

LOKKBOX

DOCUMENTATION LOTUS NOTES BACKUP & RESTORE OPERATIONS

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1 Backup/Restore Lotus Domino / Notes

This chapter will describe in details how to use Lokkbox OBM to backup your Lotus Domino server / Notes client 5 / 6 / 6.5 and how you can restore your Lotus Domino server / Notes client 5 / 6 / 6.5 from the backup files.

1.1 Requirements

- i. Lokkbox OBM must be installed onto the computer running Lotus Domino server / Notes client.
- ii. Data from Lotus Domino server / Notes client will be backed up to a temporary directory before they are sent to Lokkbox OBS. Please make sure you have sufficient disk space on your computer to store these data when you run the backup job.
- iii. Lotus Domino server must runs with archive transaction logging enabled

To set up transaction logging in archive style, please do the following:

- a. Ensure that all databases to be logged reside in the Domino data directory, either at the root or in subdirectories.
- b. From the Domino Administrator, click the Configuration tab.
- c. In the "Use Directory on" field, choose the server's Domino Directory.
- d. Click Server Configuration, and then click Current Server Document.
- e. Click the Transactional Logging tab.
- f. Complete these fields, and then save the document.

Field	Enter
Transactional Logging	Choose Enabled. The default is Disabled.
Log path	Path name location of the transaction log. The default path name is \LOGDIR in the Domino data directory, although it is strongly recommended to store the log on a separate, mirrored device, such as a RAID (Redundant Array of Independent Disks) level 0 or 1 device with a dedicated controller. The separate device should have at least 1GB of disk space for the transaction log. If you are using the device solely for storing the transaction log, set the "Use all available space on log device" field to Yes.
Logging style	Choose Archive. The default is Circular.
Maximum log space	The maximum size, in MB, for the transaction log. Default is 192MB. Maximum is 4096MB (4GB). Domino formats at least 3 and up to 64 log files, depending on the maximum log space you allocate.

<p>Use all available space on log device</p>	<p>Choose one:</p> <ul style="list-style-type: none"> • “Yes” to use all available space on the device for the transaction log. This is recommended if you use a separate device dedicated to storing the log. If you choose “Yes”, you don’t need to enter a value in the "Maximum log space" field. • “No” to use the default or specified value in the "Maximum log space" field.
<p>Automatic fixup of corrupt databases</p>	<p>Choose one:</p> <ul style="list-style-type: none"> • Enabled (default). If a database is corrupt and Domino cannot use the transaction log to recover it, Domino runs the Fixup task, assigns a new DBIID, and notifies the administrator that a new database backup is required. • Disabled. Domino does not run the Fixup task automatically and notifies the administrator to run the Fixup task with the -J parameter on corrupt logged databases.
<p>Runtime / Restart performance</p>	<p>This field controls how often Domino records a recovery checkpoint in the transaction log, which affects server performance.</p> <p>To record a recovery checkpoint, Domino evaluates each active logged database to determine how many transactions would be necessary to recover each database after a system failure. When Domino completes this evaluation, it:</p> <ul style="list-style-type: none"> • Creates a recovery checkpoint record in the transaction log, listing each open database and the starting point transaction needed for recovery • Forces database changes to be saved to disk if they have not been saved already <p>Choose one:</p> <ul style="list-style-type: none"> • Standard (default and recommended). Checkpoints occur regularly. • Favor runtime. Domino records fewer checkpoints, which requires fewer system resources and improves server run time performance. • Favor restart recovery time. Domino records more checkpoints, which improves restart recovery time because fewer transactions are required for recovery.

You can only run transaction log backup if you have transaction logging enabled and you are using archive mode. This command does not apply if you have transaction logging enabled not in archive mode or if transaction logging is not enabled at all. If you try to issue it, you will receive an error message.



1.2 Overview

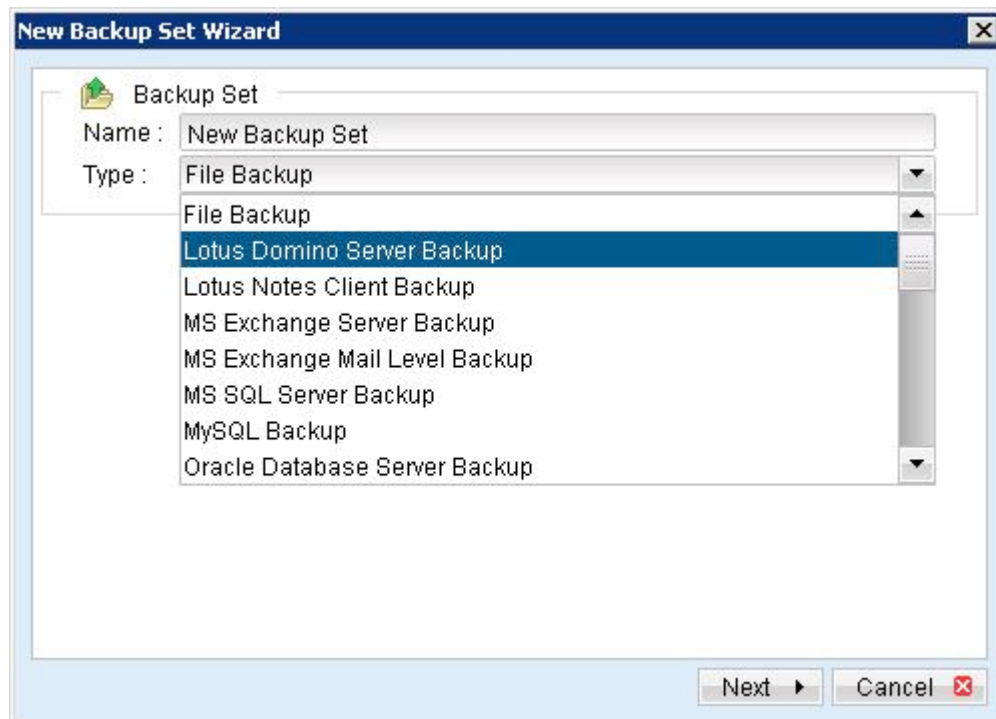
Lokkbox OBM will backup your Lotus Domino server / Notes client by taking the following steps:

- i. Run all Pre-Commands of this backup set
- ii. If the backup type to run is [Database Backup type],
 - g. all file(s) / database(s) selected are copied to the temporary directory specified by this backup set
 - h. the notes.ini file, if selected, will be copied to the temporary directory
 - i. only filled log extents will be copied to the temporary directory, and the Domino server is notified of their availability for reuse (for Domino server only)
- iii. (for Domino server only) If the backup type to run is [Transaction Log Backup type],
 - j. only filled log extents will be copied to the temporary directory, and the Domino server is notified of their availability for reuse
- iv. Run all Post-Commands of this backup set
- v. Upload all files copied to the temporary directory to Lokkbox OBS
- vi. Remove temporary files from the temporary directory

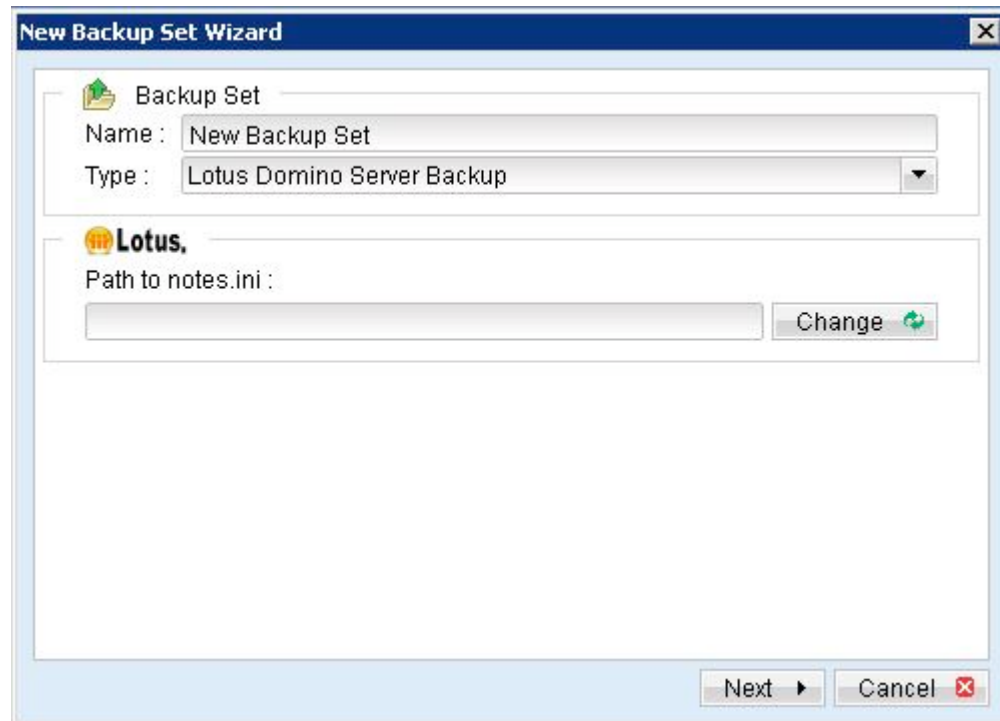
1.3 How to backup Lotus Domino / Notes database(s) / file(s) on Windows

Please follow the instructions below to backup your Lotus Domino server / Notes client databases / files using Lokkbox OBM.

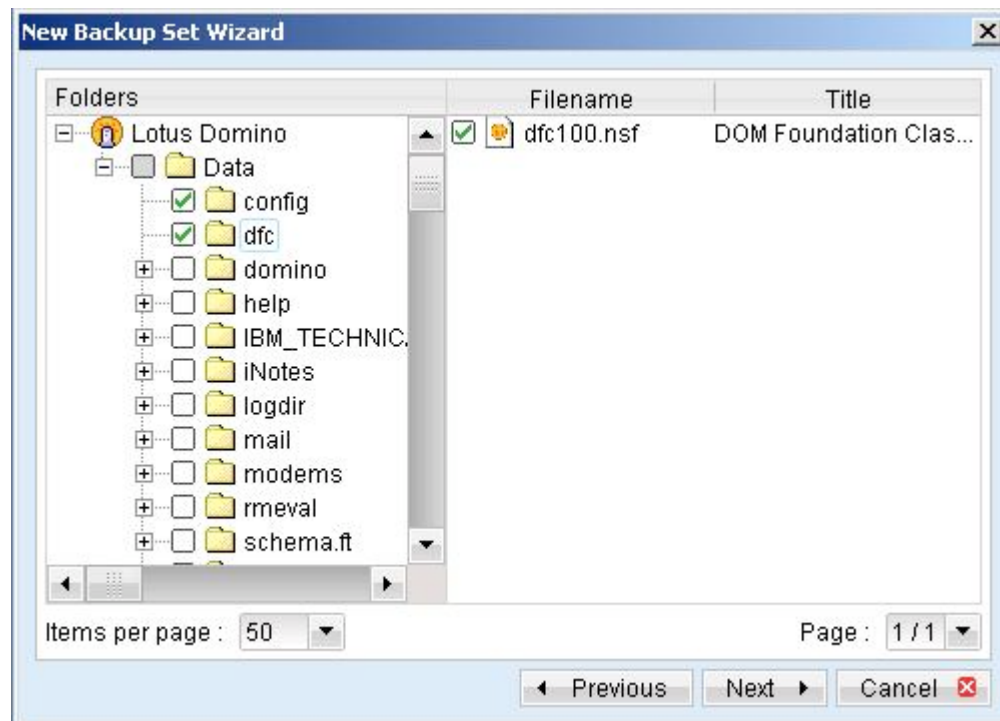
- i. Open Lokkbox OBM
- ii. Create a backup set
 - a. To start setting up backup sets, click the  button to open the [Backup Setting] dialog.
 - b. On the left panel, press the  button to create a new backup set.
 - c. On the dialog, choose [Lotus Domino Server Backup] (or [Lotus Notes Client Backup] for Lotus Notes) as the [Type].



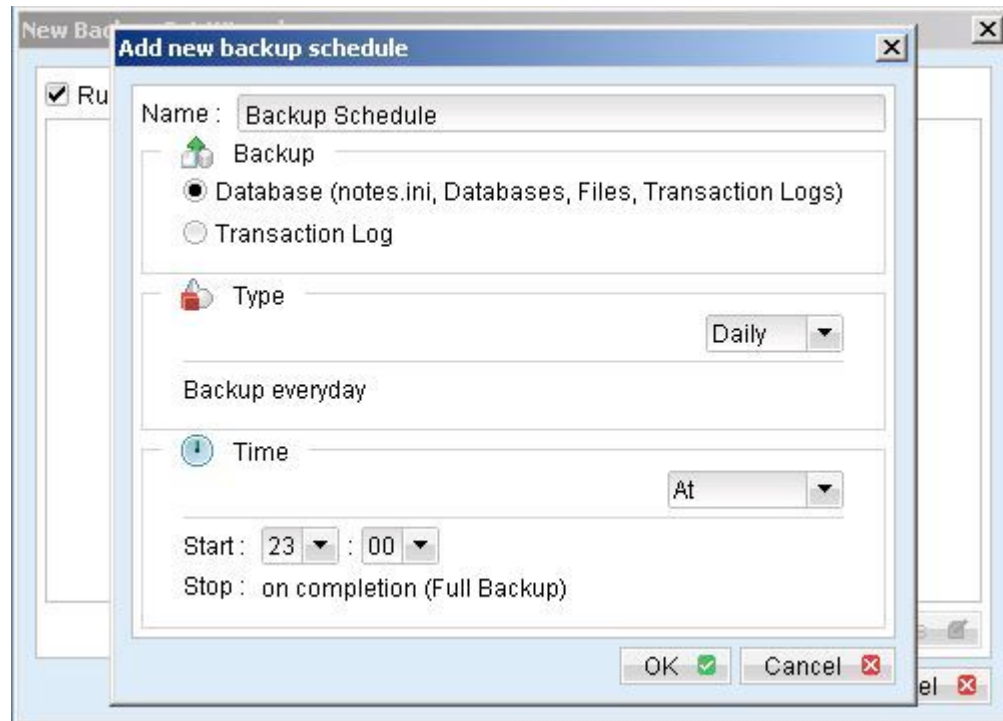
- d. Enter a name for your backup set.



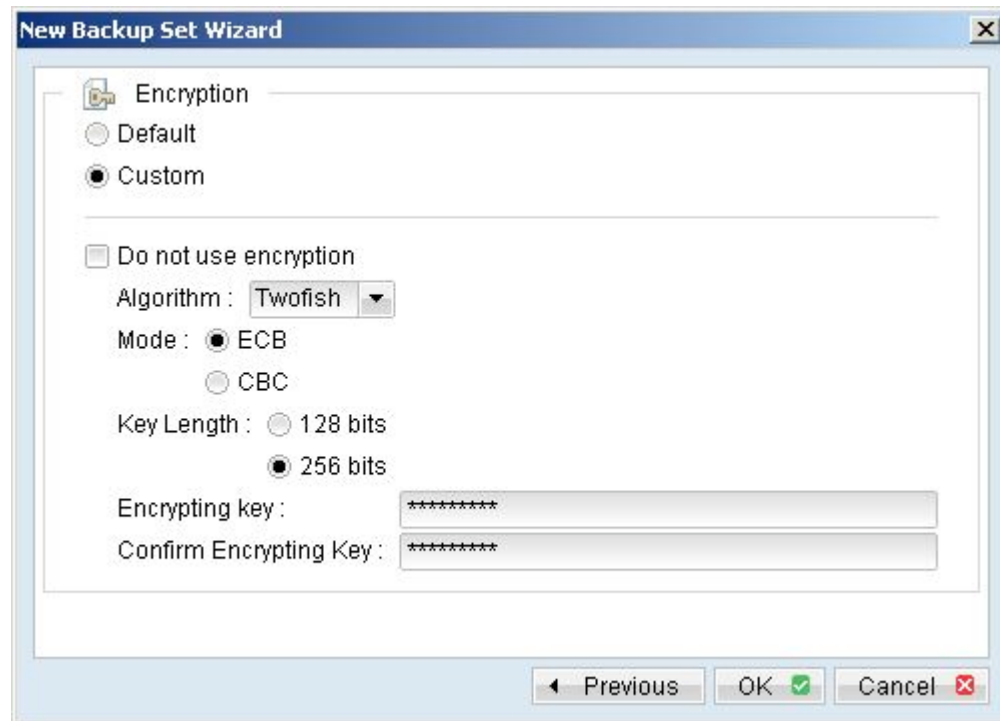
- e. Select the location of the “note.ini” file.
- f. Select the database(s) / file(s) you want to backup



- g. Set the backup schedule for Database Backup



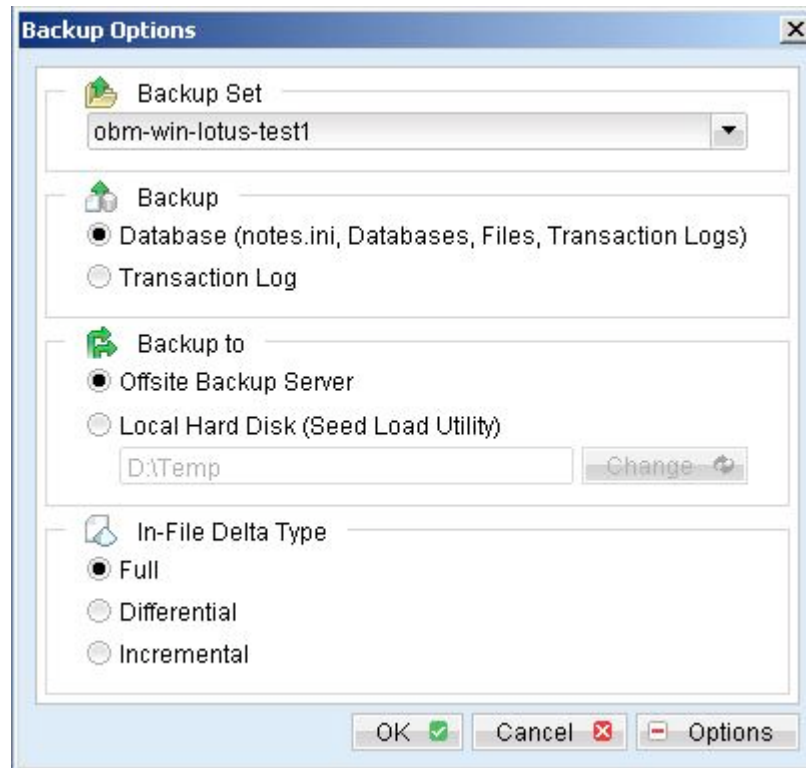
- h. Set the backup schedule for Transaction Log Backup (for Domino server only)
(Note: You can have more than one schedule in a backup set, i.e. you can perform intra-day transaction log backup by adding more than one daily transaction log backup schedule to your backup set)
- i. Set the encryption algorithm, encryption mode and encrypting key for this backup set



(Hint: For maximum security, please select AES (Advanced Encryption Standard) Algorithm, CBC (Cipher Block Chaining) mode and use an encrypting key with more than 8 characters.)

iii. Run Backup

- a. Press the [Backup] button on the main page of Lokkbox OBM dialog.
- b. Select the backup type (e.g. Database, Transaction Log) you would like to perform (for Domino server only). Select the backup set you want to run and select [Online Backup Service] to start backing up your files to Lokkbox OBS. If applicable, you can change the In-File Delta Type also.



- c. Click [OK] to start backing up your files to Lokkbox OBS.

1.4 How to restore Lotus Domino / Notes database(s) / file(s) on Windows

Please follow the instructions below to restore Lotus Domino server / Notes client database(s) / file(s) from Lokkbox OBS.

- i. Install Lotus Domino server / Notes client back to its original folder (if required)
- ii. Install Lokkbox OBM
Please refer to the [Installation] section for information on how to install Lokkbox OBM onto your computer.
- iii. Shutdown Lotus Domino Server
- iv. If you want to perform a full domino restore (restore all databases and files):
 - a. Download the backup files to be restored from Lokkbox OBS and save them back to its original location. It includes “notes.ini”, all backup files from the lotus domino data directory and all archived transaction logs
 - b. Modify the “DominoRecover.bat” located under the bin directory of the Lokkbox OBM installation to reflect your setup. You need to specify the lotus executable directory.
For example change the PROGRAM_DIR to:
PROGRAM_DIR=C:\Lotus\Domino
 - c. Run “DominoRecover.bat” and press ‘Y’ to continue.
For example: C:\program files\obm\bin\DominoRecover.bat

This will run media recovery for all databases (*.nsf and mail.box) found under the Lotus data directory (e.g. C:\Lotus\Domino\Data). You should see something similar to the screen below.

Media Recovery Example:

```
C:\program files\obm\bin>DominoRecover.bat
Media Recovery Utility for Lotus Domino 5.0 or above

Please make sure that you have done the following:
1. Reinstall Lotus Domino on this computer in the same directory
2. Restore Notes.ini to the Lotus Domino installation directory
   (e.g. C:\Lotus\Domino)
3. Restore Domino Data directory back to the directory defined
   in Notes.ini (e.g. C:\Lotus\Domino\Data)
4. Restore all archived transaction logs to the directory defined
   in Notes.ini (e.g. C:\Lotus\Domino\Data\logdir)

Continue ? (Y) or (N) y
Running media recovery ...
Please wait, creating new transaction logs in directory: C:\logdir\
02/12/2003 14:39:19 Recovery Manager: Restart Recovery complete. (0/0)
```

```
databases needed full/partial recovery)
Media Recovery Replay (122 MB): 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
02/12/2003 14:39:22 Recovery Manager: Media Recovery complete for
C:\Lotus\Domino\Data\admin4.nsf, last update applied .
```

```
Backup file C:\Lotus\Domino\Data\admin4.nsf recovered.
```

```
.....
```

```
Media Recovery Replay (122 MB): 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
02/12/2003 14:40:57 Recovery Manager: Media Recovery complete for
C:\Lotus\Domino\Data\statrep.nsf, last update applied .
```

```
Backup file C:\Lotus\Domino\Data\statrep.nsf recovered.
```

```
C:\program files\obm\bin>
```

- d. All content of all database(s) are now rolled forward to the last committed transaction found in the last archived transaction log.
 - e. Restart Lotus Domino server
- v. If you just want to restore a single database:
 - a. Download the database file to be restored from Lokkbox OBS and save them back to its original location.
 - b. (optional) If you need to perform media recovery on this database, please download all archived transaction logs and save them back to its original location
 - c. Modify the "DominoRecover.bat" located under the bin directory of the Lokkbox OBM installation to reflect your setup.

For example we will recover the "admin4.nsf" and have restored the file to C:\restore\notesdata, change the tags to:

```
PROGRAM_DIR=C:\Lotus\Domino
INPUTFILE=C:\restore\notesdata\admin4.nsf
RESTOREDB=C:\Lotus\Domino\Data\admin4.nsf
RECDATE=18/01/2007
RECTIME=00:02
```

- d. Run "DominoRecover.bat".

You should see something similar to the screen below.

Media Recovery Example:

```
C:\program files\obm>DominoRecover.bat
```

Media Recovery Utility for Lotus Domino 5.0 or above

Running media recovery ...

Restart Analysis (0 MB): 100%

18/01/2007 14:42:15 Recovery Manager: Restart Recovery complete. (0/0
databases needed full/partial recovery)

Media Recovery Replay (122 MB): 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

18/01/2007 14:42:17 Recovery Manager: Media Recovery complete for
C:\Lotus\Domino\data\admin4.nsf, last update applied .

Backup file C:\Lotus\Domino\data\admin4.nsf recovered.

C:\Lotus\Domino>

- e. All content of the database are now rolled forward to the last committed transaction found in the last archived transaction log.
- f. Restart Lotus Domino Server

1.5 How to backup Lotus Domino / Notes database(s) / file(s) on Linux


Please make sure that the user running Lokkbox OBM have sufficient privileges to read and write to the “notesenv” file located in the “bin” subdirectory of where Lokkbox OBM is installed. This file is used by Lokkbox OBM to store the location of the domino/notes application executables. e.g. use chmod to set read, write & execute permissions

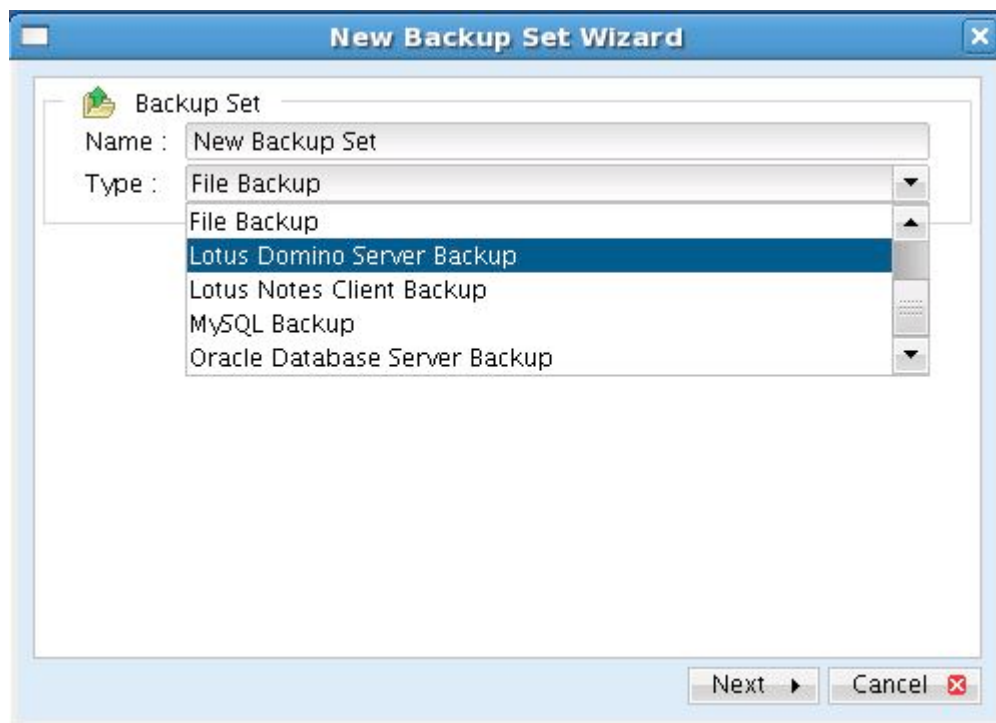
```
# cd $OBM_HOME/bin
# chmod 777 notesenv
```

Please follow the instructions below to backup your Lotus Domino server / Notes client databases / files using Lokkbox OBM.

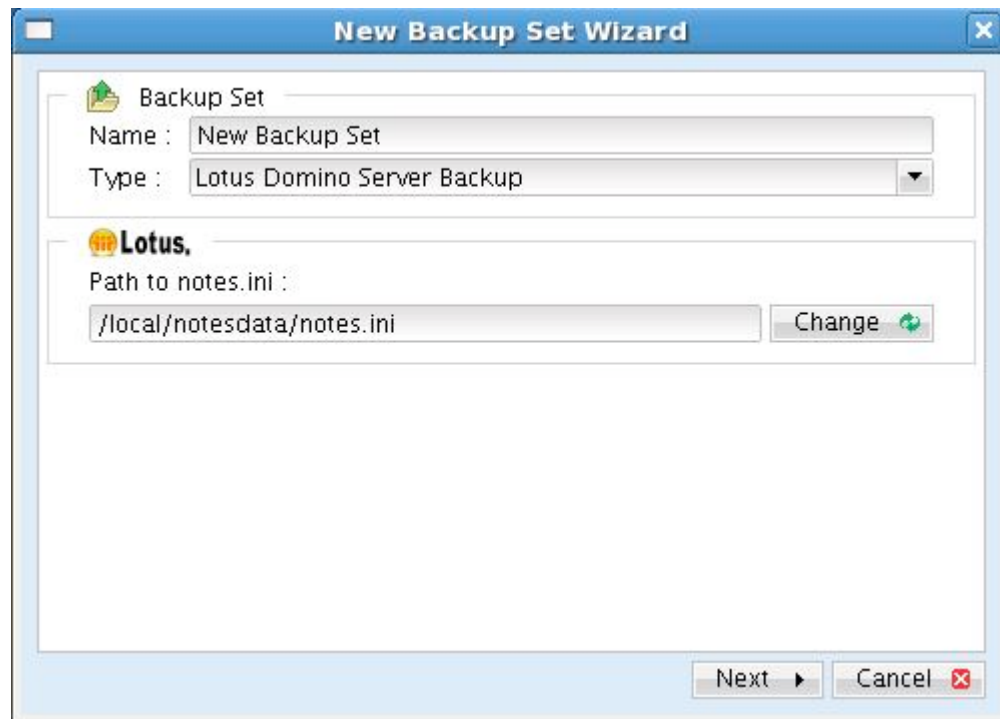
- i. Open Lokkbox OBM by typing the following in a terminal

```
# cd $OBM_HOME
# ./bin/BackupManager.sh
```

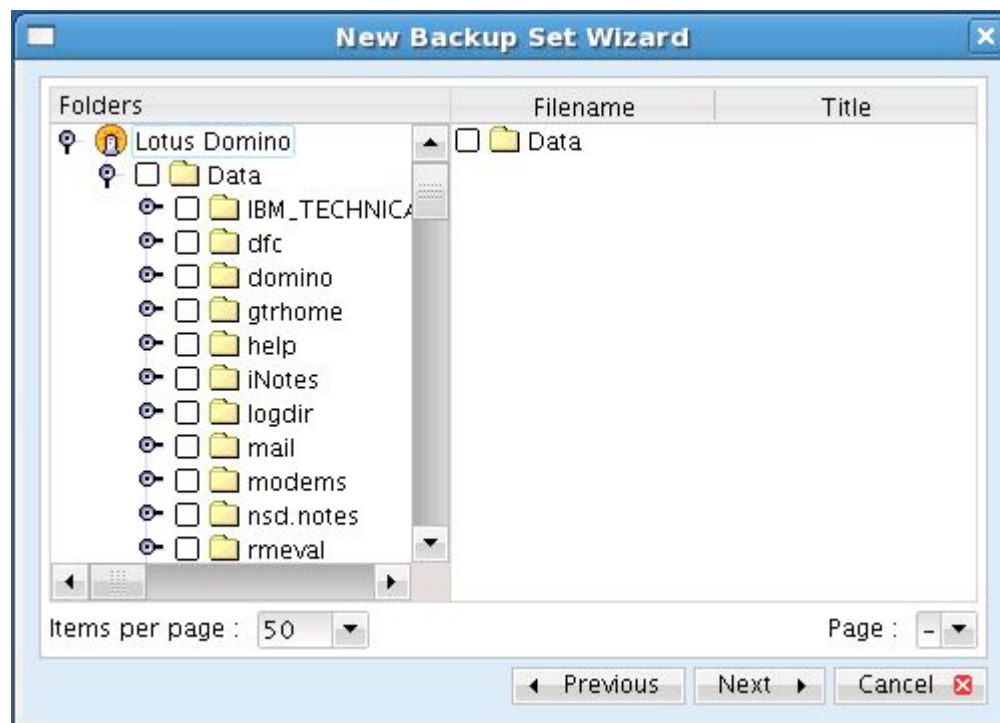
- ii. Create a backup set
 - a. To start setting up backup sets, click the  button to open the [Backup Setting] dialog.
 - b. On the left panel, press the  button to create a new backup set.
 - c. On the dialog, choose [Lotus Domino Server Backup] (or [Lotus Notes Client Backup] for Lotus Notes) as the [Type].



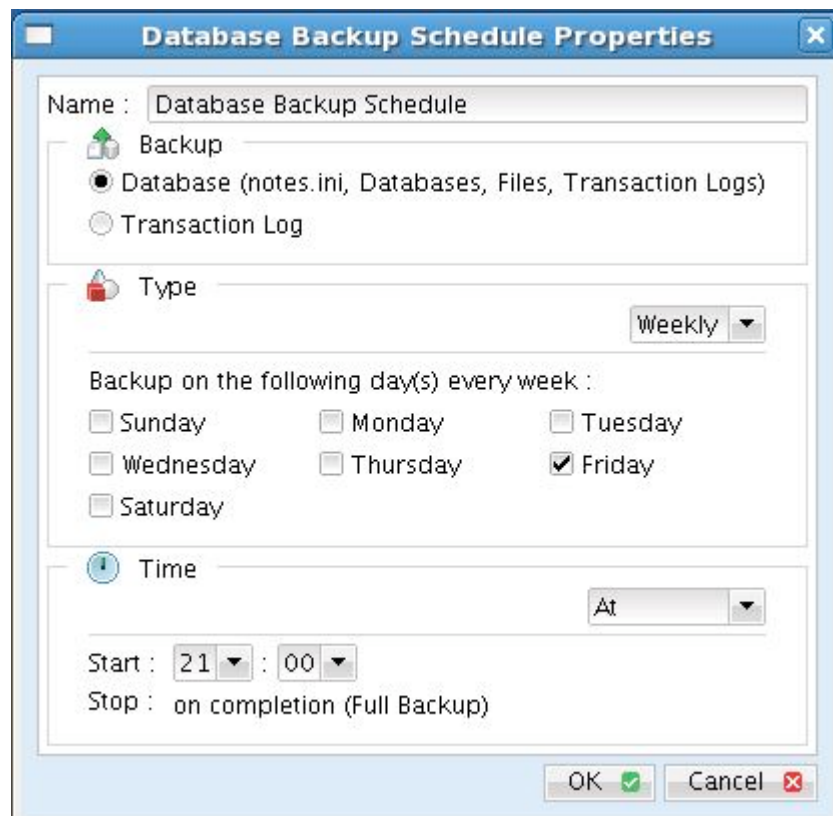
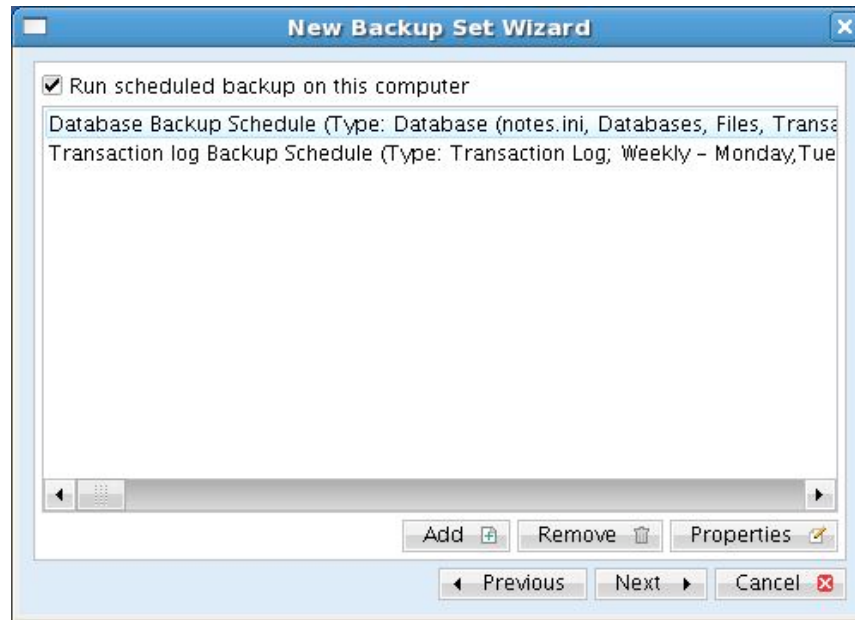
- d. Enter a name for your backup set



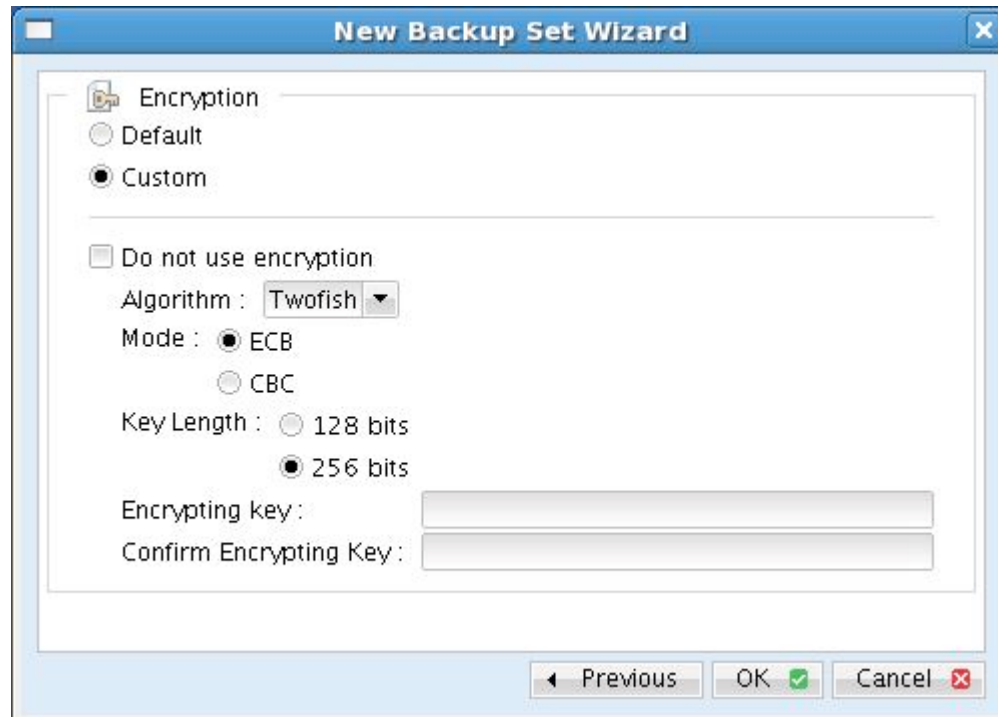
- e. Select the location of the “note.ini” file. The default path for this will be in the /local/notesdata folder.
- f. Select the database(s) / file(s) you want to backup



- g. Enter a temporary location to store the backup files before they are sent to Lokkbox OBS. Please make sure that the user running Lokkbox OBM have sufficient privileges to read and write to this location and sufficient space is available.
- h. Set the backup schedule for Database Backup

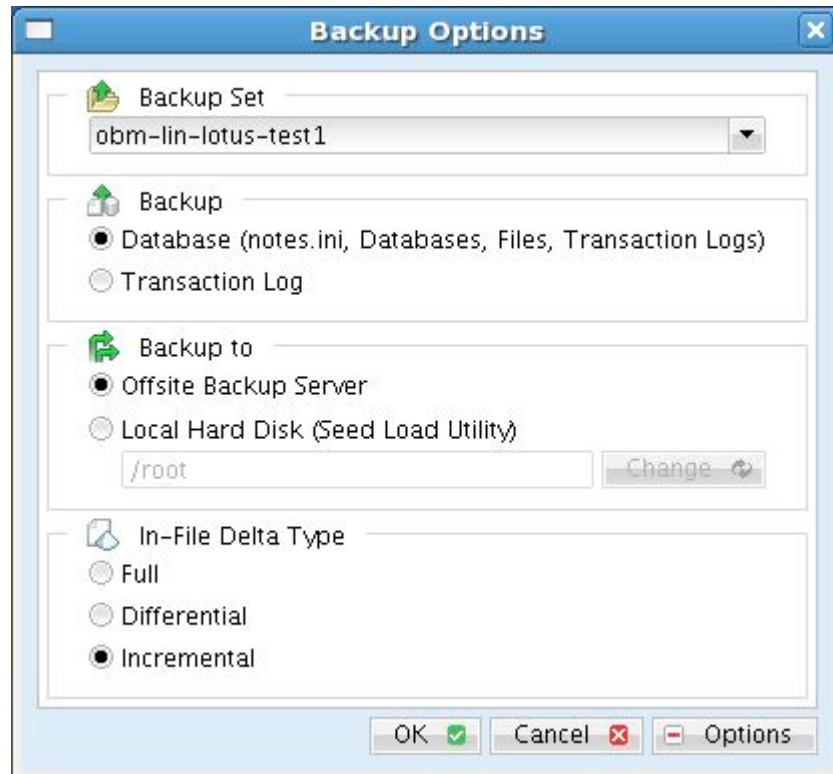


- i. Set the backup schedule for Transaction Log Backup (for Domino server only)
(Note: You can have more than one schedule in a backup set, i.e. you can perform intra-day transaction log backup by adding more than one daily transaction log backup schedule to your backup set)
- j. Set the encryption algorithm, encryption mode and encrypting key for this backup set

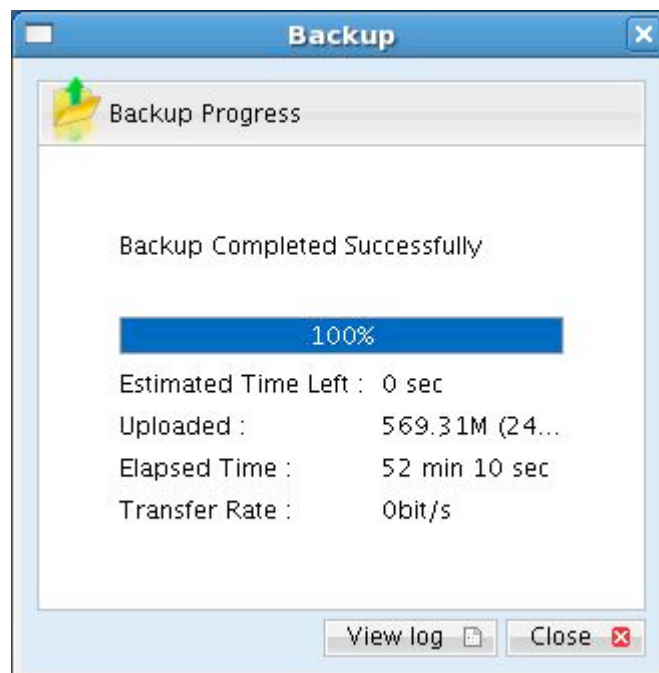


(Hint: For maximum security, please select AES (Advanced Encryption Standard) Algorithm, CBC (Cipher Block Chaining) mode and use an encrypting key with more than 8 characters.)

- iii. Run Backup
 - a. Press the [Backup] button on the main page of Lokkbox OBM dialog.
 - b. Select the backup type (e.g. Database, Transaction Log) you would like to perform (for Domino server only). Select the backup set you want to run and select [Online Backup Service] to start backing up your files to Lokkbox OBS. If applicable, you can change the In-File Delta Type also.



- c. Click [OK] to start backing up your files to Lokkbox OBS.
- d. You should get something similar to the screen shot below.



1.6 How to restore Lotus Domino / Notes database(s) / file(s) on Linux

Please follow the instructions below to restore Lotus Domino server / Notes client database(s) / file(s) from Lokkbox OBS.

- i. Install Lotus Domino server / Notes client back to its original folder (if required)
- ii. Install Lokkbox OBM
Please refer to the [Installation] section for information on how to install Lokkbox OBM onto your computer.
- iii. Shutdown Lotus Domino Server
- iv. If you want to perform a full domino restore (restore all databases and files):
 - a. Download the backup files to be restored from Lokkbox OBS and save them back to its original location. It includes notes.ini, all backup files from the lotus domino data directory and all archived transaction logs. If you encounter any access problems, please try restoring using the “root” user.
 - b. Make sure that the owner and group permissions of the restored files are the notes user

For example: `# chown -R notes:notes /local/notesdata`

This will assign the owner and group to all files and directories within /local/notesdata.

- c. Modify the “DominoRecover.sh” located under the bin directory of the Lokkbox OBM installation to reflect your setup. You need to specify the data directory and the lotus executable directory.

For example change the DATA_DIR and LOTUS tags to:

```
DATA_DIR=/local/notesdata
```

```
LOTUS=/opt/ibm/lotus
```

- d. Make sure the current user is the notes user before running the “DominoRecover.sh”.
- e. Run “DominoRecover.sh” and press ‘Y’ to continue.

For example: `#!/usr/local/obm/bin/DominoRecover.sh`

This will run media recovery for all databases (*.nsf and mail.box) found under the Lotus data directory (e.g. /local/notesdata). You should see something similar to the screen below.

Media Recovery Example:

```
bash-3.00$ cd /usr/local/obm/bin
bash-3.00$ ./DominoRecover.sh
Media Recovery Utility for Lotus Domino 5.0 or above
```

Please make sure that you have done the following:

1. Reinstall Lotus Domino on this computer in the same directory
2. Restore Notes.ini to the Lotus Domino installation directory (e.g. /local/notesdata)
3. Restore Domino Data directory back to the directory defined in Notes.ini (e.g. /local/notesdata)
4. Restore all archived transaction logs to the directory defined in Notes.ini (e.g. /local/notesdata/logdir)

Continue ? (Y) or (N) y

Running media recovery ...

directory /local/notesdata// already exists

Please wait, creating new transaction logs in directory: /local/notesdata/logdir/

02/01/2007 11:38:43 AM Recovery Manager: Restart Recovery complete. (0/0 databases needed full/partial recovery)

02/01/2007 11:38:45 AM Recovery Manager: Assigning new DBIID for /local/notesdata/names.nsf (need new backup for media recovery).

Media Recovery Replay (0 MB): 100%

02/01/2007 11:38:45 AM Recovery Manager: Media Recovery complete for /local/notesdata/dfc/dfc100.nsf, last update applied .

Backup file /local/notesdata/dfc/dfc100.nsf recovered.

Media Recovery Replay (0 MB): 100%

02/01/2007 11:38:46 AM Recovery Manager: Media Recovery complete for /local/notesdata/help/decsdoc.nsf, last update applied .

...

Backup file /local/notesdata/iNotes/help70_iwa_en.nsf recovered.

Media Recovery Replay (0 MB): 100%

02/01/2007 11:38:50 AM Recovery Manager: Media Recovery complete for /local/notesdata/mail/notes.nsf, last update applied .

Backup file /local/notesdata/mail/notes.nsf recovered.

bash-3.00\$

- f. All content of all database(s) are now rolled forward to the last committed transaction found in the last archived transaction log.
- g. Restart Lotus Domino server
- v. If you just want to restore a single database:

- a. Download the database file to be restored from Lokkbox OBS and save them back to its original location.
- b. (optional) If you need to perform media recovery on this database, please download all archived transaction logs and save them back to its original location
- c. Modify the “DominoRecover.sh” located under the bin directory of the Lokkbox OBM installation to reflect your setup.

For example we will recover the “admin4.nsf” and have restored the file to /restore/local/notesdata, change the tags to:

```
DATA_DIR=/local/notesdata
LOTUS=/opt/ibm/lotus
INPUTFILE=/restore/local/notesdata/admin4.nsf
RESTOREDB=/local/notesdata/admin4.nsf
RECDATE=18/01/2007
RECTIME=22:41
```

- d. Make sure the current user is the notes user before running the “DominoRecover.sh”.
- e. Run “DominoRecover.sh”.

You should see something similar to the screen below.

Media Recovery Example:

```
bash-3.00$ cd /usr/local/obm/bin
bash-3.00$ ./DominoRecover.sh
Media Recovery Utility for Lotus Domino 5.0 or above

directory /local/notesdata// already exists

Recovering backup file ...

Restart Analysis (0 MB): 100%
18/01/2007 03:35:56 PM Recovery Manager: Restart Recovery complete. (0/0 databases needed
full/partial recovery)
Media Recovery Replay (1 MB): 30% 50% 80% 100%
18/01/2007 03:35:57 PM Recovery Manager: Media Recovery complete for /local/res
tore/local/notesdata/admin4.nsf, last update applied .

Backup file /local/restore/local/notesdata/admin4.nsf recovered.

Taking database /local/notesdata/admin4.nsf offline ...
```

```
Restoring database /local/notesdata/admin4.nsf
from recovered backup file /local/restore/local/notesdata/admin4.nsf ...
Database file /local/notesdata/admin4.nsf restored from /local/restore/local/notesdata/admin4.nsf

Bringing database /local/notesdata/admin4.nsf online ...

Program completed successfully.
bash-3.00$
```

- f. All content of the database are now rolled forward to the last committed transaction found in the last archived transaction log.
- g. Restart Lotus Domino Server