Backup using LifeLine•DVD

Microsoft Small Business Server 2003

Microsoft Exchange Server 2003

Microsoft Active Directory
and
Microsoft Exchange

The following example illustrates one way to configure Microsoft Small Business Server 2003 and Exchange Server 2003 so that LifeLine•DVD will backup Microsoft Active Directory and the Microsoft Exchange database. Starting with this example it is then possible to recover one or more folders or messages from an individual user's Exchange mailbox (brick level restore). If it is necessary to reload the entire Exchange database or restore Active Directory, this may be done in a straightforward and efficient manner. Because the operation of LifeLine•DVD is completely independent of other computers on the network, the information in Active Directory and Exchange server may be available at any time, no matter the condition of the original Windows server computer. For example, it is possible to restore and access e-mail even if the Exchange server cannot be made to operate. The procedures described below can be adapted for other versions of Microsoft Windows.

Important Notes:

- ***It is the responsibility of the user to determine the suitability of the information in this document to the user's environment.***
- ***The information contained in this document describes the use of software that was not created by Backlot Technologies. As a result, Backlot Technologies cannot be responsible for the operation of this software.***
- ***Perform all steps below from the Administrator or other fully privileged account.***

Step 1

Identify an account with full (administrator) privileges that will be used to extract information from Active Directory and the Exchange database.

You may use an existing account or create a new account to be used to extract information from Active Directory and the Exchange database. In either case, the account ***must*** have administrator privileges. We recommend that you create a new account (for example, "LifeLine") with ***domain administrator privileges***, such that it can access all the computers on the network.

You will use the privileged account as the user account in Step 4 (*Install the Microsoft Utility ExMerge and give your privileged account access to all Exchange accounts*) and Step 6 (*Create and schedule backup tasks*) of this document. If the account has domain administrator privileges you can also use it as the single account to enter in the LifeLine•DVD Graphical User Interface (GUI) to gain access to all the information on your network to be backed up.

Step 2

Determine the amount of space used by your exchange database

Use the folder properties function in Windows Explorer to determine the approximate size of the Exchange application folder (typically C:\Program Files\Exchsrvr).

Step 3

Create a shared folder that will be used as a staging area to temporarily contain the extracted information.

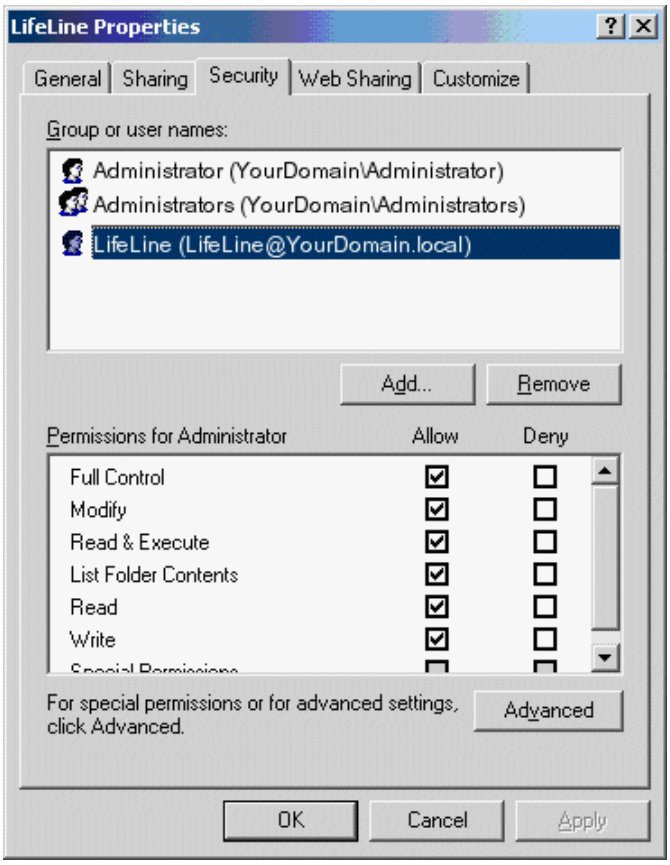
Create a folder structure in a suitable location on the server, preferably on a different disk than C:. The disk on which the folder is created must have sufficient working space, which is approximately the same available free space as the space used by your Exchange database. Bear in mind, however, that your Exchange database continues to grow as the amount of saved messages and other data increases, so plan accordingly.

(In the example implementation, the full Exchange server database is backed up once a month, on the first day of the month. The most recent full Exchange server backup will always be found in this folder.)

The folder structure should be created as follows:

D:\LifeLine
- Active Directory
- Exchange
  - Full
  - Differential
- Scripts

Your backup user account (from Step 1) should be granted full access permissions to this folder and ***only*** administrators (and backup operators) should have permission to access this folder structure.


LifeLine Properties
General
Sharing
Security
Web Sharing
Customize
Group or user names:
Administrator (YourDomain\Administrator)
Administrators (YourDomain\Administrators)
LifeLine (LifeLine@YourDomain.local)
Add...
Remove
Permissions for Administrator
Allow
Deny
Full Control
Modify
Read & Execute
List Folder Contents
Read
Write
For special permissions or for advanced settings, click Advanced.
Advanced
OK
Cancel
Apply

Every night a file named D:\LifeLine\Active Directory\CSVDE_Export.csv will be created which contains the entire contents of the Windows Active Directory. Every night LifeLine•DVD will back up this file.

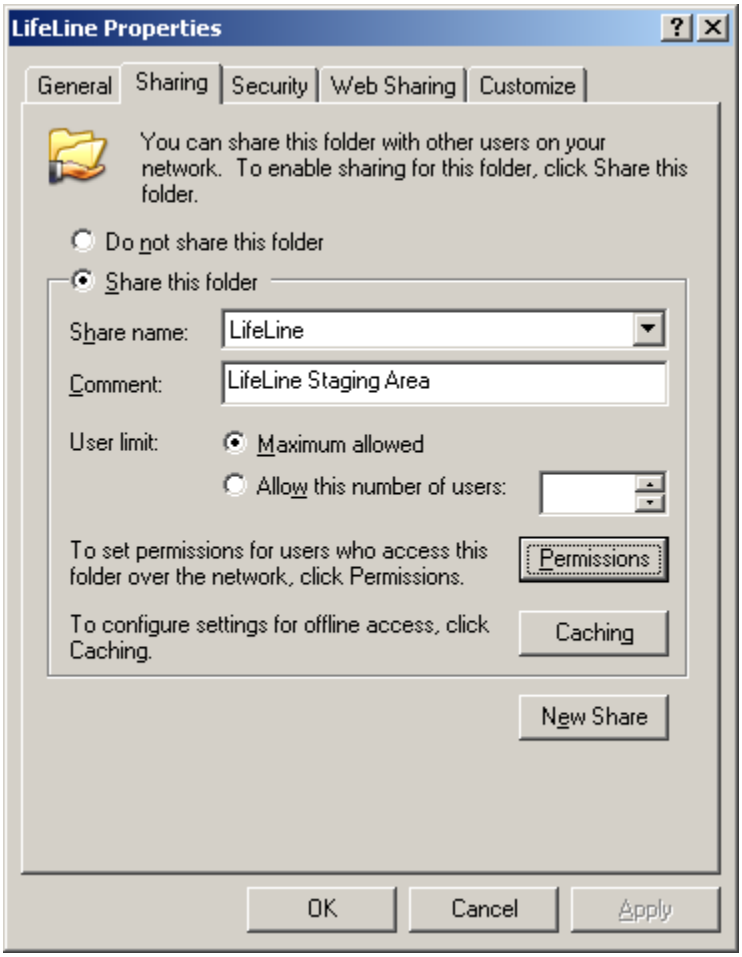
The first night of every month a PST file will be created in the folder D:\LifeLine\Exchange\Full for each person who has an Exchange e-mail account. The PST file will contain ***all*** the e-mail, e-mail attachments, contacts, and schedule information for the person. That same night LifeLine•DVD will back up these PST files.

Every night (except the first night of the month) a PST file will be created in the folder D:\LifeLine\Exchange\Differential for each person who has an Exchange e-mail account. The PST file will contain all the e-mail, e-mail attachments, contacts, and schedule information ***for that month***. That same night LifeLine•DVD will back up these PST files.

Log files are located in the folder D:\LifeLine\Exchange. Information about each night's data extraction from the Exchange database is appended to the log files. The log files are purged at the beginning of each month.

For this example, there will be two scripts (VBS files) that reside in the folder D:\LifeLine\Scripts. Once configured the script files will not change.

Finally, the LifeLine folder structure should be selected as a **shared folder** (using default permissions).



Step 4

Install the Microsoft Utility ExMerge and give your privileged account access to all Exchange accounts.

ExMerge will be used to extract data from the Exchange database and create individual user PST files in the staging area.

The ExMerge utility (for Exchange Server 2000 and 2003) may be found by searching the Microsoft Download Center for “ExMerge”. Download the ExMerge package. We suggest you place the program and its associated files in a top level folder named EXMERGEDATA (for example: C:\EXMERGEDATA). These instructions have been tested with and require ExMerge version 6.05.7529. Please check the version number of an existing ExMerge program found on your computer to make sure it is current.

The instructions in this document should be sufficient for backing up your Exchange database with LifeLine•DVD. Additional information about ExMerge may be found in the download package and by searching for “ExMerge” from the Microsoft homepage. (Note: There are versions of ExMerge that are available for older versions of Microsoft Exchange.)

You will use ExMerge to extract data from the Exchange database. ExMerge can also be used to reload the entire Exchange database. The exact steps used in recovery depend on the problem from which the business is recovering and are beyond the scope of this document.

By default, only the specific user is allowed to access his or her e-mail account. It is necessary to give the account you identified in Step 1 privileges to access all user accounts in the Exchange database, so the data can be extracted for backup. This can be accomplished using the configuration information described on the Microsoft website or doing the following:

In Exchange System Manager select:

Servers
[Your SBS server name]
First Storage Group
Mailbox Store [Your SBS server name]

Right click on the Mailbox Store
Select Properties.
Select the Security tab.
Press the Advanced button.
Highlight the account you identified in Step 1.
Select Edit.
Select Allow Full Control.
(Make sure there are no checks in the Deny boxes.)
Select OK all the way out.

Useful references:
http://www.petri.co.il/grant_full_mailbox_rights_on_exchange_2000_2003.htm
http://www.petri.co.il/brick_level_backup_of_mailboxes_by_using_exmerge.htm
http://www.outlookexchange.com/Articles/JasonSherry/sherry_c4p3.asp

Note: A PST file can only store about 2 GB of data and 64,000 items before it may become corrupted. Occasionally check the monthly PST files to make sure no single PST file exceeds 2 GB in size.

Step 5

Exporting Microsoft Windows Server Active Directory Information

[This information is provided for completeness; no actual user steps are required.]

The Microsoft application CSVDE is used to export full information from Active Directory. CSVDE can also be used to import information to Active Directory as part of your recovery process. The exact steps used in recovery depend on the problem from which the business is recovering and are beyond the scope of this document.

Application: CSVDE.EXE
Location: Windows/System32

Useful references:

http://www.computerperformance.co.uk/Logon/Logon_CSVDE.htm

http://technet2.microsoft.com/WindowsServer/f/?en/Library/1050686f-3464-41af-b7e4-016ab0c4db261033.mspx

Step 6

Create and schedule backup tasks

Use the Windows Task Scheduler to create the tasks that will extract the data from Exchange and Active Directory. Be sure all tasks are configured to run by the fully privileged account (e.g. LifeLine). Use the following information as a guide, but be sure to modify the folder paths and start times to suit your needs.

Scheduled Tasks

	Time	Frequency	Run	Extract Data From:	Function
1	12:01 AM	Daily	CSVDE	Active Directory	Extract data from Active Directory
2	12:03 AM	Daily	VBS script	-	Create Exchange daily differential backup ini file
3	12:05 AM	First day in month	VBS script	-	Create Exchange monthly full backup ini file
4	12:07 AM	Daily	Del	-	Delete previous Exchange differential backup PST files
5	12:07 AM	First day in month	Del	-	Delete previous Exchange full backup PST files
6	12:07 AM	First day in month	Del	-	Delete previous Exchange backup log files
7	12:09 AM	Daily	ExMerge	Exchange Server	Extract data from Exchange database using ini file

Scheduled Task Command Lines

Task	Command Line
1	C:\WINDOWS\system32\csvde.exe -f "D:\LifeLine\Active Directory\CSVDE_Export.csv"
2	D:\LifeLine\Scripts\DailyDifferentialBackup.vbs
3	D:\LifeLine\Scripts\MonthlyFullBackup.vbs
4	C:\WINDOWS\system32\cmd.exe /C "del "D:\LifeLine\Exchange\Differential*.PST"" /Q
5	C:\WINDOWS\system32\cmd.exe /C "del "D:\LifeLine\Exchange\Full*.PST"" /Q
6	C:\WINDOWS\system32\cmd.exe /C "del "D:\LifeLine\Exchange*.LOG"" /Q
7	C:\EXMERGEDATA\ExMerge.exe -B –F

Step 7

Install the script files required by the backup tasks

In the Appendix you will find the following files:

ExMerge.ini
Place this file in the folder D:\LifeLine\Scripts.
This ExMerge.ini file is a template for a file with the same name that will be created in the ExMerge application folder (e.g. C:/EXMERGEDATA). The VB scripts described below are used to create the ExMerge file in the application folder.
When it is run by a Scheduled Task (Task 7), the ExMerge application will use the information in the new ExMerge.ini file.
Depending upon the contents of the new ExMerge.ini file, PST files will be created in the LifeLine\Differential or the LifeLine\Full folder.

DailyDifferentialBackup.vbs
Place this file in the folder D:\LifeLine\Scripts.
This script is run daily (Task 2).

MonthlyFullBackup.vbs
Place this file in the folder D:\LifeLine\Scripts.
This script is run the first day of the month (Task 3).

Each of these files ***should be slightly modified*** to reflect the name of your Exchange server and other information specific to your environment. If the implementation is exactly as described in these instructions, it is likely that only the Exchange server name ("YourExchangeServerNameHere") will need to be changed.

Testing your DailyDifferentialBackup.vbs and MonthlyFullBackup.vbs scripts

After you modify the two vbs files, run each file in a DOS window to make sure it operates properly. Correct any errors that are reported. After you run the vbs file, open the ExMerge.ini file in an editing program and confirm that the last line includes either "Differential" or "Full" depending on which vbs file you are running.

Step 8

Schedule LifeLine•DVD to backup the extracted data

Last, but most importantly, configure your LifeLine•DVD Intelligent Backup Appliance to perform a timed backup (for example, at 2:00 AM) of the shared LifeLine folder on your Exchange server.

In the LifeLine•DVD user interface ***deselect*** the Exchange data folder (in the program area) from being backed up. This is the MDBDATA folder typically found under C:\Program Files\Exchsrvr), as you are now backing up this data through the timed backup.

Some Additional Notes and Reminders

1. Remember to perform all the steps in these instructions from the Administrator or other fully privileged account.

2. ***Test your implementation by accessing each task in sequence in the Task Scheduler and manually running it (right click on the task). Confirm that the operation completed successfully. With the exception of the task to "Extract data from Exchange database using ini file" all tasks should execute and complete instantly. The task to extract data from the Exchange database may take several minutes to complete. Log files will help you troubleshoot any problems. (In the example described in this paper the log files are found in the D:\LifeLine\Exchange folder.)***

3. Occasionally check the monthly PST files to make sure no single PST file exceeds 2 GB in size. These PST files only exist on your computer the first day of the month. If a PST file is approaching the 2 GB size limit, you may reduce its size by deleting unneeded e-mail or exporting some of the e-mail to a separate PST file.

4. If you restore Exchange information for a specific user, restore the user's Exchange PST file to the *user's folder area*. The user can open the PST file in Outlook, in addition to having his or her Exchange e-mail open in Outlook. Folders and files of interest can be dragged and dropped in Outlook between the PST and the Exchange message stores.

5. It is not necessary to compress the PST files to reduce the amount of space they consume on LifeLine•DVD. LifeLine•DVD automatically compresses all files that it backs up.

Appendix

Example configuration file: ExMerge.ini

```
[ExMerge]

;Configured for LifeLineDVD
;Version 0.00

;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; MergeAction
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; This setting controls which merge procedure to use:
; Possible values:
; 0    -   Extract        ( Merge data to Personal Folders)
; 1    -   Import         ( Merge data from Personal Folders)
; 2    -   Extract&Import ( Export from one server and Import into another server)
;
; Default Value: 0
;
MergeAction =0

;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; SourceServerName
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; Name of the source Exchange server, from which data will be extracted.
; This setting must be specified if the MergeAction specified is Extract or Extract&Import
;
SourceServerName =YourExchangeServerNameHere

;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; SelectMessageStartDate
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; The starting date after which messages should be selected
;
; Format: MM/DD/YY  hh:mm:ss
; where:
; MM - Month
; DD - Day
; YY - Year
; hh - Hour         (0-23)
; mm - Minute
; ss - Second
;
; Default Value: Blank
;
; If SelectMessageStartDate or SelectMessageEndDate is invalid, all messages will be selected
;
SelectMessageStartDate =1/1/2005 00:00:00

;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; SelectMessageEndDate
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; The ending date before which messages should be selected
```

```
;
; Format: MM/DD/YY  hh:mm:ss
; where:
; MM - Month
; DD - Day
; YY - Year
; hh - Hour        (0-23)
; mm - Minute
; ss - Second
;
; Default Value: Blank
;
; If SelectMessageStartDate or SelectMessageEndDate is invalid, all messages will be selected
;
SelectMessageEndDate =1/2/2005 00:00:00

;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; FoldersProcessed
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; This setting causes the program to ignore certain folders, or only process certain folders,
; or process all folders.
; The actual list of folders should be specified using the ListOfFolders setting or the
; FileContainingListOfFolders setting.
;
; Possible Values:
; 0 - Ignore specified folders
; 1 - Process only specified folders
; 2 - Process all folders
;
; Default Value: 2
FoldersProcessed =0

;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; ListOfFolders
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; List of folders to be processed.
; Depending on the value of the FolderActions setting this list will contain the names of
; folders to be ignored, or those folders that should be processed.
; This list should contain the complete path of the folders, separated by semi-colons (;)
;
; If you have folder names containing semi-colons, then do not use this setting.
; Use the FileContainingListOfFolders setting, instead.
;
; Default Value: Blank
; e.g:
; ListOfFolders  = Deleted Items;Sent Items;Inbox\Junk Mail
;
ListOfFolders =Deleted Items;Junk E-mail;Infected

;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
;CopyAssociatedFolderData
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; This setting controls whether the program will copy associated folder messages.
; Associated messages are not visible in an Exchange client or Outlook, and are used by the
client
; to save different settings.
```

```
; If you are running Exchange Server 5.0 or later, select this setting to have the program copy
; folder rules and views.
;
; Possible Values:
; 0 - Do not copy associated data for each folder
; 1 - Copy associated data for each folder
;
; Default Value: 0
CopyAssociatedFolderData =1

;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; LogFileName
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; Name of the log file to be used
;
; Default Value: ExMerge.log
;
LogFileName =D:\LifeLine\Exchange\DailyDifferentialBackup.log


;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; LoggingLevel
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; Set the level of logging:
; Possible Values:
; 0 - None
; 1 - Minimum
; 2 - Medium
; 3 - Maximum
;
; Default Value is 0
;
LoggingLevel =2

;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; DataDirectoryName
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
; Name of the directory to which .PST files will be written or where .PST files will be expected.
; If the directory does not exist, it will be created.
;
; Default Value:
;
DataDirectoryName =D:\LifeLine\Exchange\Differential\
```

Example script file: DailyDifferentialBackup.vbs

```
' DailyDifferentialBackup.vbs

' Larry Shoer
' Tom Rose
' Version 0.01
' Feb 05, 2006

DIM fsi, fso, LLInputFile, LLOutputFile
DIM StartDate, StopDate
DIM DayOfMonth
DIM file, TextStream

' Open the ExMerge input file
   Set fsi = CreateObject("Scripting.FileSystemObject")
   Set LLInputFile = fsi.GetFile("D:\LifeLine\Scripts\ExMerge.ini")
   Set TextStream = LLInputFile.OpenAsTextStream(1, 0)

' Open the ExMerge output file
   Set fso = CreateObject("Scripting.FileSystemObject")
   Set LLOutputFile = fso.CreateTextFile("C:\ExMergeData\ExMerge.ini",True)

' Read the input file line-by-line
'  If line contains string of interest
'    Compute and write new line
'  Else
'    Write lines to output file as read
'  Loop

Do While Not TextStream.AtEndOfStream
  Dim Line
'  Read line from file and process
     Line = TextStream.readline
     If instr(Line,"SelectMessageStartDate =") <> 0 Then
'      Create Start Date, which is the beginning of the month
        StartDate = Date   ' This is now the current system date
'      Figure out the day of the month, subtract one less than this from StartDate
        DayOfMonth = Day(StartDate)
        StartDate = DateAdd("d",1-DayOfMonth,StartDate)
'      Write modified line to the file
        LLOutputFile.Write("SelectMessageStartDate =")
        LLOutputFile.Write(CStr(StartDate))
        LLOutputFile.WriteLine(" 00:00:00")
     ElseIf instr(Line,"SelectMessageEndDate =") <> 0 Then
'      Create Stop Date, which is the midnight just past
        StopDate = Date   ' This is now the current system date
'      Write modified line to the file
        LLOutputFile.Write("SelectMessageEndDate =")
        LLOutputFile.Write(CStr(StopDate))
        LLOutputFile.WriteLine(" 00:00:00")
     ElseIf instr(Line,"LogFileName =") <> 0 Then
'      Write modified line to the file
        LLOutputFile.WriteLine("LogFileName =D:\LifeLine\Exchange\DailyDifferentialBackup.log")
     ElseIf instr(Line,"DataDirectoryName =") <> 0 Then
```

```
'       Write modified line to the file
          LLOutputFile.WriteLine("DataDirectoryName =D:\LifeLine\Exchange\Differential\")
        Else
'       It is some line we do not modify.  Pass it through unchanged.
          LLOutputFile.WriteLine(Line)
        End If

Loop

LLOutputFile.Close
```

Example script file: MonthlyFullBackup.vbs

```
' MonthlyFullBackup.vbs

' Larry Shoer
' Tom Rose
' Version 0.01
' Feb 05, 2006


DIM fsi, fso, LLInputFile, LLOutputFile
DIM StartDate, StopDate
DIM DayOfMonth
DIM file, TextStream

' Open the ExMerge input file
   Set fsi = CreateObject("Scripting.FileSystemObject")
   Set LLInputFile = fsi.GetFile("D:\LifeLine\Scripts\ExMerge.ini")
   Set TextStream = LLInputFile.OpenAsTextStream(1, 0)

' Open the ExMerge output file
   Set fso = CreateObject("Scripting.FileSystemObject")
   Set LLOutputFile = fso.CreateTextFile("C:\ExMergeData\ExMerge.ini",True)

' Read the input file line-by-line
'  If line contains string of interest
'    Compute and write new line
'  Else
'    Write lines to output file as read
'  Loop

Do While Not TextStream.AtEndOfStream
  Dim Line
'  Read line from file and process
     Line = TextStream.readline
     If instr(Line,"SelectMessageStartDate =") <> 0 Then
'      Create Start Date, which is the beginning of time
        StartDate = "01/01/1980"
'      Write new line to the file
        LLOutputFile.Write("SelectMessageStartDate =")
        LLOutputFile.Write(CStr(StartDate))
        LLOutputFile.WriteLine(" 00:00:00")
     ElseIf instr(Line,"SelectMessageEndDate =") <> 0 Then
'      Create Stop Date, which is the midnight just past
        StopDate = Date   ' This is now the current system date
'      Write new line to the file
        LLOutputFile.Write("SelectMessageEndDate =")
        LLOutputFile.Write(CStr(StopDate))
        LLOutputFile.WriteLine(" 00:00:00")
     ElseIf instr(Line,"LogFileName =") <> 0 Then
'      Write new line to the file
        LLOutputFile.WriteLine("LogFileName =D:\LifeLine\Exchange\MonthlyFullBackup.log")
     ElseIf instr(Line,"DataDirectoryName =") <>0 Then
'      Write new line to the file
        LLOutputFile.WriteLine("DataDirectoryName =D:\LifeLine\Exchange\Full\")
     Else
```

```
'       It is some line we do not modify.  Pass it through unchanged.
          LLOutputFIle.WriteLine(Line)
        End if

Loop

LLOutputFile.Close
```