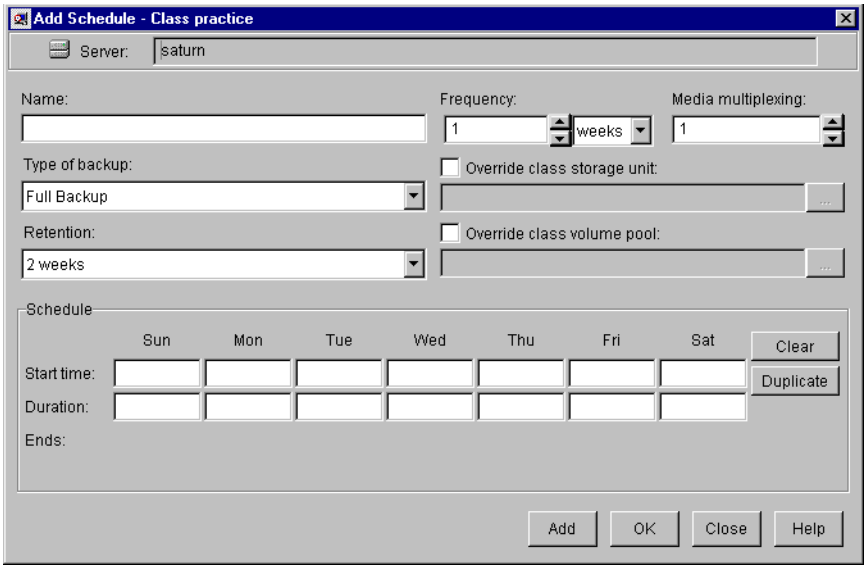


Also notice that the configuration settings you entered in the Change Attribute dialog box are displayed in the *class: Attributes* pane. Use the scroll bar at the bottom of the *class: Attributes* pane to view all settings.

11. Perform the following steps to configure schedules for your class.

a. Double-click Schedules for your new class in the All Master Servers pane of the Backup Policy Management (Classes) - NetBackup dialog box.

The Add Schedule-Class class name dialog box appears.



b. Configure a backup schedule.

The following table describes the fields for configuring a schedule.

Name:

Each schedule requires a unique name.

Type of backup:

Specifies the type of backup that this schedule will control. Click in the box and select from the list. The selection list shows only the backup types that apply to the class you are configuring. Backup types that are available for the Lotus-Notes class are: full backup, cumulative incremental backup, differential incremental backup and user backup.

Retention:

The retention period refers to the length of time that NetBackup keeps backup images. Set the time period to retain at least two full backups of your database. In this way, if one full backup has been lost, you will have another full backup to fall back on.

For example, if your database is backed up once every Sunday morning, you should select a retention period of at least 2 weeks.

Frequency:
: Refers to the time period to wait between backups. This is used only for scheduled backup types, not for a user backup backup type.

Media Multiplexing:
: The Media Multiplexing box sets the number of jobs from this schedule that NetBackup can multiplex onto any one drive.

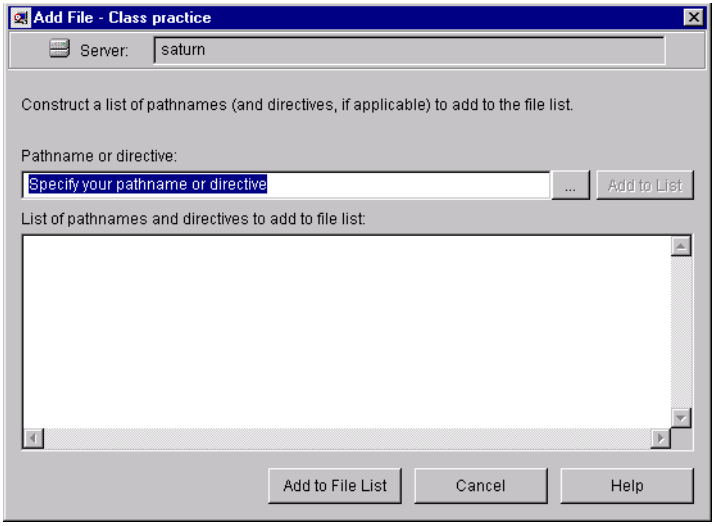
Start: End:
: These settings define the backup window, which is the time period during which backups can occur for this schedule. The start time defines the times and days of the week when the window opens. The End time defines when the window will close.

c. Click OK to add the new schedule.

12. Perform the following steps to configure the list of Files.

a. Double-click on Files for your new class in the All Master Servers pane of the Backup Policy Management (Classes) - NetBackup dialog box.

The Add File - Class class name dialog box appears.

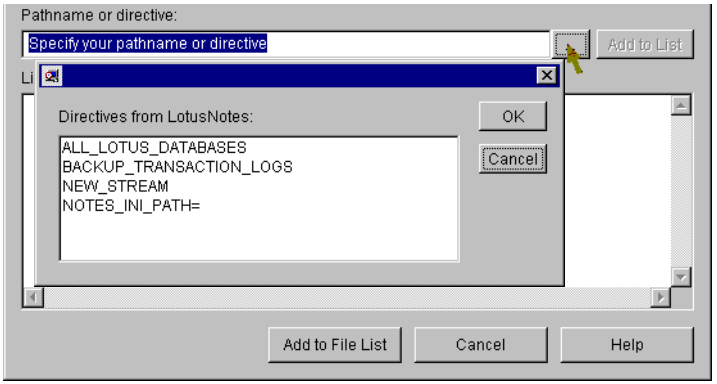


You can specify the following in the file list:

- folders
- files
- file list directives

If you want to specify a file list directive in the file list, perform steps **b** through **f.**

b. Click the [...] button next to the Pathname or directive text box to open the Directive From Lotus Notes: dialog box.



c. Select the file list directives you want to add to the file list.

Selecting the ALL_LOTUS_DATABASES file list directive will cause the backup to be performed on all Lotus databases on each of the selected clients. ALL_LOTUS_DATABASES means local databases and Domino Server databases.

Specifying the BACKUP_TRANSACTION_LOGS file list directives means that all transaction logs identified by the Domino server as available for backup will be backed up.

If you are configuring a backup from Domino partitioned servers, you would use the NOTES_INI_PATH= file list directive where:

NOTES_INI_PATH=*absolute path for the NOTES.INI file associated with the server instance to be used*

This file list directive identifies the location of the NOTES.INI file associated with the particular server partition that will be used to perform the backup. The server partition specified will have an impact on the how a database is backed up (logged or unlogged) and which set of transaction logs will be backed up.

To perform a scheduled backup of more than one Domino partitioned server from a single class, you must back up each Domino partitioned server with a separate data stream. You would do this by using the NEW_STREAM file list directive and the appropriate NOTES_INI_PATH= file list directive for each data stream.

d. Click OK.

The directives from LotusNotes dialog box disappears.

e. Click Add to List to add the file list directive to the file list.

f. Click Add to File List to close the Add File - Class dialog box.

If you want to specify a directory or file in the file list, perform steps **g** through **i**.

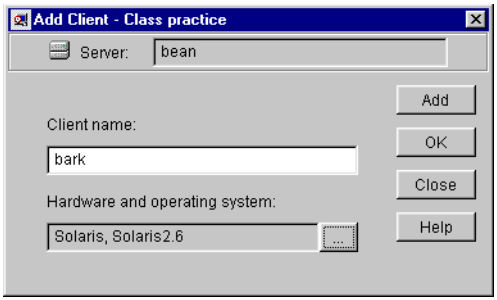
g. Specify the name of the directory or file in the pathname or directive text box.

h. Click Add to List to add the folder or file to the file list.

i. Click Add to File List to close the Add File - Class dialog box.

13. Perform the following steps to configure the Client list.

a. Double-click on Clients for your new class in the All Master Servers pane of the Backup Policy Management (Classes) - NetBackup dialog box. The Add Client Class dialog box appears.



b. Type the name of the client. This client should have:

- the Lotus Domino server installed
- NetBackup for Lotus Notes on UNIX installed

c. Select the hardware and operating system for the client.

d. Click Add to add the client to the client list.

e. Click Close.

The Add Client Class dialog box closes. The Backup Policy Management (Classes) - NetBackup dialog box remains open.

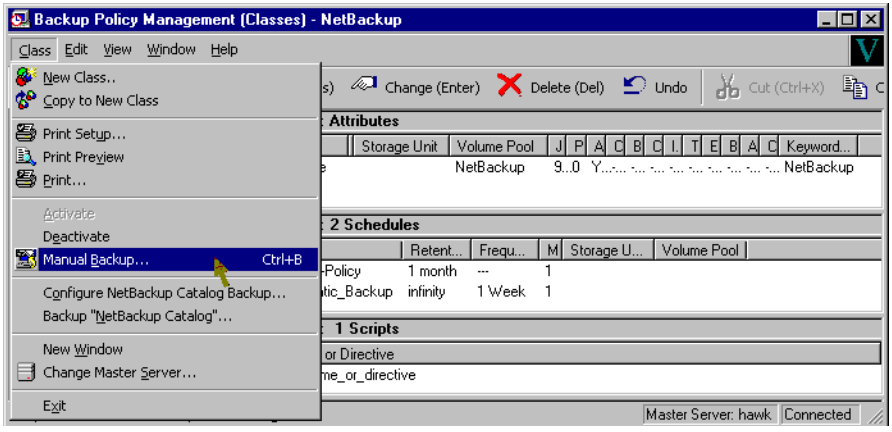
Test NetBackup for Lotus Notes on UNIX Configuration Settings

After you have configured the master server for NetBackup for Lotus Notes on UNIX, you should test the configuration settings. For a description of status codes, refer to the *NetBackup Troubleshooting Guide - Windows NT/2000* if you are using a Windows NT/2000 server or the *NetBackup Troubleshooting Guide - UNIX* if you are using a UNIX server.

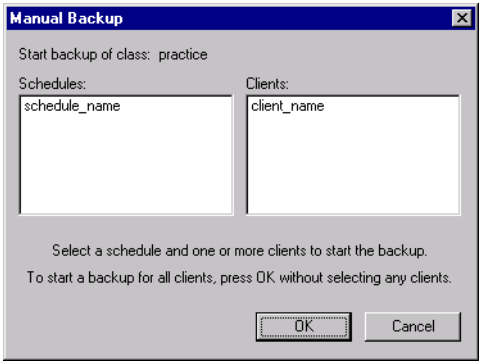
NetBackup Administration - Windows NT/2000 Interface

Use this procedure to test a class configuration from a Windows NT/2000 server or from the NetBackup Administration Client host.

1. Log onto the server as Administrator.
2. Start the NetBackup administrator interface.
3. Click the Backup Policy Management icon. The Backup Policy Management (Classes) - NetBackup dialog appears.
4. Select a class to back up.
5. On the Class menu, click Manual Backup.



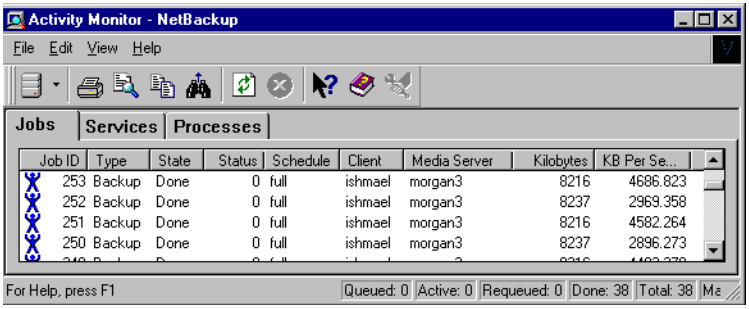
The Manual Backup dialog box appears.



The Schedule pane contains the name of a schedule configured for the class you are going to test. The Client pane contains the name of the client(s) listed in the class you are going to test.

6. Follow the instructions on the dialog box.

7. Click Activity Monitor on the NetBackup Administration interface to open the Activity Monitor dialog box.

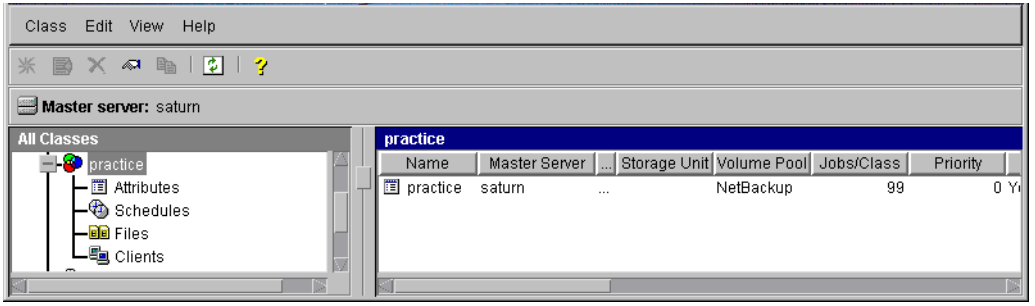


If the test does not exit with a successful status, refer to the Troubleshooting chapter.

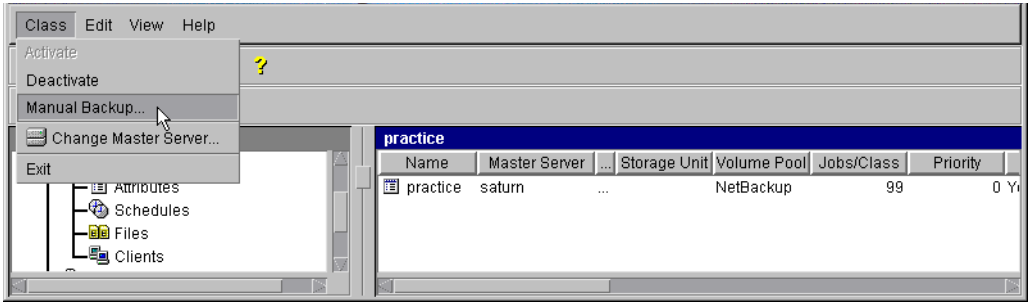
NetBackup Administration - Java Interface

Use this procedure to test a class configuration on the NetBackup Administration - Java Interface for HP or Solaris operating systems.

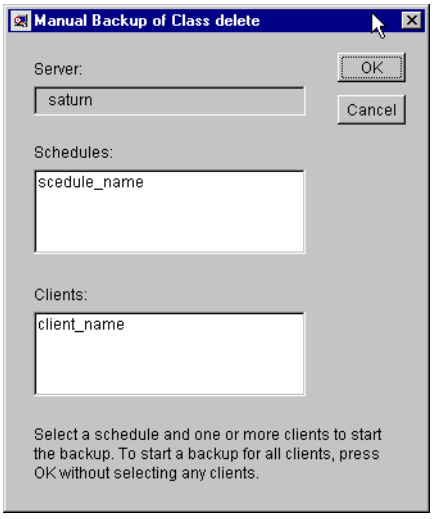
1. Log onto the server as root.
2. Start the NetBackup administrator interface.
3. Click the Backup Policy Management icon. The Backup Policy Management (Classes) - NetBackup dialog appears.
4. Select a class to back up.



5. On the Class menu, click Manual Backup.



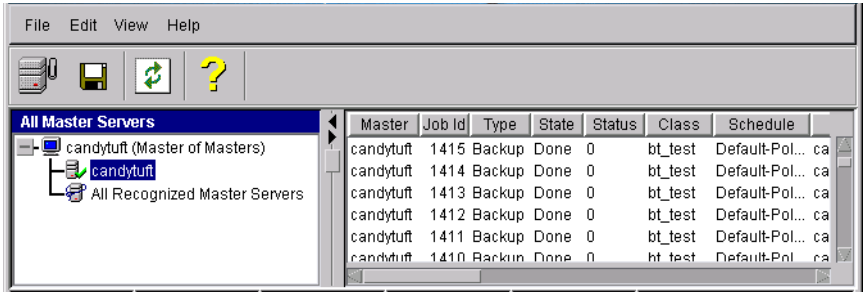
The Manual Backup dialog box appears.



The Schedule pane contains the name of a schedule configured for the class you are going to test. The Client pane contains the name of the client(s) listed in the class you are going to test.

6. Follow the instructions on the dialog box.

7. Click Activity Monitor on the NetBackup Administration interface to open the Activity Monitor dialog box.



If the test does not exit with a successful status, refer to the Troubleshooting chapter.

Operating Instructions 4

After completing the configuration, you can use the NetBackup for Lotus Notes on UNIX interfaces to back up Lotus database databases, mailboxes or folders.

Performing a Backup

This section describes a user-directed backup of a Lotus database using NetBackup for Lotus Notes on UNIX. These instructions supplement the operating instructions in the *NetBackup User's Guide - UNIX*. Refer to the *NetBackup User's Guide - UNIX* for detailed backup instructions.

To perform this procedure, it is assumed that you have already started the NetBackup client interface and are looking at the Backup, Archive, and Restore - NetBackup window. Also, to perform a user-directed backup, a User Backup schedule type for a Lotus-Notes class must have been previously configured.

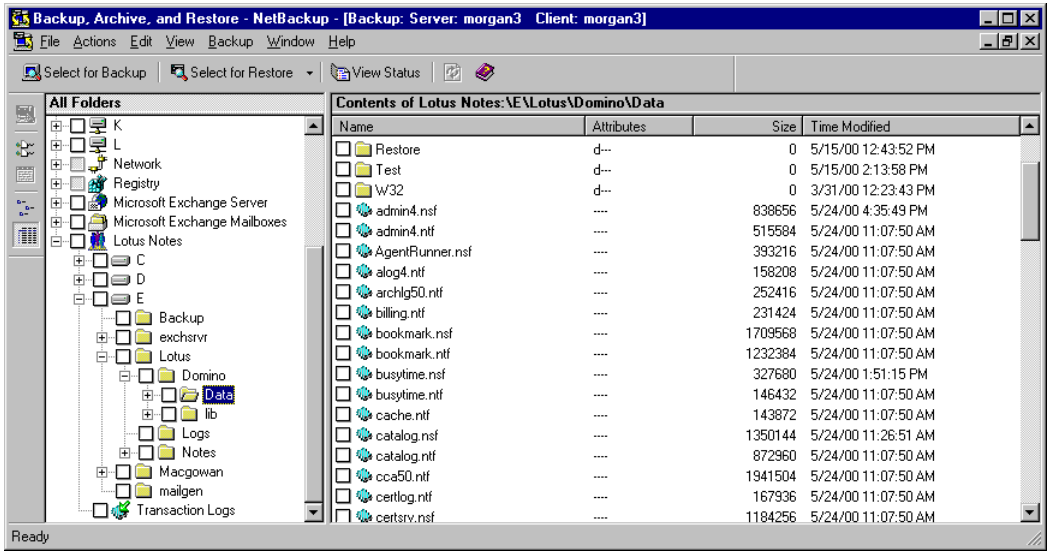
Note User-directed backups do not mark the transaction logs as backed up. Therefore, this type of backup is reserved for special situations, not for normal backups of the database. Normal backups will be initiated from the scheduler.

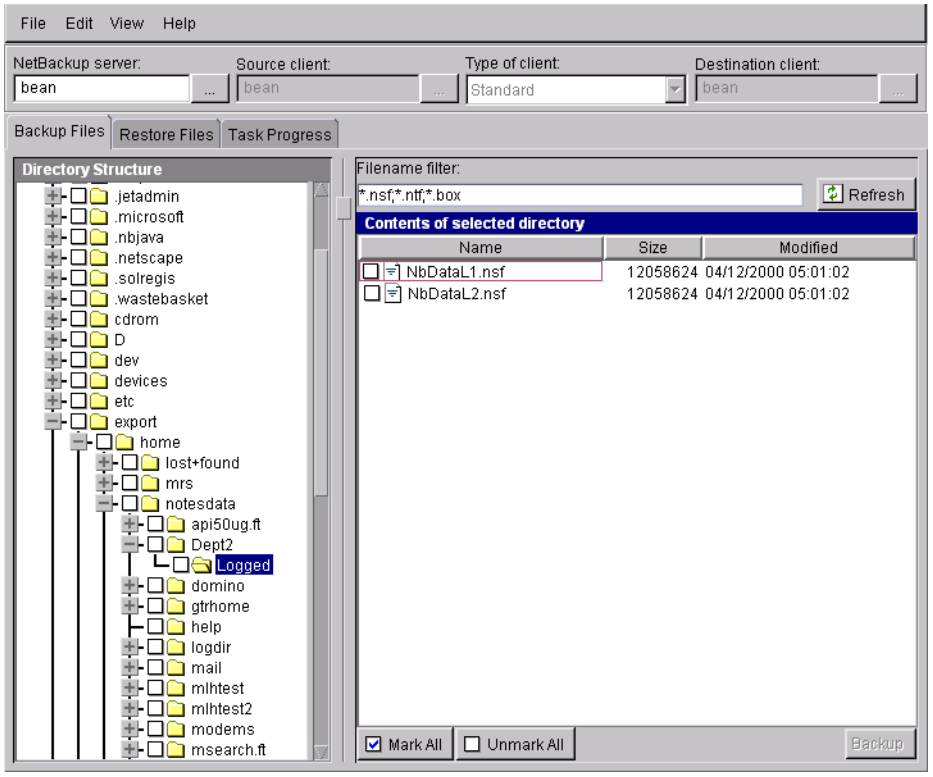
1. If necessary, change the NetBackup master server that will perform the backup.

   If there is more than one master server to which you can send your backups and archives, ensure that you are connected to the correct one. Ask your NetBackup administrator if you have questions about which master server to use.

   Normally, you will not have to switch master servers unless, for some reason, the administrator has temporarily moved the NetBackup backups (for example, because of a problem on the original master server). If the change becomes permanent, the administrator should change your default to reflect the other server.

2. Click Backup Files. The NetBackup Backup window displays, with the Lotus Notes object appearing in the left pane.



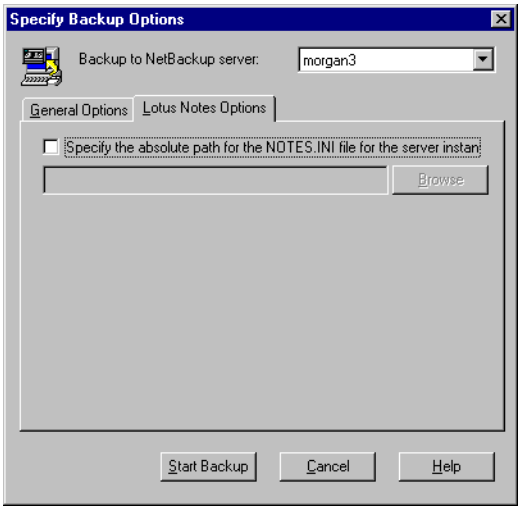


This object allows the user to request backups of the logged and unlogged Domino Server databases, local databases, and archive style transaction logs, if enabled.

3. Expand the Lotus Notes object, navigate the Lotus Notes object, and select the databases, transaction logs or both that you want to back up.

4. Click Start Backup.

The Specify Backup Options dialog box appears.



This dialog box appears after you have selected a Lotus Notes database and/or transaction log and initiated a backup.

Use this dialog box to view your selections before proceeding with the operation.

Backup to NetBackup server:	Identifies the NetBackup server which will control the backup process.
Specify the absolute path for the NOTES.INI file for the server instance	When backing up from a Domino partition server, the user can specify the absolute path for the `NOTES.INI` file associated with the particular server partition that will be used to perform the backup. The server partition specified will have an impact on how a database is backed up (if logged) and which set of transaction logs will be used for recovery.
Start Backup	Initiates the backup operation.
Cancel	To cancel and return to the previous display without accepting changes to the parameters in this dialog box, click this button.
Help	To view online help for this dialog box, click this button.

5. Click Start Backup.

Note The NetBackup operation may take a few minutes to complete.

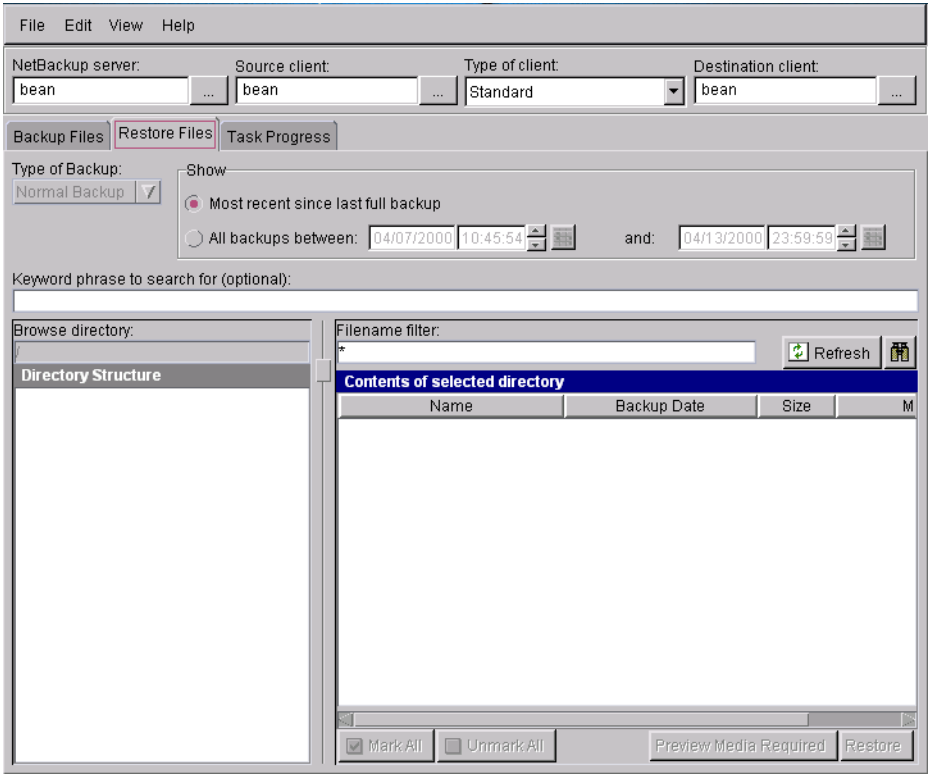
Performing a Restore

This section describes a user-directed restore of a Lotus database using NetBackup for Lotus Notes on UNIX. These instructions supplement the operating instructions in the *NetBackup User's Guide - UNIX*. Refer to the *NetBackup User's Guide - UNIX* for detailed restore instructions.

The following procedure assumes that you have already started the NetBackup client interface and are looking at the Backup, Archive, and Restore - NetBackup window.

Note Lotus Notes is unaware of the restore activity. Therefore, these transaction logs will not be deleted once they are applied.

1. Click Restore Files to start the restore operation.



2. Type the name of the source client in the Source Client box.

   The source client is the client where the NetBackup for Lotus Notes on UNIX backup was performed.

3. Select Lotus-Notes from the Type of client pop-up.

4. Select Most recent since last full backup.

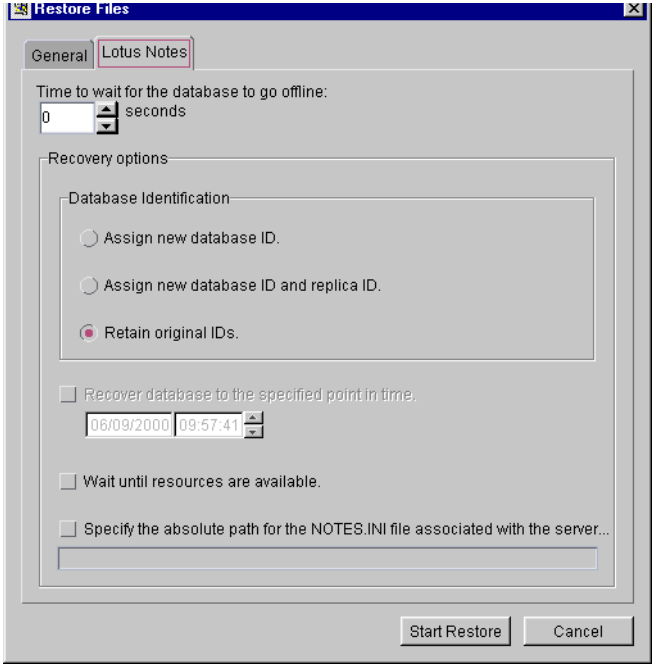
5. Click Refresh.

   NetBackup browses for Lotus database backup images.

6. Select the database files or transaction logs that you want to restore

7. Click Restore to start the restore operation.

   The Restore Files property sheet appears, with the Lotus Notes property page displayed.



8. Enter the following information as described below:

   - Time to wait for the database to go offline: This field allows the user to specify the number of seconds for the restore process to wait for a busy database. When a Lotus database is to be restored it needs to be taken offline. This will ensure that

the database is not being accessed, close the database, and delete the database. If the database is being accessed it cannot be taken offline. If the database is still busy and not able to be taken offline after the specified wait time, the restore of that database will fail.

- Database Identification: The user can assign a new database ID, assign a new database ID and a replica ID or retain the original database ID and replica ID during the restore.

  The replica ID is used to synchronize two or more databases that are being replicated in the Lotus Domino environment. The user may select to assign a new replica ID during a restore to prevent the other databases under replication from writing over the restored database files.

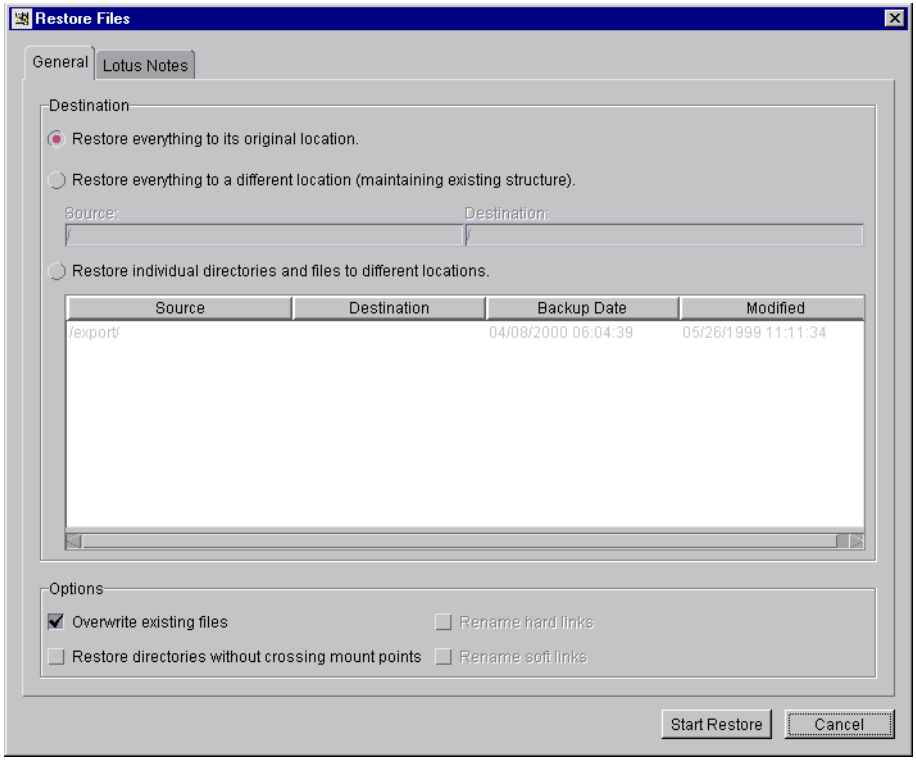
- Restore database(s) to Date and Time: If the user selects to assign a new database ID or assign a new database ID and a replica ID, the user will have the option to restore the selected databases to a specific point-in-time.

  The user will click the Restore database(s) to Date and Time check box to enable the date and time controls. The date and time can now be set for the restore process.

- Wait until resources are available: Click this checkbox to wait for Lotus Domino Server Resources to become available before starting the restore process.

- Specify the absolute path for the NOTES.INI file for the server instance: When restoring on a Domino partition server, the user can specify the absolute path for the NOTES.INI file associated with the particular server partition that will be used to perform the restore. The server partition specified will have an impact on how a database is restored (if logged) and which set of transaction logs will be used for recovery.

9. Configure the General property page in the Restore Files property sheet.



For more information on the General Property page, see your NetBackup Reference.

10. Click Start Restore.

Troubleshooting 5

The NetBackup master server and client software offers a comprehensive set of activity logs for troubleshooting problems that may occur during NetBackup operations. Activity logs are covered in detail in the *NetBackup Troubleshooting Guide - UNIX* or *NetBackup Troubleshooting Guide - Windows NT/2000*.

If you are experiencing problems backing up or restoring database or transaction logs, and the cause of the problem cannot be determined from standard NetBackup progress reports, you may enable NetBackup activity logs to aid in determining the cause of the problem. Activity logging is enabled by creating certain directories under the NetBackup `Logs` directory. The location of these directories are dependent upon where NetBackup was installed.

Backup Operation Activity Logging

To turn on activity logging for backup operations, create the following directory:

install_path`/Netbackup/logs/bpbkar`

After creating this directory and performing a backup, activity logging information will be placed in the following file:

install_path`/Netbackup/logs/bpbkar/mmddyy.log`

Restore Operation Activity Logging

To turn on activity logging for restore operations, create the following directory:

install_path`/Netbackup/logs/tar`

After creating this directory and performing a restore, activity logging information will be placed in the following file:

install_path`/Netbackup/logs/tar/mmddyy.log`

For details on the contents of these activity logs, refer to the *NetBackup Troubleshooting Guide - Windows NT Server* or *NetBackup Troubleshooting Guide -UNIX*. After the cause of the problem has been determined, activity logging can be disabled by removing the previously created activity logging directories.

Note When activity logging is enabled, the files can become large. The same files are used by normal file backups.

View Status of a NetBackup Operation

NetBackup provides many standard status reports to verify the completion of backup and restore operations. In addition, users and administrator can set up additional reports if a site requires them.

NetBackup Client Reports

The administrator has access to operational progress reports through administrator interfaces. Reports may be generated for Backup Status, Client Backups, Problems, All Log Entries, Media Lists, Media Contents, Images on Media, Media Logs, Media Summary, and Media Written. These reports may be generated for a specific time frame, client, or master server. Refer to *NetBackup BusinesServer System Administrator's Guide - UNIX* or *NetBackup BusinesServer System Administrator's Guide - Windows NT Server* for details.

Progress Reports

Progress reports on the client allow easy monitoring of user operations. When reports are created by the NetBackup client for each user-directed backup or restore operation, administrators can monitor these operations and detect any problems that may occur. Refer to "Restore Operation Progress Report" on page 50 or "Backup Operation Progress Report" on page 49 for more details.

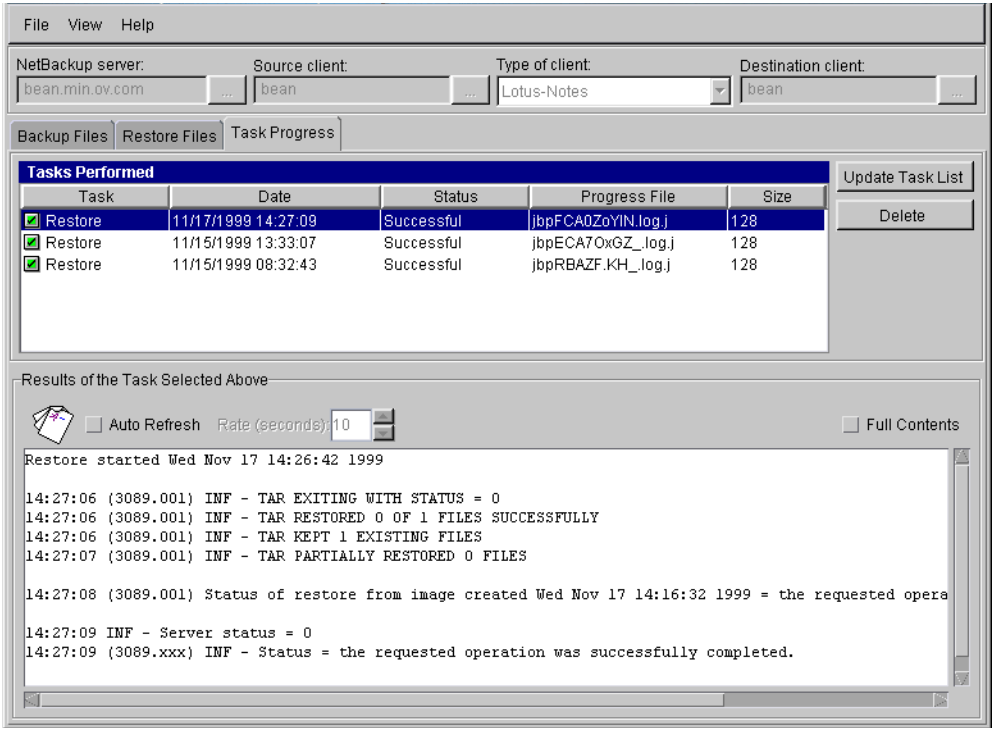
Backup Operation Progress Report

To view the status of a backup operation, select View Status... from the Actions menu. The View Status dialog box will appear displaying the status of the current backup operation.

Watch the bottom pane of the View Status dialog box. When `the requested operation was successfully completed` message appears, the NetBackup operation is finished. (See your *NetBackup User's Guide - UNIX* for further information on progress report and the meanings of the messages.)

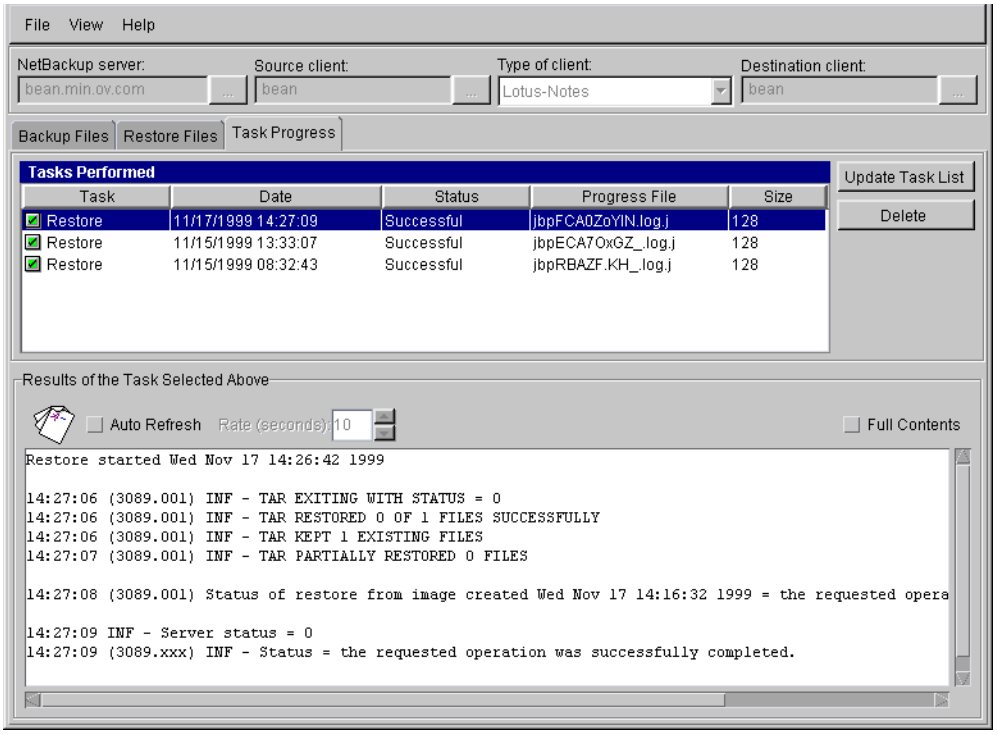
Restore Operation Progress Report

To view the status of a restore operation, select Task Process tab. The status of the current restore operation will display.



When `the requested operation was successfully completed` message appears, the NetBackup operation is finished. (See your *NetBackup User's Guide - UNIX* for further information on progress reports and the meanings of the messages.)

To view the status of a restore operation, select Task Process tab. The status of the current restore operation will display.



When `the requested operation was successfully completed` message appears, the NetBackup operation is finished. (See your *NetBackup User's Guide - UNIX* for further information on progress reports and the meanings of the messages.)

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