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Note

If you are branding this document for your customers, please be reminded to:

1. Modify the "header" and "footer" of this document
2. Change all references of [www.ahsay.com](http://www.ahsay.com) to your server
3. Take away those sections that are not relevant to your customers, e.g. the section on "Branding"

## 1. General

### 1.1. Can you briefly explain the idea of how the Online Backup Software works?

The Online Backup Suite consists of 3 main modules:

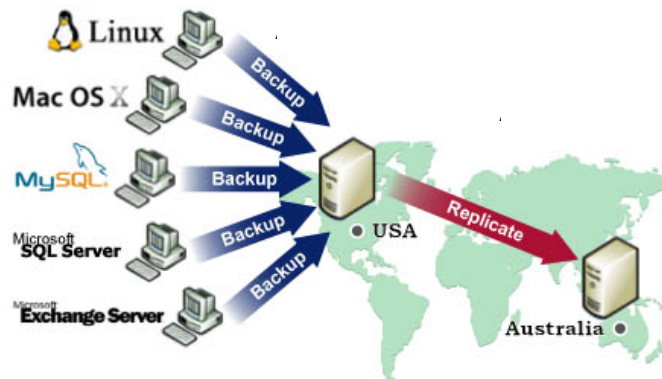
1. The client software – Online Backup Manager (OBM)
2. The server software – Offsite Backup Server (OBS)
3. The replication server – Replication Server (RPS)

OBM is a client application with a user-interface for easy backup configuration. It allows users to upload selected files to the Backup server and runs scheduled backup jobs. It also allows users to create different backup sets for different backup purpose. Besides file backup, OBM can backup a list of applications such as MS Exchange, MS SQL, Oracle, MySQL, Lotus Domino, and much more. OBM supports Windows 2000, XP, 2003, Linux, Mac OS X, etc.

OBS is a server application which store backup data from multiple OBMs backup accounts. It has a web-based Management Console for system administrators to manage the Backup Server, such as configuring system and backup account settings, and viewing backup statistics and reports. Users can also logon to this Management Console to manage their own backup account or restore their own backup data. OBS supports Windows, Linux and Mac OS platforms.

RPS is another server application running on a separate machine, it provides close to real-time backup for multiple OBSs. So even if one of the OBS failed, the RPS still has a copy of the backup data.

The relationships of the Online Backup Suite are depicted in the diagram below.



OS Supported:  
Windows, Linux, Mac OS X, Novell NetWare, and Sun Solaris

Application Supported:  
Microsoft SQL Server, Microsoft Exchange Server, Oracle Database, MySQL Database,  
and Lotus Domino / Notes

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## 2. Branding (OEM Partners Only)

### 2.1. Can we remove the name Ahsay in the OBM software? Can we put in our own company name/brand?

You can do your own branding for both AhwayOBS and OBM. This means that all Ahsay reference can be changed to your company name and logo, so your client will not know this is Ahsay Online Backup software.

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### 2.2. Can I customize the desktop icon for OBM on the client machine?

To customize the desktop icon, you will need to replace the icon1.ico file inside obm.zip, then upload it to the Partners Portal and rebuild your customized installer.

If you want to change the desktop icon after the installation is done, you may try to right-click the desktop icon, choose "Properties" and then click "Change Icon", then choose the one you would like to change to.

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### 2.3. How do I customize the company logo for OBM Mac OS OEM version?

You can change the logo in the following path of the obm-mac archive:

(obm-mac.zip) > Setup.app > Contents > Resources > Setup.app > Contents > Resources > Java > Disk1 > InstData > (Resource1.zip) > \$IA\_OBM\_HOME\$ > BuildOBMv5.0 > platform > obm-mac > BackupManager.app > (Contents\_zg\_ia\_sf.jar) > Resources > OBMLogo.icns

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## 3. Online Backup Manager (OBM)

### 3.1. Can we customize the OBM? How can we change the name of the software, configuration, and auto-logout?

Of course it is possible. You can refer to our Administrator's Guide as well as our Partner Portal for more details.

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### 3.2. What is the recommended bandwidth?

It really depends on what kind of data to be backed up, e.g. for personal file backups, the daily data transfer should be limited, while MS Exchange backup could be significant. You may want to use the following white paper as a reference:

<http://www.ahsay.com/en/doc/white-paper-backup-speed.pdf>.

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### 3.3. How do I run OBM with Microsoft ISA 2004?

To connect OBM to OBS through Microsoft ISA Server, please do the following to enable [Web Proxy] service on the ISA Server:

1. Open [Start] -> [Programs] -> [Microsoft ISA Server] -> [ISA Server Management]



2. On the left panel, select [Microsoft Internet Security and Acceleration Server] -> [SERVER] -> [Configuration] -> [Networks]
3. On the top menu, select [Action] -> [New] -> [Network]. Enter a "Network Name" (e.g. Internal) and define the IP address range for your internal network (e.g. 192.168.1.0 - 192.168.1.255)
4. Double click the new network that should now be added to on the bottom panel
5. Select the [Web Proxy] tab
6. Check both [Enable Web Proxy clients] and [Enable HTTP] checkboxes and choose a [HTTP port] for the web proxy service
7. (Optional) Press the [Authentication] button, check the [Basic] checkbox and the [Require all users to authenticate] checkboxes if you want to enable and enforce proxy authentication
8. Press the [OK] button to make the changes and press the [Apply] button to apply the changes
9. Open [Online Backup Manager] from the system tray and press the [Options] button
10. In the [Proxy Setting] section, select the [Proxy] radio button
11. Enter the hostname/IP address of the ISA server in the [Proxy Address] text field and the TCP port for web proxy service on your ISA Server in the [Port] text field
12. Press the [OK] button to connect to the server

If you run into any problems connecting to the OBS from OBM using ISA Server, please do the following to check if your request is being blocked:

1. On the left panel of [ISA Server Management], select [Microsoft Internet Security and Acceleration Server] -> [SERVER] -> [Monitoring]
2. Then select the [Logging] tab that appears on the right panel3. Click the [Edit Filter] link and create a filter with the following values:
  - [Log Record Type] equals [Web Proxy Filter]
  - [Destination IP] equals [The IP address of Offsite Backup Server]
3. Press the [Start Query] button
4. Open [Online Backup Manager] again and try connecting to the OBS using the same procedure above.

Check if there are any errors generated in the log table.

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### **3.4. How do I install OBM on FreeBSD?**

You can either run OBM on a Linux version of Sun Java JDK (performance might not be optimized) or on a FreeBSD native Java SDK.

Please do the following for the Linux version of Sun Java JDK option:

1. Install Linux binary compatible port to the FreeBSD machine
2. Install the Linux version of Sun Java 1.4.2 or above JDK onto the FreeBSD machine
3. Create a symbolic link from \$OBM\_HOME/jvm to \$JAVA\_HOME (installed in previous step)
4. Run \$OBM\_HOME/bin/RunBackupSet.sh [BACKUP\_SET\_NAME] to run your backup
5. Run \$OBM\_HOME/bin/Scheduler.sh to start the backup scheduler

Please do the following for the FreeBSD native Java SDK option:

1. Install Linux binary compatible port to the FreeBSD machine
2. Install the Linux version of Sun Java 1.4.2 or above JDK onto the FreeBSD machine
3. Compile the FreeBSD native Java 1.4.2 SDK using the JDK compiler installed in the previous step
4. Install the FreeBSD native Java 1.4.2 SDK onto the FreeBSD machine
5. Create a symbolic link from \$OBM\_HOME/jvm to \$JAVA\_HOME (installed in previous step)
6. Run \$OBM\_HOME/bin/RunBackupSet.sh [BACKUP\_SET\_NAME] to run your backup
7. Run \$OBM\_HOME/bin/Scheduler.sh to start the backup scheduler



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### 3.5. How do I install OBM on SCO Unix?

Please do the followings to install OBM on SCO:

1. Install Java 1.4.x or above onto your SCO Unix box
2. Download obm-linux.tar.gz and expand it to \$OBM\_HOME (e.g. /usr/local/obm)
3. Delete \$OBM\_HOME/jvm and create a symbolic link from \$OBM\_HOME/jvm to the SCO Unix Java VM
4. Run \$OBM\_HOME/bin/BackupManager.sh to setup your backup set (or run \$OBM\_HOME/bin/Configurator.sh if you are under command line mode. Then use the OBS Management Console to setup your backup sources and other settings)
5. Run \$OBM\_HOME/bin/RunBackupSet.sh [BACKUP\_SET\_NAME] to run your backup
6. Run \$OBM\_HOME/bin/Scheduler.sh to start the backup scheduler

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### 3.6. How do I install OBM on AIX?

Please do the followings to install OBM on AIX:

1. Install Java 1.3.x or above (Java 1.4.2 or above recommended) onto your AIX box
2. Download obm-linux.tar.gz and expand it to \$OBM\_HOME (e.g. /usr/local/obm)
3. Delete \$OBM\_HOME/jvm and create a symbolic link from \$OBM\_HOME/jvm to the AIX Java VM
4. Run \$OBM\_HOME/bin/BackupManager.sh to setup your backup set (or run \$OBM\_HOME/bin/Configurator.sh if you are under command line mode. Then use the web interface to setup your backup sources and other settings)
5. Run \$OBM\_HOME/bin/RunBackupSet.sh [BACKUP\_SET\_NAME] to run your backup
6. Run \$OBM\_HOME/bin/Scheduler.sh to start the backup scheduler

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### 3.7. The Windows version of OBM installer hangs, what could be the problem?

There are few things that could create errors during or after executing the installer.

1. Make sure there is enough disk space on the machine.
2. Make sure you do not have any anti virus software or PCanywhere running, as this may create problems with InstallAnywhere installers.
3. There are also problems with InstallAnywhere installers and Dell OpenManager. If OpenManager has installed on the target system, be sure to disable it before installing OBM.
4. Hardware could cause errors as well, try set your [hardware acceleration display setting] to off. There are problems with certain versions of Java running along with certain video cards.
5. This may only be a Java problem.

Also, if you are transferring this file from one machine to another, please be sure the file size is valid and you are transferring the file in binary mode.

#### Java Testing

Please try running any of the Swing demos that came with the Java runtime in 1.4.X and see if it hangs on Windows. In order to fix this problem, some knowledge base on the Internet suggested updating DirectX to at least DirectX 8.1. Most machines got this problem had DirectX 7.0 installed. (You can use the "dxdiag" command to find out the directX version)

#### SUN recommended two workarounds for certain video card issues

1. The following will pass properties to the installer's Virtual Machine:  
In Advanced Designer – Project -> Config -> Additional Arguments



set that to "-Dsun.java2d.d3d=false -Dsun.java2d.noddraw=true" without the quotes.

2. Set the following lax property in your LaunchAnywhere for your application's JVM:  
lax.nl.java.option.additional=-Dsun.java2d.d3d=false -Dsun.java2d.noddraw=true

Add the same line to the uninstaller lax file, using a modify file action in your installer in post-install.

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### **3.8. The Installer doesn't seem to work. How can I manually install OBM on Windows?**

To manually install OBM on Windows, you'll need to copy and zipping the program directory (e.g. C:\Program Files\OBM) from another machine with OBM installed. Then do the followings on the machine you wish to manually install:

1. Create the directory C:\Program Files\OBM
2. Unzip the OBM program directory archive to C:\Program Files\OBM
3. Run C:\Program Files\OBM\bin\install.bat
4. Run C:\Program Files\OBM\bin\Install-Scheduler.bat

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### **3.9. The Installer doesn't seem to work. How can I manually install OBM on Mac?**

Try manually installing OBM on your Mac with the following instructions:

1. Download <http://download.ahsay.com/support/obm50-mac.zip>
2. Expand obm50-mac.zip into /Applications/OBM
3. Run "chmod -R 755 /Applications/OBM" using Terminal
4. Double-click the "Online Backup Manager" icon in /Applications/OBM folder

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### **3.10. Error occurred when Installing OBM on Novell.**

Some users would have problems when trying to install OBM on Novell Netware Client version. (The machine had met all the system requirements: Netware v5.1 and Netware Java v1.3.1). User could receive the following error message during installation.

```
Exception in thread "main"  
Java.lang.noclass def found error.obm  
Java: class obm exited with status 1
```

Check the following

Please check if the OBM\_HOME environment variable set in  
SYS:\OBM\bin\BackupManager.ncf is correct?

```
envset OBM_HOME=SYS:\OBM  
envset OBM_CLASSPATH=$OBM_HOME\bin;$OBM_HOME\bin\obm.jar;  
$OBM_HOME\bin\obm-lib.jar  
envset LIB_PATH=$OBM_HOME\bin  
java -mx384m -Djava.library.path=$LIB_PATH -cp $OBM_CLASSPATH obm SYS:\OBM
```

Please change the SYS:\OBM environment variable to your installation directory.

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### **3.11. Are there any command line tools for OBM?**

Yes, there are scripts in [OBM Program Home]\bin and they are described below:

#### Windows

- Decrypt.bat: decrypts the specified backup files
- install.bat: installs the OBM icon to the System Tray and registers the Online Backup Scheduler as a service
- Install-Scheduler.bat: registers the Online Backup Scheduler as a service
- RegisterVSS.bat: re-registers Microsoft's Volume Shadow Copy service DLLs
- Remove-Scheduler.bat: un-registers the Online Backup Scheduler service
- Restore.bat: restores the specified snapshot of the backup set to the specified location
- RunBackupSet.bat: runs the specified backup set
- RunOBM.bat: launches the Online Backup Manager user interface
- Run-Scheduler.bat: starts the Online Backup Scheduler service
- SeedLoad.bat: runs seed load for the specified backup set to the specified location
- Uninstall.bat: removes the OBM icon from the System Tray and un-registers the Online Backup Scheduler service

#### Linux

- BackupManager.sh: launches the Online Backup Manager user interface
- Configurator.sh: configures client parameters such as Backup Server address, username/password, encrypting key, etc.
- Decrypt.sh: decrypts the specified backup files
- Restore.sh: restores the specified snapshot of the backup set to the specified location
- RunBackupSet.sh: runs the specified backup set
- Scheduler.sh: starts the Online Backup Scheduler service
- SeedLoad.sh: runs seed load for the specified backup set to the specified location
- StopScheduler.sh: stops the Online Backup Scheduler service

\*You may have to set some variables in these scripts and more instructions are provided.

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### **3.12. How does OBM detect changes in files? Does it use the Archive bit? Some tape backup software resets the Archive bit. Would this affect OBM when backing up the same data?**

OBM compares timestamps of files on the server with the corresponding copies on client machine. Archive bit is not used as it does not detect relocated files. Therefore tape backup would not affect OBM.

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### **3.13. Does OBM copy the same set of files regularly?**

After the initial upload, subsequent backup jobs will only transfer the modified or new data to the Backup server. It depends on the nature of the data, but normally, less than 2% of all data is modified.

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### **3.14. Transfer Block Size is 128Kb by default. Is there a reason for this?**

Backup data is transferred in blocks (instead of file by file) to minimize connection negotiation roundtrips. It is not the TCP/IP block size. This setting is optimal for the backup operation.

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### **3.15. How can I backup a huge data set over the Internet?**

If you have a lot of data (e.g. 300GB) to backup to the backup server, it would take a considerable amount of time to perform the first full backup over the Internet. You can try the following method:

1. Use the Seed Loading Utility to backup your backup set to a local hard disk (instead of directly transfer to the backup server)
2. Send the backup data, using a removable hard disk, to your backup service provider.
3. The administrator can then load all your backup files from your removable hard disk into your backup account. This could save you days (even weeks) of performing your first full backup.

In addition, subsequent backups are incremental (only new or updated files will be uploaded to the server), the amount of data transfer should be relatively small.

Please refer to the User's Guide for details on the "Seed Loading Utility".

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### **3.16. What is the best way to restore a huge data set?**

You can copy the data of the particular backup set on OBS to a removable media, e.g. external hard disk, and ship it to your client. Your client can then use the "Decrypt Files Tool" in OBM to restore the backup data from the removable media to its original format.

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### **3.17. Does In-File Delta backup require a temporary working directory?**

OBM requires a temporary storage for the delta file before it gets sent to the server.

For example:

If you have a 10GB file that has already been backed up to the server and you have updated 10MB of this file. Then you need to have at least 10MB of free space in the temporary directory for the delta file.

\*Note: Certainly you do not need 10GB of free disk space.

Also, if you want to backup 5 x 10GB files in the same situation. You will only need 10MB of free space (not 5 x 10MB), because each delta file will be automatically deleted right after it has been backed up.

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### **3.18. What is the average compression ratio?**

All backup files are compressed and encrypted before uploading to the Backup Server, the average compression ratio for text-based file is around 4:1. However, no further compression can be made on files that are already in compressed format (e.g. JPG, ZIP). In general, you can assume a 2:1 compression ratio when you are backing up a file set with variety types.

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### **3.19. Can I change my encrypting key?**

The encrypting key cannot be changed once you setup your Backup Set. This is necessary for the integrity of the Backup Set, making sure that backup data is only encrypted by one key. Otherwise, you will have problems remember two encrypting keys when you want to restore your files in the future.

You need to recreate your Backup Set if you really want to change your encrypting key.

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### 3.20. If the “Use Login Password as Encrypting Key” option was selected when creating the backup set. Why I cannot restore the backup data with my most current login password?

By selecting the “User Login Password as Encrypting Key” option when creating a backup set, OBM will set your login password as the encrypting key for the backup set. Once set, even if you change your login password afterward, the encrypting key will remain as your original password. In other words, if you have changed your login password, you still need to use the original password to decrypt and restore the backup set.

Currently, if the encrypting key is forgotten or lost, the backup set can never be restored. It is not possible to restore without the key.

You can find out the encrypting key from the corresponding OBM, please refer to <http://download.ahsay.com/support/screenshots/EncryptingKey.jpg>

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### 3.21. What kind of encryption used by OBM?

There are two encryptions being performed by OBM:

1. Encryption of backup data - This is being done by 128-bit symmetric key encryption (AES, TripleDES, TwoFish). 256-bit is not available because it requires too much CPU and it is not really required. (128-bit is currently being used by most banks)
2. Encryption of backup traffic - This is being done by 1024 bit RSA public key encryption. The strength of the encryption depends on the key size you use when you generate your CSR before submitting to your CA. 1024 bit is what is being used by most CAs.

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### 3.22. When select the backup option “local hard drive” to backup to external hard drive, it fails in the middle of the process, why?

Please check if the external hard drive is in FAT32 volume format. And also check whether there is any folder containing more than 32000 files and there is no file bigger than 4GB within your backup set. It is a FAT32 limitation, you may try to convert the FAT32 volume to NTFS.

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### 3.23. Scheduled backup jobs are not running on my Windows machine, why?

Please try the followings:

1. Check if [Control Panel] -> [Administrative Tools] -> [Services] -> [Online Backup Scheduler] is available and started
2. Check if C:\Program Files\OBM\home.txt contains the home directory for your backup account (e.g. C:\Documents and Settings\Administrator\.obm)
3. Check if C:\Program Files\OBM\jvm\bin\SchedulerOBM.exe exists
4. Check if C:\Program Files\OBM\log\Scheduler\info.log contains the startup loading entry, e.g.
  - i. [2005/12/12 12:42:44] OS Name=Windows XP
  - ii. [2005/12/12 12:42:44] OS Version=5.1
  - iii. [2005/12/12 12:42:44] Scheduler Version=5.0.1.3e
  - iv. [2005/12/12 12:42:44] Java Vendor=Sun Microsystems Inc. Version=1.4.2\_10
  - v. [2005/12/12 12:42:44] [info] Starting Scheduler, User: 'backup-account', Home: 'C:\Documents and Settings\Administrator\.obm'



5. Check if C:\Documents and Settings\Administrator\.obm\log\Scheduler\debug.log contains the debugging information for your scheduler

If your system settings is not the same as the above steps, please download a new installer (obm-win.exe) from our website or the customization portal and try again.

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### **3.24. I am having problems with my scheduled backup, why?**

If you are backing up files from a network drive, please check if you have included the valid "Network Resources Authentication" information for the backup set. This is required for scheduled backups that access any network resources.

You can refer to the following screenshot:

[http://download.ahsay.com/support/screenshots/Network\\_Resources\\_Authentication.JPG](http://download.ahsay.com/support/screenshots/Network_Resources_Authentication.JPG)

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### **3.25. I cannot get proxy authentication to work with OBM, why?**

If you are using port 80, please check whether your proxy server accepts "HTTP CONNECT" calls on port 80. You may also want to try other ports like 443 to see if your proxy server accepts that.

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### **3.26. Can I backup an entire Operating System?**

Currently, it is not possible to do hard disk image backup with OBM. However, you can still backup/restore the operating system by doing the followings:

To backup all files including the operating system, please do this:

1. Add all files to your backup source
2. Add a SystemState backup type to your backup account (Windows only)

To restore all files including the operating system, please do this:

1. Re-install the operating system and applications
2. Restore the SystemState backup to your machine (Windows only)  
- To restore the System State data on a domain controller, you must first start your computer in a special startup option called "Directory Services Restore Mode". To access "Directory Services Restore Mode", press F8 during startup and select it from the list of startup options.
3. Restore all files to your machine

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### **3.27. When setting up a Microsoft SQL Backup Set, I cannot list the available SQL servers, what can I do?**

You can try running "osql -L" in a command prompt, you should see the following:

```
Servers:  
(local)  
SQLSERVER1\INSTANCE1  
SQLSERVER2\INSTANCE2
```

If you have a firewall installed, please disable it. UDP Broadcast must be allowed.

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### 3.28. Why are the Microsoft SQL Server databases missing from the backup source list?

If you have firewall installed on your network, please make sure UDP port 1434 is allowed on the SQL Server.

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### 3.29. How to set the recovery model of a MS SQL database to FULL?

You can change the recovery model by running the following commands, run it along with each of the database that you want to run transaction log backup.

```
C:\> osql -E -S SQLSERVER1\INSTANCE1 -Q "ALTER DATABASE xxx SET RECOVERY FULL"
```

Where

SQLSERVER1\INSTANCE1 = the SQL Server and the corresponding instance

xxx = the name of the database

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### 3.30. Windows network map drive connections are not stable, why?

You may want to try editing a few Windows Parameters.

#### SMB Size

When running applications that copy or move a large amount of data to a remote server, the speed of such action is determined by network speed and by the SMB (a protocol related to Windows map drive) size.

NT/2000 negotiates the SMB size and will generally set this to 4K blocks for applications that are moving or copying data to a remote server. By increasing this block size, you will allow the server to complete its file copies faster. This will increase the performance of the application making the copy/move calls.

```
HKEY_LOCAL_MACHINE\System\Current Control Set\Services\LanmanServer\Parameters
```

```
"SizReqBuf" = REG_DWORD
```

```
Set Value To: 16000 = HEXDEC
```

```
Ref: http://support.microsoft.com/default.aspx?scid=kb;en-us;320829
```

#### Map Drive Auto Disconnect Settings

```
Reference: http://support.microsoft.com/kb/138365/EN-US/
```

```
http://support.microsoft.com/default.aspx?scid=kb;en-us;297684
```

```
HKEY_LOCAL_MACHINE\System\Current Control Set\Services\LanmanServer\Parameters
```

```
Autodisconnect to: ffffffff
```

#### Creating BAT file for better performance

If you are still having problems, you may want setup a BAT file and scheduled this file to run every 10 minutes, please setup the BAT file as follow:

BAT file settings:

-----

```
ping mapdrv
ping 192.168.1.15
net config server /autodisconnect: -1
net use /persistent: yes
net use "\\mapdrv\DATA STORAGE1"
net use "\\192.168.1.15\DATA
net use d: \\192.168.1.15\DATA STORAGE1
net use e: "\\mapdrv\DATA STORAGE1"
```



```
dir d:\  
dir e:\
```

-----

- mapdrv = your NAS device network name
- 192.168.1.15 = mapdrv

In addition, create a host file on the server hosting the program, have the following entry in it:

- mapdrv = 192.168.1.15

And if you are on a 2003 server, refer to the following:

Reference: <http://support.microsoft.com/default.aspx?scid=kb;en-us:890553>

For Windows 2000, you may want to install the following Hotfix:

Windows2000-KB903237-x86-ENU

Reference: <http://support.microsoft.com/default.aspx?scid=kb;en-us:903237>

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### 3.31. There is an error when backing up files on a remote NetWare server, what can I do?

If you want to backup \\SERVER\SHARE that is located on a NetWare server and you are getting "Network drive is not accessible" error message. Please try adding the following command as a [Pre-backup command]

```
net use \\SERVER\SHARE [PASSWORD] /USER:[DOMAIN | MACHINE_NAME]\[USERNAME]
```

This will authenticate the current process with the NetWare server and therefore allow your backup to run correctly.

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### 3.32. What are the advantages and disadvantages of backing up multiple computers using a single backup account?

#### Advantages

- You require less backup accounts
- You can use one username and password to configure the backup setting for all Backup Sets

#### Disadvantages

- You must use different backup sets for different computers
- Whenever a new backup set is created under the backup account, you need to go back to all computers using the same backup account to uncheck the "Run scheduled backup on this computer" option for the new backup set (Since backup setting is saved on server and new backup set is default to run on all computers, i.e. with the option checked).
- Improper configuration could easily cause problems, which are difficult to debug.

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### 3.33. How to find out which version of the client software the user is using?

You can check which version a client is running by checking the access log.

The default location of the access log file is:

- Windows: "C:\Program Files\Offsite Backup Server\logs\access\_log\*.txt"
- Linux: "/usr/local/obs/logs/access\_log\*.txt"
- Mac OS X: "/Applications/OBS/localhost/logs/access\_log\*.txt"

The '/obs/obcX.X/file/????File.obc?u=USER\_NAME&..ver=Y.Y' entries contain this information, where:



- USER\_NAME = Login Name of a backup account
- X.X = major version of the client software
- Y.Y = minor version of the client software

And starting from OBS v5.0.1.5, the version of OBM can be check from the OBS Management Console under the [Manager User] -> [Report] -> [Detailed Report] page of the corresponding user.

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### 3.34. Does the OBM upgrade the installation of Java on a client machine, or does it install a separate copy for its own use?

OBM uses its own copy of Java and leaves the system Java VM intact.

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### 3.35. After upgrading OBS, do I have to upgrade all the OBM as well? And do I need to transform/migrate their current data?

OBS works with previous versions of OBM (However not the other way round). You only need to upgrade the existing client software if you want to take advantage of the new features. And you do not need to transfer client backup data again after the OBS upgrade.

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### 3.36. Is it possible to do incremental or differential backups with MySQL?

MySQL backup is done with SQL Dump file, and it generates a single file which is then uploaded. These backup files usually very large size and it takes time to backup to the server. At this moment, it is not possible to do incremental dump with mysqldump. But our In-File Delta feature shall ensure that, instead of the entire backup file, only the changed data blocks within the dump file are uploaded to the Backup Server.

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### 3.37. How does the “Remove retention files for overlap policy” under Advanced Retention Policy work?

In general, daily snapshots followed by a weekly snapshot or a monthly snapshot, etc. will be removed; weekly snapshots followed by a monthly snapshot or a quarterly snapshot, etc. will be removed; and so on.

This is illustrated by the following example.

Assume today is 17Jan06, and the Advanced Retention Policy is as follows:

- Daily: retain for 7 days
- Weekly: retain for 4 weeks (the job will be performed on Saturday)
- Monthly: retain for 3 months (the job will be performed on 1st of each month)

If “Remove retention files for overlap policy” is NOT enabled:

Then a total of 14 snapshots (7+4+3) will be kept on the server accordingly, i.e.:

(Daily): 10Jan06, 11Jan06, 12Jan06, 13Jan06, 14Jan06, 15Jan06, 16Jan06

(Weekly): 24Dec05, 31Dec05, 7Jan06, 14Jan06

(Monthly): 1Nov05, 1Dec05, 1Jan06

If “Remove retention files for overlap policy” is enabled:

Then only the following snapshots are kept: 1Nov05, 1Dec05, 1Jan06, 14Jan06, 15Jan06, 16Jan06.



Specifically, the weekly policy overrides the daily policy so 10Jan06, 11Jan06, 12Jan06 and 13Jan06 will be removed. The monthly policy overrides the weekly policy, and 24Dec05, 31Dec05 and 7Jan06 will be removed as well.

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### 3.38. What is incremental backup and how does In-File Delta work?

In an incremental backup, only modified files will be uploaded to the Backup Server.

On the other hand, In-File Delta is applicable to the physical files to be uploaded to the Backup Server, does not matter whether it is a MS SQL database file, MS Exchange transaction log file or any normal file in a FileBackupSet. Specifically, only the changed blocks in comparison to the original file on the Backup Server (delta file) will be uploaded.

For each modified file, OBM would determine whether the entire file or only delta file should be uploaded. If the entire file is to be uploaded, the old version of the file will be moved to the Retention area. Else if only the delta file is to be uploaded, the previous delta files will be moved to the Retention area and the Data area should contain the original full backup file, checksum file and the latest delta file of this file.

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### 3.39. How does the “Auto” block size work under In-file Delta settings?

If the block size is set to “Auto”, the effective block size (Started from OBM v5.0.1.7) will be chosen from the following table based on the file size of the updated file:

File Size	Delta Block Size
0 - 500M	4k
500M - 2G	8k
2G - 8G	16k
8G - 15G	32k
> 15G	64k

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### 3.40. What happens when we do In-File Delta backup on a directory?

When you do backup, the Online Backup software will do the followings:

1. Check if any files are added, updated or deleted (the calculation of these files are based on files having the same filename).
2. New files will be uploaded to the server in whole.
3. Deleted files will be removed from Data area and placed into the Retention area on the Backup server.
4. Updated files will be processed by the In-File delta option (i.e. only changed data blocks within the files will be uploaded to the Backup Server)

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### 3.41. Does OBM have to stop the application when doing online backups?

OBM can backup application data while the application is still running. Particularly, we have special agents for MS Exchange Server, MS SQL Server, Oracle, Lotus Notes and MySQL, which allows these applications to be backed up while they are online. With the Volume Shadow Copy feature started from OBM v5.0, we are able to backup other types of applications while they are online.

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### 3.42. What are Off-line backup, Logout backup reminder and Local backup features?

Off-line Backup is basically designed for notebook users who are off-line most of the time, and cannot rely on backup schedule to backup regularly. The backup interval allows notebook users to specify the interval that they would like their data to backup. If this interval has elapsed, backup will run automatically once this machine is online.

Logout Backup Reminder asks user if they would like to backup if they logout of the computer or shutdown their computer.

Local Backup allows an extra copy of backup file to be kept on local hard disk when backup is running.

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### 3.43. Why is my OBM running backup once every hour?

You might have "Off-line backup" enabled for every hour. Please do the following to disable that:

1. Logon to OBM
2. Select the backup set that you want to disable the Off-line backup from the left panel
3. Select the [Extra Backup] node under the backup set node on the left panel
4. Uncheck the [Enable off-line backup] checkbox under the "Off-line Backup" section
5. If you want to do this to all backup sets, please repeat the previous step for each backup set

Press the [Save Setting] button from the toolbar

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### 3.44. How do I disable "logout backup reminder"?

To disable the "System Logout Backup Reminder", please do the followings:

1. Logon to OBM
2. Select the backup set that you want to disable the Logout reminder from the left panel
3. Select the [Extra Backup] node under the backup set node on the left panel
4. Uncheck the [Enable System Logout Backup Reminder] checkbox under the "System Logout Backup Reminder (Windows)" section
5. If you want to do this to all backup sets, please repeat the previous step for each backup set

Press the [Save Setting] button from the toolbar

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### 3.45. How do I upgrade OBM from V4.5 on Linux?

Please do the followings for upgrade:

1. Shutdown backup scheduler by running "touch \$OBM\_HOME/ipc/Scheduler/stop"
2. Make this directory ~/.obm
3. Move old \$OBM\_HOME/log and \$OBM\_HOME/config to ~/.obm
4. Rename \$OBM\_HOME to \$OBM\_HOME.bak
5. Install new OBM to \$OBM\_HOME and expanding all files into \$OBM\_HOME
6. Run \$OBM\_HOME/bin/BackupManager.sh (or \$OBM\_HOME/bin/Configurator.sh if in command line mode) to configure your backup set. All your old setting should still be there.
7. Run \$OBM\_HOME/bin/Scheduler.sh to startup backup scheduler (you must have run \$OBM\_HOME/bin/BackupManager.sh or \$OBM\_HOME/bin/Configurator.sh once, before starting up the scheduler)



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### 3.46. How do I change the .obm path for Novell?

Please take a look at SYS:\OBM\home.txt. It contains the path to the .obm directory. You can do the followings to make the changes:

1. Stop the scheduler
2. Change the entry in SYS:\OBM\home.txt to another directory
3. Copy the .obm directory from existing location to new location
4. Startup the scheduler again
5. Also, open "SYS:\OBM\bin\BackupManager.ncf" and append the updated .obm path to the end of the whole command line.

#### Example

```
java -mx384m -Djava.library.path=$LIB_PATH -cp $OBM_CLASSPATH obm  
SYS:\OBM C:\[new location]\.obm
```

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### 3.47. The MS SQL or MS Exchange database backup job stores 2 copies of the spooled database file in the "temporary directory" (tagged with different datetimes). This has taken up extra disk space, is this necessary?

If you have interrupted any of the backup jobs, the file tagged with the datetime of the corresponding backup job will be renamed to its original filename just before it is uploaded. This is necessary as we need to ensure that the snapshot of different dates would not overwrite each other.

If a backup job is still running, just let it runs to completion. If backup has been stopped already, just remove all files tagged with the corresponding datetime in the "temporary directory" and try to perform a full database backup again.

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### 3.48. What do I have to do in order to backup open files?

You need to be on OBM v5.0 or above, as well as support from the underlying OS. Windows XP and 2003, by default, come with Volume Shadow Copy, which allows backup open file. For older platforms, e.g. Windows 9x/ME/NT/2000 or NetWare, we would recommend adding a third party open file manager option (e.g. St. Bernard Open File Manager - <http://www.stbernard.com/>) which might cost around US\$100 for each workstation and US\$300 for each server if open file backup is required.

\*Open file option is not required on Linux/Unix/Mac OS X because no files are held exclusively open by applications.

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### 3.49. How does Volume Shadow Copy work?

Please refer to:

<http://technet2.microsoft.com/WindowsServer/en/Library/2b0d2457-b7d8-42c3-b6c9-59c145b7765f1033.mspx>

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### 3.50. In Windows, when OBM is creating Shadow Copy Set, it gets the "[ERROR] E\_UNEXPECTED" error, what can I do?

This is a Microsoft Volume Shadow Copy issue. Microsoft's recommendation is to try re-registering the Volume Shadow Copy Service. If you are on Win XP Pro, you can simply run the batch file available in C:\Program Files\OBM\bin\RegisterVSS.bat or

<http://download.ahsay.com/support/RegisterVSS.bat>.

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### 3.51. How to backup Oracle 7.3.4 on NetWare?

To backup Oracle 7.3.4 on NetWare 5.1, it is not possible to use the Oracle agent, you need to do the followings:

1. Backup all Oracle 7.3.4 datafiles, control files, and pfile.
2. Use "exp" (export utility) to dump Oracle database to a dump file (make this a pre-backup command)
3. Use OBM to backup this file

When you need to restore the database, just restore all datafiles, control files, pfile to its original location and use "imp" (import utility) to put the data back into Oracle database.

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### 3.52. How do I backup NTFS permission?

For version 5.1 or later, NTFS permission is also backed up during the backup operation. For other versions, please do the followings:

1. Download and install  
<http://www.microsoft.com/downloads/details.aspx?FamilyID=E8BA3E56-D8FE-4A91-93CF-ED6985E3927B&displaylang=en>
2. Add a pre-backup command to dump the NTFS permissions of all files you want to backup into a dump file. For example, if you want to have all files under C:\ drive to a C:\NTFS-Permission.txt, please add:

```
"C:\Program Files\Windows Resource Kits\Tools\subinacl" /noverbose  
/outputlog=C:\NTFS-Permission.txt /subdirectories C:\*.* /display
```

to your pre-backup command.

3. Add "C:\NTFS-Permission.txt" to the [Backup Source] of this backup set

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### 3.53. How do I restore NTFS permission?

For version 5.1 or later, the backed up NTFS permission will be restored automatically. For other versions, assuming the NTFS Permission is being stored in "C:\NTFS-Permission.txt", please do the followings:

1. Restore "C:\NTFS-Permission.txt" from the backup server using OBM
2. Apply all NTFS permissions backup to all your backup files by running:

```
"C:\Program Files\Windows Resource Kits\Tools\subinacl" /playfile  
C:\NTFS-Permission.txt
```

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### 3.54. How do I backup file permission in Linux?

For version 5.1 or later, Linux file permission is also backed up during the backup operation. For other versions, please do the followings:



1. Add a pre-backup command to dump the Access Control Lists of all files you want to backup into a dump file. For example, if you want to have all files under /home to a /ACL.txt, please add:

```
cd /; getfacl -R home > ACL.txt
```

to your pre-backup command.

2. Add "/ACL.txt" to the [Backup Source] of this backup set

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### 3.55. How do I restore file permission in Linux?

For version 5.1 or later, the backed up Linux file permission will be restored automatically. For other versions, assuming the Access Control Lists is being stored in "/ACL.txt", please do the followings:

1. Restore "/ACL.txt" from the backup server using OBM
2. Apply all Access Control Lists backup to all your backup files by running

```
cd /; setfacl --restore=ACL.txt
```

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### 3.56. How do I remove OBM completely from my Windows machine?

If you want to completely remove OBM from Windows, after uninstalling the software from [Control Panel] -> [Add or Remove Programs], please do the followings:

- Ensure that the OBM installation directory is deleted (sometimes not removed when Windows somehow holds some of the files)
- Remove the C:\Documents and Settings\administrator\.obm\ folder (intentionally left undeleted, as important information of the user and backup sets, such as the encryption keys, are stored here)

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### 3.57. Does OBM work with dial-up connections?

It makes no difference to OBM if the connection is always on or dial-up.

If you want Windows to connect to the ISP automatically when a backup starts, you can go to [Control Panel] -> [Internet Options] -> [Connections] and select "Always dial my default connection".

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### 3.58. The OBM crashes when opening [Backup Source] of a Lotus Domino/Notes backup set, what can I do?

Check to see if you can find a hs\_err\_pid?????.log file under the [OBM Home], and if it contains the error "Unable to complete restart processing, err = Recovery Manager: Error from Logging Subsystem", please do the followings:

1. Go to [Configuration], select [All Server Documents] and choose your corresponding server.
2. [Disable] Transactional logging at Basics
3. Go to [Control Panel] -> [Administrative Tools] -> [Services] and restart [Lotus Domain Server] Service
4. Go to [Configuration] -> select [All Server Documents] and enable Transaction logging
5. Make sure your logging style is "Archived"
6. Go to [Services] and restart Lotus Domain Server Service again



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### **3.59. How do I restore a machine from my SystemState backup?**

To recovery a machine from scratch, you have to do the followings:

1. Re-install the operating system
2. Re-install all applications installed (You can do both of these easily by backing up the system yearly using Norton Ghost)
3. Restore the SystemState backup onto the recovered machine (This will update the recovered system with the latest configuration and settings)
4. Restore all data files onto the recovered system.

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## 4. Offsite Backup Server (OBS)

### 4.1. What is the recommended hardware and Operating System (Windows or Linux) for OBS?

As a rule of thumb, an active backup session takes roughly 1MB of memory. Therefore, a 512MB size of RAM can support around 500 active backup sessions. The required storage space depends on the expected amount of backup data from your users, and it is possible to make use of external storage server. Most processing is done on the client side, as a result CPU utilization on the OBS machine shouldn't be intensive. For your reference, in most conditions, a P4 2.8GHz CPU with 1GB of RAM and lots of disk space (2-4TB of disk space) can support up to 500 user.

OBS runs equally well on Windows and Linux platforms. You may want to go for a platform that your system administrators are comfortable with. From the operating system point of view, Linux might be more stable and require less maintenance.

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### 4.2. What is the recommended bandwidth?

It really depends on the expected amount of data transfer from your users and the performance criteria if any, of course, as well as your budget. For example, if your users expected a transfer rate of up to 200MB per hour, and you project that 10 of such backups will be running in parallel, then your OBS should have an uplink of around 5Mbps in order to support such requirements.

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### 4.3. Is there a limit on the number of clients that an OBS can support? How many clients would you recommend per OBS?

At the application level, there isn't really a limit on the number of clients that an OBS can support. However, the number of active clients could be limited by the hardware. Specifically, each active backup session takes around 1MB of memory, so the number of active clients is limited by the RAM available. Also, the bandwidth availability could also place a limit on the number of active clients, as a rule of thumb, you can assume a 3:1 compression ratio when backing up files and a throughput of 950MB per hour using an ADSL with 256kbps uplink.

Anyhow, from system administration point of view, we would recommend having no more than 2000 users on a single server.

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### 4.4. What is the limit on file size that OBS can backup?

There is no limitation on the file size at the application level. Instead this limitation is imposed by the underlying operating system. With modern operating system, you should have no problem backing up files at a few TB in size (e.g. NTFS has a file size limit of 16TB).

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### 4.5. How many users/licenses can I have on one server?

There is no limit on the maximum number of users. But from system administration point of view, we would recommend having no more than 2000 users on a single server.

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#### **4.6. The Installer doesn't seem to be working. How can I manually install OBS on Windows?**

You can manually install the OBS by downloading the upgrade pack (obs-win.zip) and do the followings:

1. Create the directory C:\Program Files\Offsite Backup Server
2. Unzip obs-win.zip to C:\Program Files\Offsite Backup Server
3. Run C:\Program Files\Offsite Backup Server\bin\install-service.bat
4. Open your browser and point to http://localhost/ (if you cannot see the welcome page, please check if port 80 and 443 are available. You can look at the log files available in C:\Program Files\Offsite Backup Server\logs for more information)

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#### **4.7. How do I install OBS on FreeBSD?**

You can either run OBS on a Linux version of Sun Java JDK (performance might not be optimized) or on a FreeBSD native Java SDK.

For the Linux version of Sun Java JDK option you need to:

1. Install Linux binary compatible port to the FreeBSD machine
2. Install the Linux version of Sun Java 1.4.2 or above JDK onto the FreeBSD machine
3. Create a symbolic link from \$OBS\_HOME/jvm to \$JAVA\_HOME (installed in previous step)
4. Run \$OBS\_HOME/bin/startup.sh to startup OBS

For the FreeBSD native Java SDK option you need to:

1. Install Linux binary compatible port to the FreeBSD machine
2. Install the Linux version of Sun Java 1.4.2 or above JDK onto the FreeBSD machine
3. Compile the FreeBSD native Java 1.4.2 SDK using the JDK compiler installed in the previous step
4. Install the FreeBSD native Java 1.4.2 SDK onto the FreeBSD machine
5. Create a symbolic link from \$OBS\_HOME/jvm to \$JAVA\_HOME (installed in previous step)
6. Run \$OBS\_HOME/bin/startup.sh to startup OBS

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#### **4.8. How to install OBS if ports 80 and 443 are already taken by other applications?**

OBS requires port 80 and 443 by default. You will have problems if these ports are already taken by other applications.

You have a few options:

1. Free up port 80 and 443 for OBS
2. Configure OBS to run on other ports (refer to our Administrator's Guide)
3. Add one more IP to your server with the corresponding port 80 and 443 dedicated for OBS

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#### **4.9. The OBS doesn't seem to work, is this related to the Microsoft Internet Information Server (IIS) running on the same server?**

The best way to run OBS and IIS on the same machine is to have IIS and OBS listening on port 80 and 443 of different IP addresses available on the same machine (please note that you can bind more than 1 IP address to the same network card).



#### Assumptions

1. The machine has 2 IP addresses, 192.168.1.1 and 192.168.1.2
2. You want to run IIS on port 80 and 443 of 192.168.1.1
3. You want to run OBS on port 80 and 443 of 192.168.1.2

#### Instructions

1. Configure IIS to listen to 192.168.1.1 address (please look at this article, <http://support.microsoft.com/kb/813368/en-us>)
  - i. Open [Start] -> [Administrative Tools] -> [Internet Information Service (IIS) Manager]
  - ii. Right click the [(Server Name)] -> [Web Sites] -> [Administration] node and select [Properties]
  - iii. Open the [Web Site] tab and select [192.168.1.1] from the drop down list
2. To configure OBS to listen to port 80 and 443 of 192.168.1.2, please refer to section 15.1 and 15.2 in our Administrator's Guide. It is available at <http://www.ahsay.com/en/doc/aobs-admin-guide.pdf>.
3. Stop the [World Wide Web Publishing Service] service from [Start] -> [Administrative Tools] -> [Services]
4. Stop the [Offsite Backup Server] service from [Start] -> [Administrative Tools] -> [Services]
5. Start the [World Wide Web Publishing Service] service from [Start] -> [Administrative Tools] -> [Services]
6. Start the [Offsite Backup Server] service from [Start] -> [Administrative Tools] -> [Services]

Try browsing <http://192.168.1.1/> and <http://192.168.1.2/> to see if you can view two different welcome pages from IIS and OBS respectively.

You can also use the "netstat -an" command to check the "LISTEN" status of different TCP/IP entries to see if there are ports conflicts.

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### **4.10. Is the 128-bit SSL secure enough to communication between OBM and OBS?**

Under most situations, 128-bit is already more than enough for commercial use (Please see <http://www.ahsay.com/en/product/aobs-security.htm>). Also, encryption strength doesn't rely solely on the number of bits used in the encryption. The choice of a random source and random salt are just as important. In addition, the backup data is being encrypted and compressed before sending over from OBM to OBS, which surely enhances the security.

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### **4.11. How is the data privacy being maintained on OBS?**

All data are encrypted with user's defined encrypting key before they are sent to the online backup server. The encrypting key is not stored on OBS. Without the encrypting key, the backup files are useless to anyone. The backup user is the only person who can decrypt the backup files to reveal the original content.

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### **4.12. How do I install a SSL certificate?**

To replace the non-secure dummy SSL certificate with a secure SSL certificate on OBS, please do the followings:

1. Identify the location of the keystore file. You need to store your SSL certificate in a keystore file. The default location of the keystore file is:



```
%INSTALL_DIR%\conf\keystore.
```

2. Delete dummy certificate from keystore. You can delete the dummy SSL certificate from the keystore by running:

```
%INSTALL_DIR%\java\bin\keytool -delete -alias tomcat -keystore  
%INSTALL_DIR%\conf\keystore
```

3. You will be prompted for the password for the keystore. The default password is "changeit".
4. Generate RSA key pair A SSL certificate contains a RSA key pair. You can generate a RSA key pair by running:

```
%INSTALL_DIR%\java\bin\keytool -genkey -alias tomcat -keyalg RSA  
-keysize 1024 -keystore  
%INSTALL_DIR%\conf\keystore
```

5. Create a local Certificate Signing Request (CSR). You can create a CSR for your SSL certificate by running:

```
%INSTALL_DIR%\java\bin\keytool -certreq -keyalg RSA -alias tomcat  
-file ssl.csr -keystore %INSTALL_DIR%\conf\keystore
```

6. Submit the CSR file to a trusted CA
7. Import signed SSL certificate from CA to the keystore :

```
%INSTALL_DIR%\java\bin\keytool -import -alias tomcat -trustcacerts  
-file ssl.crt -keystore %INSTALL_DIR%\conf\keystore
```

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#### 4.13. I am getting a "Failed to establish chain from reply" error when trying to import a SSL certificate, why?

If you are getting the "keytool error: java.lang.Exception: Failed to establish chain from reply" message when importing the SSL certificate file from CA. Please try double-clicking the ssl.crt file on Windows, and view all intermediate certificates being used to sign your certificate. Then import all intermediate certificates (downloadable from your CA) into your keystore file before importing your SSL certificate.

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#### 4.14. Can we customize the OBS?

Of course it is possible. You can refer to our Administrator's Guide the details.

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#### 4.15. Can we customize the contents of the OBS Management Console as well as those of the email reports and reminders?

You can use the properties.xls, which comes with OBS, to generate all the properties files that define content on OBS. Please follow the instructions below:

1. Open [OBS Home]\properties.xls
2. Go to worksheet [obs-jsp]
3. Make the desirable changes.
4. Press the [Generate] button on the top left hand corner inside the worksheet (all properties files will be generated for you under obs-jsp directory)
5. Copy all generated properties files back to the [OBS Install directory]\webapps\obs\WEB-INF\classes directory
6. Restart the backup service



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#### 4.16. Can we customize the layout of the email sent to customers?

Unfortunately, this is not possible right now.

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#### 4.17. What is the purpose of the Retention area, can I disable it?

Deleted and modified files in the current backup are moved to the Retention area in OBS, they will stay there as defined by the retention policy of the backup set. You can restore those files that are still in the Retention area. The main purpose of the Retention area is to facilitate retrieval of historical snapshots of a backup set.

Note that the data in the Retention area still counts towards your client's quota and it stay there as defined by your client's retention policy.

Unfortunately, the Retention area cannot be disabled, at its minimum, your client can choose to keep deleted files for 1 backup job.

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#### 4.18. Is there an example on how the Retention area works?

Suppose you have 10GB of initial data which grows by 200MB (0.2GB) per day, and on each day 100MB (0.1GB) of the data is modified or deleted from the client machine. Assume he takes the default retention policy setting, i.e. 7 days. Then,

Day 0: Data = 10G; Retention = 0; Total quota used = 10G;  
Day 1: Data = 10.2G; Retention = 0.1G; Total quota used = 10.3G;  
Day 2: Data = 10.4G; Retention = 0.2G; Total quota used = 10.6G;  
...  
Day 7: Data = 11.4G; Retention = 0.7G; Total quota used = 12.1G;  
Day 8: Data = 11.6G; Retention = 0.7G; Total quota used = 12.3G;  
          (The 0.1G from Day 1 is removed from the Retention area)  
Day 9: Data = 11.8G; Retention = 0.7G; Total quota used = 12.5G;  
          (The 0.1G from Day 2 is removed from the Retention area)  
...and so on

Therefore if data is not being modified or deleted frequently, then the size of Retention area should be minimal.

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#### 4.19. Is it possible to keep 5 years backup, if so, do I need to set the retention policy to 1825 days?

Not necessarily, it depends on your backup requirements. If you need to be able to restore any of the snapshots for those 1825 days, then yes, you need to set a simple 1825-day retention policy.

On the other hand, let say if for each of the 5 years, he only needs the snapshots on 31 December. Then you can make use of the "Advanced Retention Policy" feature, where you have options to keep yearly, quarterly, monthly, weekly or daily snapshots. With this flexibility, you should be able to configure your desired backup policy.

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#### 4.20. Unmodified files are not uploaded to OBS regularly. Is this acceptable?

For example:



If files were uploaded 90 days ago and the retention area was 90 days, does this mean they get removed with the retention area cleanup and are scheduled for backup again the next day?

Only files that have been deleted (or have been updated by a newer version) are stored in the Retention Area. All other files stay in the Data Area as the current copy and they are not affected by the retention policy. In other words, unmodified files will stay on the OBS forever.

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#### **4.21. Can I increase the quota of Trial accounts on my OBS?**

Trial accounts can only have a maximum of 500MB and they don't count towards your paid licenses. It is not possible to have trial accounts with more than 500MB quota.

If you want to have a larger quota for potential clients to evaluate the software, you will have to create Paid accounts for them.

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#### **4.22. How can I stop a running backup job from OBS?**

Unfortunately, OBS is passive and there is no way for you to stop a running backup job from the server side. You have to do it on the client side.

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#### **4.23. OBS is not functioning properly, backup jobs stop in the middle of the process, why?**

Please check if you have any antivirus or personal firewall software installed. If so, please disable it from scanning the online-backup-related data and traffic.

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#### **4.24. After a seed copy, the disk space used is not reflected in the user statistics on OBS. Do I need to manually update the OBS statistics?**

Storage statistics will be rebuilt automatically every week. The scheduled time is specified under [Manage System] -> [Routine Job] page, you can rebuild user storage statistics immediately by changing it to the current time.

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#### **4.25. Is there a tool to verify integrity of the backup data on OBS?**

The Online Backup software already has a built-in checksum mechanism. When a file is uploaded, the Backup server would verify the checksum before marking it as a successfully transferred file.

In addition, there is a weekly "Rebuild User Storage" batch job, configurable under [Manage System] -> [Routine Job] -> [System Job] section in the OBS Management Console. This routine job will only run when you selected the [Enable] option. This is to ensure that all backup files have validated and no errors occurred when users needed to restore.

The settings are as follows:

- Enable File Validation
  - Verify "Filesize & Checksum" - Verify the backup file size with its expected values, and the checksum of the backup file with the value saved during upload
  - Verify "Filesize Only" – Only verify the backup file size with its expected values
- \*Note that if the [Enable File Validation] is uncheck, it would not validate if the actual file size has changed.
- Corrupted File Action
  - "Log information only" - Just log it in system log and do nothing



- "Move to retention dir" - Back it up in [User Homes]\[User Login]\errFiles and remove this file from the Data area

Note that all these actions will be logged in [Manage Log] -> [System Log].

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## 4.26. How do I backup an OBS?

You can use Replication Server to backup the data in an OBS. This offers a close-to-real-time backup of the OBS.

Alternatively, you can manually backup the following directories:

- The program directory (default directory is shown below):
  - Windows: "C:\Program Files\Offsite Backup Server"
  - Linux: "/usr/local/obs"
  - Mac OS X: "/Applications/Offsite Backup Server" and "/System/Library/StartupItems"

\*These directories contain relatively static data. You can backup this directory easily using any CD/DVD burning software available in the market.

- The [System Home] directory in OBS (this can be found in the [Manage System] -> [System Home] entry after you have logged onto the administrative interface of OBS)
- All [User Homes] directories in OBS (this can be found in the [Manage System] -> [User Homes] entries after you have logged onto the administrative interface of OBS)

\* Both [System Home] and [User Homes] directories contain more dynamic data. To ensure that you have a consistent image of all files within this directory, please shutdown the backup service (or at least make sure backup activities are not very active) when backing up your OBS.

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## 4.27. How do I rebuild OBS from a backup?

To rebuild an OBS from backup, please do this:

- Restore the program directory (the default location is shown below)
  - Windows: "C:\Program Files\Offsite Backup Server"
  - Linux: "/usr/local/obs"
  - Mac OS X: "/Applications/Offsite Backup Server" and "/System/Library/StartupItems"
- Restore the [System Home] directory (back to its original directory if possible)
- Restore all [User Homes] directories (back to their original directories if possible)

If you have restored the [System Home] directory or any of the [User Homes] directories to another directory (instead of the original directory), please open

- Windows: "C:\Program Files\Offsite Backup Server\conf\localhost\config\obs.xml"
- Linux: "/usr/local/obs/conf/localhost/config/obs.xml"
- Mac OS X: "/Applications/Offsite Backup Server/conf/localhost/config/obs.xml"

Modify the <system-home> and/or <user-home> parameters within the obs.xml file to reflect the correct paths for these directories.

For Windows, run "C:\Program Files\Offsite Backup Server\bin\Install-Service.bat" to install OBS as Windows services.

Lastly, startup the backup services

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## 4.28. How do I move backup data to a new OBS?

Please do the followings to backup data:

For OBS version 4.6

- Install a new copy of OBS on the new server
- Copy:  
    [Old OBS Home]\conf\localhost\config\\*.xml  
    to  
    [New OBS Home]\conf\localhost\config\\*.xml
- Copy the directory stated in [Manage System] -> [System Home] and [Manage System] -> [User Home] to the new server
- Open:  
    [Old OBS Home]\conf\localhost\config\obs.xml  
    and modify the "system-home" and "user-home" parameters accordingly.
- Startup the new OBS. You should be able to see all users on the new server.

For OBS version 5.0 or above

- Install a new copy of OBS on the new server
- Copy:  
    [Old OBS Home]\conf\\*.xml  
    to  
    [New OBS Home]\conf\\*.xml
- Copy the directory stated in [Manage System] -> [System Home] and [Manage System] -> [User Home] to the new server
- Open:  
    [Old OBS Home]\conf\obs.xml  
    and modify the "system-home" and "user-home" parameters accordingly.
- Startup the new OBS. You should be able to see all users on the new server.

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#### **4.29. What do I have to do when changing the IP address of the OBS?**

If you are using an IP address currently instead of a domain name, you need to ask your clients to logon to the server by specifying the new IP address in the OBM. They also need to restart their Online Backup Scheduler services. Therefore, it is a good idea to use domain name instead.

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#### **4.30. How do I move an OBS installation from one directory to another directory (Windows)?**

To move an OBS installation from one directory (%OLD\_DIR%, e.g. C:\Program Files\Offsite Backup Server) to another directory (%NEW\_DIR%, e.g. D:\Program Files\Offsite Backup Server), please do this:

- Shutdown the backup service from [Administrative Tools] -> [Services] -> [Offsite Backup Server]
- Run [%OLD\_DIR%\bin\remove-service.bat to remove the [Offsite Backup Server] service from [Administrative Tools] -> [Services]
- Move everything in [%OLD\_DIR%] to [%NEW\_DIR%]
- Open:  
    (OBS v4.0) [%NEW\_OBS\_HOME%\conf\localhost\config\obs.xml  
    (OBS v5.0 or above) [%NEW\_OBS\_HOME%\conf\obs.xml  
    and correct the "system-home" and "user-home" parameters if they are changed as a result of this relocation
- Run [%NEW\_DIR%\bin\install-service.bat to install the [Offsite Backup Server] service to [Administrative Tools] -> [Services]
- Startup the backup service from [Administrative Tools] -> [Services] -> [Offsite Backup Server]

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### 4.31. How do I move my OBS to a new server?

Please do the followings to move the OBS to a new server:

1. Re-Install the OBS to a new server (the default location is shown below)
  - Windows – "C:\Program File\Offsite Backup Server\"
  - Linux – "/usr/local/obs"
  - Mac OS X – "/Applications/OBS" and "/System/Library/StartupItems"
2. Start the OBS from the new server and enter your License Key (you should received an "Internal error no. 1011", that means you'll have 7 days grace period before your new OBS server expired).

\*Note: One license key can only activate a single machine. Please shutdown the backup service on the first server you have this license key installed. And please contact us with your "License Name" and "License Key", our system administrator will update the license server to allow your key to be used again

3. Copy the [System Home] directory to the new server (back to its original directory). The default location is shown above.
4. Copy the [User Homes] directories to the new server (back to its original directory). The default location is shown above
5. If you have stored the [System Home] directory or any of the [User Homes] directories to another directory (instead of the original directory), please open
  - Windows – "C:\Program File\Offsite Backup Server\conf\obs.xml"
  - Linux – "/usr/local/obs/conf/obs.xml"
  - Mac OS X – "/Applications/OBS/conf/obs.xml"Please modify the "and/or" parameters within the [obs.xml] file to reflect the correct paths for these directories.
6. (For Windows) Run [C:\Program File\Offsite Backup Server\bin\Install-Service.bat] to install OBS as Windows services.
7. Startup the backup services

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### 4.32. How do I move users between different "User Homes"?

Assuming you want to move a user to a new drive (e.g. from [OBS Home]\user to [New Home]\user), then you need to:

1. Logon to the OBS Management Console as the administrator
2. Under the [Manage System] page, enter another [User Homes] (in this case, [New Home]\user) in the [New] textbox provided and press the [Update] button
3. Shutdown the Backup service
4. Move the user directory to the new user home (e.g. [OBS Home]\user\xxxx -> [New Home]\user\xxxx)
5. Startup the Backup service

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### 4.33. How do I rename a backup account on OBS?

You can do the followings:

1. Shutdown the Backup service
2. Identify the corresponding user directory in [User Homes], and rename it to the new login name (e.g. from "old\_name" to "new\_name")
3. Open [User Homes]\[new\_name]\db\Profile.xml and change the login name from "old\_name" to "new\_name", namely:

```
<ROOT><USER LOGIN_NAME="old_name"
to
<ROOT><USER LOGIN_NAME="new_name"
```
4. Startup the Backup service



\* If there are existing installations of OBM running with the old login name, you need to logon to those OBMs with your new login name and restart the "Online Backup Scheduler" service.

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#### 4.34. Is it possible to move backups from one account to another? Can the data be merged into an existing account?

It is possible, suppose you want to move a backup set from account A to account B, then you can do the followings:

1. Create a backup set in account B, and its backup configuration needs to be similar to the backup set in account A
2. Upload some arbitrary files to the backup server using this backup set
3. Shutdown the backup server service
4. Delete all files under [User Home]\[Account B]\files\[BackupSetID]
5. Copy the backup data from [User Home]\[Account A]\files\[OldBackupSetID] to [User Home]\[Account B]\files\[BackupSetID]
6. Schedule the [Manage System] -> [Routine Job] -> [Rebuild User Storage] job to a more recent time to update the user storage information
7. Start the backup server service.

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#### 4.35. Backup accounts on my OBS are disappearing, why?

Please do the followings to check if there is any file corrupted:

1. Go to the log directory  
(OBS v4.6) [OBS Home]\conf\localhost\logs  
(OBS v5.0 or above) [OBS Home]\logs
2. Check the latest obs\*.log file
3. Scroll to the bottom and check if there is a "Profile Corrupted" or "User does not exist" error message
4. If error message exist, please go to [User Homes]\[Login Name]\db directory and check if Profile.xml is missing (or corrupted).
  - i. If the Profile.xml file is missing, please use the backup copy (e.g. Profile.xml.1) to recreate a new Profile.xml file.
  - ii. If the Profile.xml file is corrupted, (Make sure the file is not empty and the XML document is complete) please use the backup copy (e.g. Profile.xml.1) to recreate a new Profile.xml file.
5. Please also check Profile.xml file, whether the case "login ID" has the same name as the user folder. For example, if login ID is 'backup1' and the folder name is 'Backup1', then you should change the folder name to the same case as the login ID.
6. If not all the backup accounts are not listed out, please go back to step 2 and check if there is another corrupted profile.

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#### 4.36. When trying to setup OBS on Windows with the "User Homes" pointing to an external NAS device. It says "Access denied" when try to create a new user account. What can I do?

OBS runs as a Windows service under the LocalSystem account. Unlike the Administrator account, the LocalSystem account has full access to everything on the local machine, however it does not know where mapped drives (e.g. S:\) are mapped and it has NO access privilege to any network resources by default.

You need to do the followings:

1. Use UNC path (e.g. \\Server\Share) instead of mapped drive as your "User Homes" directory (i.e. [Manage System] -> [User Homes] on the OBS Management Console)



2. Open [Control Panel] -> [Administrative Tools] -> [Services] -> [Offsite Backup Server] -> [Log on]
3. Select the [This Account] option
4. Enter an account and password that has access privilege to the UNC path specified above
5. Restart the [Offsite Backup Server] services

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#### **4.37. The [Backup Job] drop down menu on the [Report] page from the OBS Management Console is showing an empty list. What can I do?**

Please check the server log files in [OBS Home]\conf\localhost\logs\obs\*.log and see if you can find any error messages.

Also, check the [User Home]\[Login Name]\db\BackupSet\[BackupSet ID]\\*.log to see if you find any filenames not in the yyyy-MM-dd-HH-mm-ss.log format. If yes, just delete them.

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#### **4.38. Why do I receive multiple reports from the same backup job on OBS Management Console?**

If you are seeing multiple reports from the same backup job on OBS Management Console, sometimes both "failed"; sometimes one "successful", one "failed"; and sometimes both "successful". You may have installed the client software on more than 1 computer using the same backup account? If so, all instances of the client software will run the same backup job at scheduled time and therefore cause this problem.

To fix this problem, please disable running irrelevant scheduled backup job on each computer. (Please refer to the website:

<http://download.ahsay.com/support/screenshots/ScheduledBackup.jpg>).

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#### **4.39. How do I setup AutoUpgrade?**

1. Download <http://download.ahsay.com/support/obm50-live-upgrade.zip>
2. Unzip the downloaded file to the live upgrade directory on the backup server. The default locations of the live upgrade directory are:
  - Windows – C:\Program Files\Offsite Backup Server\webapps\obs\liveUpdate
  - Linux – /usr/local/obs/webapps/obs/liveUpdate
  - Mac OS X – /Applications/OBS/webapps/obs/liveUpdate
3. If you are on a customized OBM, you need to:
  - Replace all \*.properties files with you customized version
  - Replace all \*.gif files with you customized version
  - Replace all \*.ico files with you customized version

Auto Upgrade from v4.6.x to v5.0.x will be performed in two steps before running any scheduled backup job:

1. Auto Upgrade of all v4.6.x client software to v4.6.2.0
2. Auto Upgrade of v4.6.2.0 client client to v5.0.1.x (after restarting backup scheduler or restarting the computer)

If you run into any problems, please take a look at the scheduler log

For Windows:

-----  
(v4.5) C:\Program Files\OBM\log\Scheduler\debug.log  
(v4.6, v5.0) C:\Documents and Settings\Administrator\.obm\log\Scheduler\debug.log



Linux:

-----

(v4.5) /usr/local/obm/log/Scheduler/debug.log  
(v4.6, v5.0) ~/.obm/log/Scheduler/debug.log

Mac OS X:

-----

(v4.5) /Applications/OBM/log/Scheduler/debug.log  
(v4.6, v5.0) ~/.obm/log/Scheduler/debug.log

\*All pre v5.0.1.3 releases (only for v5.0) of OBM have a bug that causes auto upgrade to stop working until v5.1 is available. If you need to upgrade all pre v5.0.1.3 releases to the latest release, please upgrade the existing installation manually or wait until v5.1 is available.

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#### 4.40. My clients have auto-upgraded to a wrong OBM, how could I force another AutoUpgrade?

You can force the AutoUpgrade to run by modifying the index.xml, for:

- Windows – C:\Program Files\Offsite Backup Server\webapps\obs\liveUpdate
- Linux – /usr/local/obs/webapps/obs/liveUpdate
- Mac OS X – /Applications/OBS/webapps/obs/liveUpdate

You can modify the 2 lines in index.xml as described below:

1. Update compatible="4.6" version="4.6x" url="/obs/liveUpdate/obm4622a.zip" crc="-1" last-modified="0" size="-1"
2. Update compatible="4.6,5.0" version="5.0.2.1" url="/obs/liveUpdate/obm5021.zip" crc="-1" last-modified="0" size="-1"

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#### 4.41. Why do I have problem in restoring through the restorer applet on the OBS Management Console?

If you have problems restoring backup files from the backup server, please try the followings:

1. Make sure the decrypting key is entered correctly in exactly the same case
2. Make sure that the [Manage User] -> [Backup Set] -> [Online Restore IP restriction] setting is correct (if you don't want to enable this option, there shouldn't be more than 1 row under this section)
3. Install Sun Java JRE 1.4.2 or above onto the machine from which you are restoring your backup files and tries restoring again.
4. Check the log entries available in the [Java Console] accessible from the system tray area
5. Check the following server log files on the backup server:
  - (OBS v4.6 or before) C:\Program Files\Offsite Backup Server\conf\localhost\logs\obs\*.log
  - (OBS v5.0 or above) C:\Program Files\Offsite Backup Server\logs\obs\_context\*.log

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#### 4.42. Why do I have problem in restoring large amount of files through the restorer applet on the OBS Management Console?

Please try increasing the maximum amount of memory available to the restorer applet to 512MB by following the steps below:

For Java 1.5x

1. Open [Java Control Panel] from [Control Panel] -> [Java]



2. Press the [Java] -> [Java Applet Runtime Setting] -> [View] button
3. Enter "-Xmx512m" (without the quote) into the [Java Runtime Parameters] box of the version of JRE in use
4. Restart all browser instances and try restoring again

For Java 1.4x

1. Open [Java Control Panel] from [Control Panel] -> [Java Plug-in]
2. Press the [Advanced] tab and select the version of JRE in the Java Runtime Environment
3. Enter "-Xmx512m" (without the quote) into the [Java Runtime Parameters] box and press "Apply"
4. Restart all browser instances and try restoring again

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#### **4.43. How do I sign the restorer applet on my customized OBS?**

Basically, the applet that you need to sign is:

- Windows – C:\Program Files\Offsite Backup Server\webapps\obs\jsp\applet\obr\obrA.jar
- Linux – /usr/local/obs/webapps/obs/jsp/applet/obr/obrA.jar
- Mac OS X – /Applications/OBS/webapps/obs/jsp/applet/obr/obrA.jar

The restorer applet signing instructions below are for your reference, you may need to refer to the documentations from the CA where you purchased your code signing cert:

1. To prevent messing up the original keystore for OBS, we recommend you to make a copy of your keystore. Then use the keystore-copy to generate a CSR.
2. Use the generated CSR to purchase a JavaSoft code signing cert from your CA.
3. Import the issued cert back into the keystore-copy.
4. Backup [obrA.jar] in case you need to reinstate the applet
5. Rename [obrA.jar] to [obrA.zip]
6. Open up the zip file and delete the [META-INF] folder
7. Rename [obrA.zip] back to [obrA.jar]
8. user "jarsigner.exe" command to sign the applet with your cert:  
[OBS\_HOME]\java\bin\jarsigner -keystore "[path of your keystore-copy]" [OBS\_HOME]\webapps\obs\jsp\applet\obr\obrA.jar [alias for your cert in the keystore-copy]
9. Restart all instances of your browser and try restoring files from the [File Explorer] page. You should now see your company name in the dialog box prompted.

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#### **4.44. How do I remove pending emails from OBS?**

You can simply remove:

[System Home]\PendingEmail\\*

Where

[System Home] = OBS system home directory  
(default location is [OBS Home]\system)

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#### **4.45. Is there any documentation on the APIs?**

Please refer to our Administrator's Guide.

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#### 4.46. Why do I have problem in License activation/Report sending? It gives “Invalid argument or cannot assign requested address” error message.

If you are running OBS on Linux Kernel 2.6, you could have run into the IPv6 compatibility problem of running Java program on Linux Kernel 2.6 (More info on: [http://www.jroller.com/page/dissonance/20050630#fedora\\_core\\_4\\_and\\_jdk](http://www.jroller.com/page/dissonance/20050630#fedora_core_4_and_jdk))

Please try the followings to fix the problem:

1. Open [\${OBS\_HOME}/bin/startup.sh]
2. Add “-Djava.net.preferIPv4Stack=true” to the command line argument. i.e. change the line:

```
export CATALINA_OPTS="-Xms64m -Xmx512m -client  
-Dsun.net.inetaddr.ttl=10800 -Dnetworkaddress.cache.ttl=10800  
-Dsun.net.inetaddr.negative.ttl=0 -Dnetworkaddress.cache.negative.ttl=0"
```

to

```
export CATALINA_OPTS="-Xms64m -Xmx512m -client  
-Dsun.net.inetaddr.ttl=10800 -Dnetworkaddress.cache.ttl=10800  
-Dsun.net.inetaddr.negative.ttl=0 -Dnetworkaddress.cache.negative.ttl=0  
-Djava.net.preferIPv4Stack=true"
```

3. Restart the backup service by running [\${OBS\_HOME}/bin/shutdown.sh] and then [\${OBS\_HOME}/bin/startup.sh]

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## 5. Replication Server (RPS)

### 5.1. How does RPS work?

RPS provides close to real-time backup to multiple OBSs.

The replication process can be in [UNSYNC], [SYNC] or [LOGGING] mode. To understand the meanings of these replication modes, it is important to understand how data gets replicated to RPS from OBS.

1. Refreshing File – When OBS module started up, it first replicates OBS program binaries and configuration files to RPS in its [Refreshing File] mode. No backup data under [System Home] and [User Homes] will be replicated to RPS by this task.
2. UNSYNC Replication – After the replication module has finished replicating all program binaries and configuration files, it will start replicating all files under the [System Home] and [User Homes] directories to RPS. During the execution of this task, transaction logging of OBS is disabled. Backup data write directly and only to the backup files.
3. SYNC Replication – Since it could take hours (or even days) to replicate all backup data from OBS to RPS, by the time all files under [System Home] and [User Homes] are worked through once, some files might have been added to or removed from the OBS resulted from backup jobs ran during the UNSYNC mode. OBS will then go into a SYNC mode, which has the following effects:
  - System data generated by OBS will now be saved to the transaction log files instead of to files under the [System Home] directory.
  - There will be no changes to all files under the [User Homes] and [System Home] directories
  - Before leaving the SYNC mode, OBS replication module will replay all transaction logs recorded to its supposed target files in the [User Homes] and [System Home] directories.
4. Upon the completion of these tasks, both OBS and RPS will then be synchronized. OBS should have all transaction logs replayed into the [User Homes] and [System Home] directories. Although the [User Homes] and [System Home] directories on RPS doesn't contains the changes after all transaction logs has been replayed, synchronization can be easily done by replicating the transaction log files over from OBS to RPS and replaying these transaction logs on RPS as it has been done on OBS.
5. Transaction Logs Replication – In this mode, backup data are written directly to the backup files that they are supposed to go to as well as to the transaction log files. The transaction log files recorded after the beginning of the SYNC period are then transferred and replayed to RPS. When there are no backup activities and all pending transaction log files have been replicated to RPS, transaction log files are replicated to RPS every 5 minutes (even when it is empty). This will ensure that partial records within the transaction log files get replicated to RPS in close to “real” time.
6. Weekly RESYNC – To ensure that the replication server is in full sync with the backup server after lots of transaction logs have been applied on the replication server, a weekly RESYNC job will run every Sunday at 12:00pm (noon) automatically. This involves running “Refreshing Files”, “UNSYNC Replication” and “SYNC replication” described above all over again.

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### 5.2. How should I configure my RPS-OBS pair?

Assume RPS is running with the following configuration:

```
Host: rps.your-company.com
HTTP port for web traffic: 9080
HTTPS port for web traffic: 9443
Port for replication traffic: 8444
```

You should then setup [RPS] -> [Manage Receiver] page with the following values:

```
Enable Replication = Checked
Login Name = OBS (matches with that of the OBS)
Password = OBS (matches with that of the OBS)
```



Alias = Receiver for OBS  
Home Directory = D:\ReplicatedData (specific for the particular OBS)  
Listen Host = 0.0.0.0  
Listen Port = 8444  
Use SSL = Yes  
Use Compression = Yes

And you should setup [OBS] -> [Manage System] -> [Replication Config] page with the following values:

Enable Replication = Checked  
Username = OBS (matches with that of the RPS)  
Password = OBS (matches with that of the RPS)  
Target Host = rps.your-company.com  
Port = 8444  
Use SSL = Yes  
Use Compression = Yes

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### 5.3. I have a large amount of data to be replicated to RPS, is there a Seed Load facility for OBS?

Yes, you can seed load the desired OBS by doing the followings:

#### Assumptions

1. OBS is installed in "C:\Program Files\Offsite Backup Server"
2. [OBS] -> [Manage System] -> [System Home] is configured to be "D:\SystemHome"
3. There are 3 [OBS] -> [Manage System] -> [User Homes] settings. They are configured to be "E:\UserHome1", "F:\UserHome2" and "\\Server1\UserHome3" respectively.
4. The [RPS] -> [Manage Receiver] -> [Profile] -> [Home Directory] setting for the OBS above is configured to be "G:\Receiver-Home"

#### Instructions

1. Shutdown the Replication Service by stopping the [Control Panel] -> [Administrative Tools] -> [Services] -> [Replication Server] on RPS
2. Disable the replication module by unchecking the [Manage System] -> [Replication Config] -> [Enable Replication] checkbox on OBS
3. Copy all files in "C:\Program Files\Offsite Backup Server", "D:\SystemHome", "E:\UserHome1", "F:\UserHome2" and "\\Server1\UserHome3" to a removable hard disk.
4. Ship the removable to the remote location where RPS is installed
5. Copy all files in the removable hard disk to "G:\Receiver-Home" RPS using the following mappings:
  - "C:\Program Files\Offsite Backup Server" -> "G:\Receiver-Home\files\C%3A\Program Files\Offsite Backup Server"
  - "D:\SystemHome" -> "G:\Receiver-Home\files\D%3A\SystemHome"
  - "E:\UserHome1" -> "G:\Receiver-Home\files\E%3A\UserHome1"
  - "F:\UserHome2" -> "G:\Receiver-Home\files\F%3A\UserHome2"
  - "\\Server1\UserHome3" -> "G:\Receiver-Home\files\%5C%5C\Server1\UserHome3"

#### Note

- The ":" sign in all windows drives are replaced by "%3A"
  - The "\\" sign in all UNC paths are replaced by "%5C%5C"
  - All other files on OBS with name containing other characters can be copied "as is" to RPS without any changes
  - For Linux, the basic concept is the same, except that all paths are in the Linux convention.
6. After all files has been copied over to RPS, please check if the last modified time of all files copied over are the same as they are on OBS



7. Startup the Replication Service by starting the [Control Panel] -> [Administrative Tools] -> [Services] -> [Replication Server] on RPS
8. Enable the replication module by checking the [OBS] -> [Manage System] -> [Replication Config] -> [Enable Replication] checkbox on OBS
9. Use [OBS] -> [Manage Log] -> [Replication Log] and [RPS] -> [Manage Receiver] -> [Replication Log] pages to keep track of the running status of the replication. Please make sure no files are being deleted on the replication server.

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## 5.4. Is there a method to avoid replicating the moved “User Home” to RPS all over again?

If you have moved a “User Home” on OBS, and don’t want to replicates the moved “User Home” again. Please try the followings:

### Recommended software version

OBS: v5.0.2.1 or above

RPS: v5.0.2.2 or above

### Background

You have some data store in a local drive (with drive letter E:\) or any other drive. After doing several backup and replications, you want to replace the local drive with a NAS device for which an UNC path (i.e. \\servername\share) needed to be used instead of the drive letter.

Now, since changing the drive name would cause all backup files to be replicated to RPS all over again (even the data stored is the same as before) and you certainly do not want this to happen, you’d just want it to continue with the current replicated data already existed in the RPS.

### Assumptions

You have set the user home path to be “E:\UserHome” to store the users’ data so that you have something like this in your OBS:

E:\UserHome\John\db\...  
 E:\UserHome\John\files\...  
 E:\UserHome\Peter\db\...  
 E:\UserHome\Peter\files\...  
 ...

You have set the system home path to be “D:\ReceiverHome” to store the replicated data. Since some replications were done before, you have something like this on your RPS:

D:\ReceiverHome\files\E%3A\UserHome\John\db\...  
 D:\ReceiverHome\files\E%3A\UserHome\John\files\...  
 D:\ReceiverHome\files\E%3A\UserHome\Peter\db\...  
 D:\ReceiverHome\files\E%3A\UserHome\Peter\files\...  
 ...

You want to move the user home from the local drive E:\ to the NAS device without replicating those data that is already replicated to RPS from OBS all over again

### Instructions:

1. Shut down both RPS & OBS
2. On the OBS:
  - i. Copy all the user data stored in E:\UserHome to \\Server\Share\UserHome.
  - ii. Configure the new user home path through the OBS Management Console (i.e. using UNC path instead of the drive letter).

After doing so, you should have the following changes as results:

Before:		After:
E:\UserHome\John\db\...	→	\\Server\Share\UserHome\John\db\...
E:\UserHome\John\files\...	→	\\Server\Share\UserHome\John\files\...
E:\UserHome\Peter\db\...	→	\\Server\Share\UserHome\Peter\db\...
E:\UserHome\Peter\files\...	→	\\Server\Share\UserHome\Peter\files\...

3. On the RPS:



- i. Under the same folder level of the directory 'E%3A', create a new directory '\_' which represent the '\\ part of the UNC path. Then, inside this '\_' directory, create the 'Server' directory and similarly for 'Share' & 'UserHome' directory.
- ii. Move the whole directory of one of the user, say, 'John' in  
D:\ReceiverHome\files\E%3A\UserHome to the new directory  
D:\ReceiverHome\files\\_Server\Share\UserHome .
- iii. Repeat step 3(ii) for the rest of the users.

Having done that, you should have the following changes as results:

Before

D:\ReceiverHome\files\E%3A\UserHome\John\db\... →  
D:\ReceiverHome\files\E%3A\UserHome\John\files\... →  
D:\ReceiverHome\files\E%3A\UserHome\Peter\db\... →  
D:\ReceiverHome\files\E%3A\UserHome\Peter\files\... →

...

After

→ D:\ReceiverHome\files\\_Server\Share\UserHome\John\db\...  
→ D:\ReceiverHome\files\\_Server\Share\UserHome\John\files\...  
→ D:\ReceiverHome\files\\_Server\Share\UserHome\Peter\db\...  
→ D:\ReceiverHome\files\\_Server\Share\UserHome\Peter\files\...  
....

4. Start up both RPS & OBS.

The existing 'E%3A' in RPS will be deleted automatically during the next replication.

\*Note: Before making the above modifications, it is recommended to backup the data in case you might have done something wrong.

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## 5.5. My replication pair is not working, what can I do?

Please do the followings:

- 1 Check if you can access the RPS service by running the following command on OBS: "telnet [RPS hostname] 8444". If you get "connection refused", then you have problems connecting to the replication service.
- 2 Check your firewall settings to see if port 8444 is blocked
- 3 Restart the [Contron Panel] -> [Administrative Tools] -> [Services] -> [Offsite Backup Server] on OBS and the [Contron Panel] -> [Administrative Tools] -> [Services] -> [Replication Service] on RPS
- 4 Check if "Enhanced Security Configuration" for the Internet Explorer enabled. If so, please disable it from [Contron Panel] -> [Add/Remove Software]
- 5 Contact us if you are still having problem

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## 5.6. How can I manually trigger a RESYNC?

The RESYNC will run under 3 situations:

1. On every Sunday at 12:00pm (noon)
2. When the replication module is enabled for the first time on the OBS (or after it has been disabled for v5.0.1.7 or above)
3. When OBS startup after it has been shutdown abnormally

For newer versions of OBS (v5.0.1.7 or above), you can simply disable and re-enable the replication module. However for older versions, if you really want to trigger a RESYNC, here is a work-around:

1. Shutdown the OBS.
2. Edit [OBS Install Directory]\conf\lfsConfig.xml
3. Set clean-shutdown="N" under the lfs tag.
4. Restart the OBS.

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### **5.7. How much data are being transfer during the RESYNC process?**

The "weekly RESYNC" sends only UNSYNC data and it doesn't send all data again. It just makes sure that all transaction logs are replicated with no errors.

In general, the RESYNC operation doesn't send data that exists on the replication server already.

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### **5.8. At times, replication takes a lot of CPU, why?**

The replication process is CPU intensive, it involves checksum calculations and comparisons, snapshot generation, transaction logging, disk IO, etc. So it is not abnormal to have a high CPU utilization during the replication.

If you really want to restrain the CPU utilization as well as the bandwidth usage of the replication process, you may try limiting the "Maximum Transfer Rate".

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### **5.9. The replication always stops abnormally during the process, why?**

Please check if you have any antivirus or personal firewall software installed. Kindly disable it from scanning the related data and traffic to see if the problem persists.

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### **5.10. How up-to-date is the data on RPS?**

When new files are uploaded to the OBS, the transaction log for the OBS is amended, and this transaction log will be applied to the replication server when either the transaction log is full or 5 minutes has lapsed, whichever is shorter. Therefore Data in OBS and RPS will be out-of-SYNC by at most 5 minutes.

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### **5.11. How do I copy files back from RPS to OBS?**

The file structure under the [Home Directory] on RPS resembles that of the corresponding OBS. To restore, you can simply transfer this file structure back to appropriate location on the OBS machine.

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### **5.12. What is the average speed for replication?**

The followings are the data obtained from the replication speed test conducted using two machines (for both OBS and RPS) running Intel Xeon 3.2GHz with 2GB of RAM over a 2M/2M DSL line with both SSL and encryption enabled:

```
485 04:22:10 PM Replicating 'D:\OBS-Data\system\logfiles\log04b5.alf' (9.9M)
486 04:22:53 PM Replicating 'D:\OBS-Data\system\logfiles\log04b6.alf' (10M)
487 04:23:37 PM Replicating 'D:\OBS-Data\system\logfiles\log04b7.alf' (9.8M)
488 04:24:24 PM Replicating 'D:\OBS-Data\system\logfiles\log04b8.alf' (9.9M)
489 04:25:08 PM Replicating 'D:\OBS-Data\system\logfiles\log04b9.alf' (9.8M)
490 04:26:53 PM Replicating 'D:\OBS-Data\system\logfiles\log04ba.alf' (9.9M)
491 04:27:48 PM Replicating 'D:\OBS-Data\system\logfiles\log04bb.alf' (9.9M)
```

The followings are the data we obtained from similar test over a 100MBit ethernet:

```
103 08:11:38 PM Replicating 'E:\Project\Testing\obs\v50\conf\rpsSend.xml.9' (929)
```



104 08:11:38 PM Replicating  
'E:\Project\Testing\obs\v50\webapps\obs\download\obm-linux.tar.gz' (38.5M)  
105 08:12:29 PM Replicating  
'E:\Project\Testing\obs\v50\webapps\obs\download\obm-mac.zip' (12M)  
106 08:12:45 PM Replicating  
'E:\Project\Testing\obs\v50\webapps\obs\download\obm-netware.zip' (6.7M)  
107 08:12:54 PM Replicating  
'E:\Project\Testing\obs\v50\webapps\obs\download\obm-solaris.tar.gz' (6.6M)  
108 08:13:02 PM Replicating  
'E:\Project\Testing\obs\v50\webapps\obs\download\obm-win.exe' (39.5M)  
109 08:13:56 PM [End] Refreshing File

Total throughput of 837 MB/hour and 2.63 GB/hour for 2M/2M DSL and 100MBit LAN ethernet respectively can be reached. If you are not getting close to this speed with similar network and machine setup, please check your I/O, network subsystem or CPU usage to see if there is a bottleneck.

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### **5.13. Can I use RPS to replicate/synchronize the files between the servers?**

It is not possible to do real time replication of files from one server to another. The replication module is designed for OBS replication only and it cannot be used for generic replication service between multiple servers.

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## 6. Common Error Messages

### 6.1. "Internal Error no. 1011" on the OBS Management Console

One license key can only be used to activate a single machine. Have you applied the license key on another machine already? Or have you changed your network hardware? Please shutdown the backup service on the first server that you have this license key installed. After you have done this, please contact us at [http://kb.ahsay.com/index.php?\\_m=tickets&\\_a=submit&departmentid=3&step=1](http://kb.ahsay.com/index.php?_m=tickets&_a=submit&departmentid=3&step=1) and kindly provide us with your "License Name" and "License Key", we will update the license server to allow your key to be used again.

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### 6.2. "Activate Product Key Error"

If you are getting "Activate Product Key Error" when registering your license key on the [Manage System] -> [Software License] page, please check the followings:

1. The backup server is connected to the internet and can connect to lic.ahsay.com using HTTPS (port 443)
2. Both licensee name and license key are entered in exactly the same case (please cut-and-paste both licensee name and license key to the text fields provided)
3. Check if the license file, [OBS Home]\conf\license.xml, is empty or corrupted. If yes, delete it and reapply your license key in the OBS Management Console.
4. Check under [OBS Home]\conf to see if any of the configurations files (\*.xml) is empty or corrupted. If yes, delete those corrupted files and restart OBS.

If you are on Linux, please also check:

1. Whether you get any response by running "ping [your hostname]", if no, then please add an entry for [your hostname] in the host file, e.g. /etc/hosts.
2. Run "ifconfig" and see if a valid "Ethernet HWaddr" is being displayed.

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### 6.3. "Unable to send email Server=x.x.x.x", "Error sending alert email!!"

OBS is having problem in sending email via the SMTP server. Please try the followings:

1. Check if the SMTP service is running by using the command below:  
"telnet x.x.x.x 25"
2. Trigger a forgot-password email via [OBS Management Console]->[User Login]->[Forgotten your password?] and see if any email get sent out
3. Ping the hostname of the OBS machine to see if it can be resolved into an IP address, i.e. 'ping obs\_hostname'. If not, then check if the host file contains a proper entry for your hostname
4. In your SMTP server configuration, do you have email relay disabled for the OBS machine? If so then it will need to be enabled in order for OBS to relay emails
5. Try pointing to another SMTP server.
6. If you are on Linux, please try setting the LD\_ASSUME\_KERNEL environment variable in \$OBS\_HOME/bin/startup.sh by adding the following line and restart the OBS service:  
export LD\_ASSUME\_KERNEL=2.4.19

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### 6.4. "Quota Exceeded"

This means that the backup account has run out of its allocated quota. Please contact your administrator (or backup services provider) to increase your backup quota.

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## 6.5. "Access is denied"

This means that the file is not accessible by OBM. Please check if the system account that runs OBM has read access permission to the mentioned file.

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## 6.6. "Checksum incorrect" / "Uploaded file size incorrect"

This error occurs when the backup file uploaded to the server is corrupted. Corrupted backup files would not be stored on the backup server but will be uploaded to the backup server again in the next backup job.

If more than one backup job of the same backup set is being run on more than one computer at the same time, you might get this error. Please check if you have installed the client software (OBM) with the same backup account on more than one computer.

Also, please check the file C:\Program Files\OBM\home.txt and see if you have more than one ".obm" record (e.g. C:\Documents and Settings\Administrator\.obm) in this file that refers to the same backup account on the server. If you can find such entries, simply remove the redundant lines from this file and restart the computer.

Sometimes, this problem could be caused by network instability. If this only happens occasionally, you can safely ignore this error.

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## 6.7. "File 'obm-delta.tmp' does not exist on server" / "File 'obm-chksum.tmp' does not exist on server"

For OBM v5.0.1.4 or before, please:

1. Upgrade your OBM to a newer version.
2. Delete the obm-delta.tmp or/and obm-chksum.tmp files from your "temporary backup directory", (e.g. C:\Backup\MSExchange\1137065709669).

For later versions of OBM, you can simply do step 2 to remove the problematic files which were left behind during the backup operations of previous versions.

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## 6.8. "Error getting report from all available IP addresses"

Please check if any of your disk partitions is full. Pay special attention to the OBS log directory:

- Windows – C:\Program Files\Offsite Backup Server\logs
- Linux – /usr/local/obs/logs
- Mac OS X – /Applications/OBS/logs

It is safe to delete any log files here from the system.

Also, are you using non-default TCP port for the backup server? If so, please append the port number of your HTTP (NOT HTTPS) connector to the [Manage System] -> [Host Name] entry, e.g. backup.yourcompany.com:8080

If you are not using custom port, open a browser on the backup server and type in the value of [Manage System] -> [Host Name] as an URL. Check if you get the backup server homepage. If you cannot get the webpage, try altering the URL until you can reach the server. You can then put this value in the [Manage System] -> [Host Name] field. (Please omit the page name, i.e. /index.jsp, from this entry)

If you are on Linux, please try setting the LD\_ASSUME\_KERNEL environment variable in \$OBS\_HOME/bin/startup.sh by adding the following line and restart the OBS service:

```
export LD_ASSUME_KERNEL=2.4.19
```



If you are running OBS on Linux Kernel 2.6, you could have run into the compatibility problem of running Java program on Linux Kernel 2.6 (More info on: [http://www.jroller.com/page/dissonance/20050630#fedora\\_core\\_4\\_and\\_jdk](http://www.jroller.com/page/dissonance/20050630#fedora_core_4_and_jdk))

Please try this to fix this problem:

1. Open \$OBS\_HOME/bin/startup.sh
2. Add "-Djava.net.preferIPv4Stack=true" to the command line argument. i.e. change the line:  
export CATALINA\_OPTS="-Xms64m -Xmx512m -client  
-Dsun.net.inetaddr.ttl=10800 -Dnetworkaddress.cache.ttl=10800  
-Dsun.net.inetaddr.negative.ttl=0 -Dnetworkaddress.cache.negative.ttl=0"  
  
to  
  
export CATALINA\_OPTS="-Xms64m -Xmx512m -client  
-Dsun.net.inetaddr.ttl=10800 -Dnetworkaddress.cache.ttl=10800  
-Dsun.net.inetaddr.negative.ttl=0 -Dnetworkaddress.cache.negative.ttl=0  
-Djava.net.preferIPv4Stack=tru
3. Restart the backup service by running [\$OBS\_HOME/bin/shutdown.sh] and then [\$OBS\_HOME/bin/startup.sh]

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## 6.9. "C:\xxx\yyy\zzz.txt has been removed already"

There is latency between the backup agent with the list of files to be backed up and the time these files are actually backed up. If any of these files are removed between this latency, an informative message, "C:\xxx\yyy\zzz.txt has been removed already", will be logged in the backup log report. Under most condition, you don't need to worry about this since files created and then removed in this situation are usually temporary files. It is used by some other applications and it is not necessary to backup these files.

If you are using Infile-Delta, please make sure "Temporary directory for storing backup files" setting of your OBM is pointing a writable directory with plenty of disk space.

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## 6.10. "The process cannot access the file because another process has locked a portion of the file"

You get this message when backing up "C:\xxx\yyy\zzz.txt" because another application has held a read-exclusive lock on "C:\xxx\yyy\zzz.txt". The backup agent, therefore, is unable to open the file to read its content. Please try the followings to resolve this problem:

- Enable the Volume Shadow Copy option for the corresponding backup set if you are on Windows 2003 or XP.
- If you are on an older version for Windows, you may need to obtain a generic "Open File Manager" in order to backup the locked files.
- If the locked file is not important (e.g. C:\pagefile.sys), simply exclude the locked file from your backup source. By doing so, this message will not appear again.
- If the locked file is a database file held open by one of our supported applications (e.g. Microsoft SQL Server, Microsoft Exchange Server, Oracle, Lotus Domino/Notes, MySQL), simply use the corresponding add-on module provided to backup the database. This way, you can backup the database you want (using the application specific APIs) without accessing the database file directly.
- If the locked file is a file held open by some other third party applications, you can use the [Pre/Post Command Line Tool] to shutdown/restart the application that is locking the file before/after a backup job to make sure that no locks will be placed on files that you need to backup.

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### 6.11. "The process cannot access the file because it is being used by another process"

This means that the file is currently locked by another process (or program). Please shutdown the program locking this file before running the online backup program again. You can also refer to "[What do I have to do in order to backup open files](#)" for more information (for file backup set only).

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### 6.12. "Premature end of input"

It means that the client software has problem downloading the list of files to be backed up from the backup server. It then retries getting the list again. This is nothing to worry about. OBM would log this as information rather than warning to avoid raising false alarm.

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### 6.13. "Invalid XML Character" / "XML document structures must start and end within the same entity"

Please try the followings:

1. Logon to the web interface of this backup account
2. Go to the [File Explorer] page and browse to the directory reported that contain this problem (or some other directories)
3. Check if there are any filenames containing strange characters and delete them
4. Try backup again.

Also, please try increasing the "connectionTimeout" attribute within the "Connector" tag inside [OBS Home]\conf\server.xml to a larger value (e.g. connectionTimeout="180000" or connectionTimeout="600000"). This should help solve the problem.

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### 6.14. "Incorrect Function"

Please check if you have any antivirus or personal firewall software installed. Kindly disable it from scanning the related data and traffic to see if the problem persists.

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### 6.15. "HTTP/1.1 502 Proxy Error"

The specified Secure Sockets Layer (SSL) port is not allowed. ISA Server is not configured to allow SSL requests from this port. Most Web browsers use port 443 for SSL requests. Refer to <http://support.microsoft.com/kb/283284>

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### 6.16. " [Microsoft][ODBC SQL Server Driver][SQL Server]The statement BACKUP LOG is not allowed while the recovery model is SIMPLE"

You need to change the Recovery model to FULL. If you are using Microsoft SQL Server 7.0/2000, please refer to the following screenshots:

1. <http://download.ahsay.com/support/screenshots/SQL7-TuncateLogOnCheckpoint.jpg>
2. <http://download.ahsay.com/support/screenshots/SQL2000-FullModel.jpg>

If you are using MSDE, please issue the following commands:

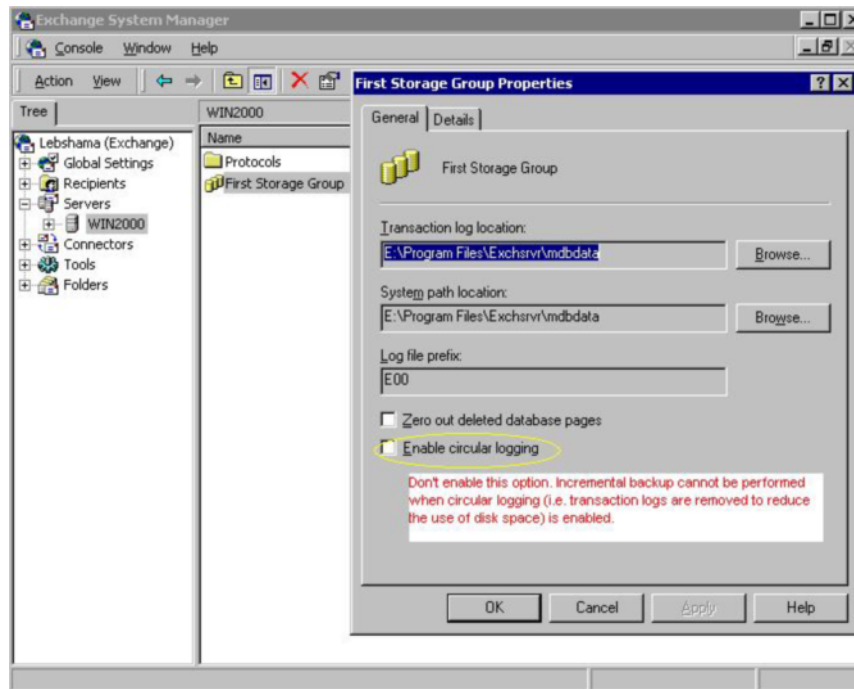
```
osql -E -S [Server Name] -Q "ALTER DATABASE [Database Name] SET RECOVERY FULL"
```

These will enable transaction logging option for your MSDE databases and allow incremental/differential backup to be run with no problems.

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### 6.17. "CEXBackup::backupService:HrESEBackupSetup: Error Number 0xc800020e: An incremental backup cannot be performed when circular logging is enabled"

You need to disable circular logging in MS Exchange. Please uncheck the [Enable circular logging] option as shown below and restart the "Microsoft Exchange Information Store" service after you are done.



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### 6.18. "CEXBackup::backupStorageGroup:HrESEBackupTruncateLogs: Error Number 0xc7ff1004: (null) "

This is an error returned by the Microsoft API and is a Microsoft issue. Please try to restart the "Microsoft Exchange Information Store" service. If the problem persists, you may want to schedule the service to restart on a daily basis.

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### 6.19. "CEXBackup::backupStorageGroupLog:HrESEBackupGetLogAndPatchFiles: Error Number 0xc8000232: Some log or patch files are missing"

If you have just disabled the MS Exchange circular logging option, please try running a full backup again, this should fix the problem.

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## 6.20. "CExBackup::backupFile:WriteFile: Error Number 0x6: The handle is invalid"

This is the MS Exchange having problem in writing to the Temporary spooling directory. Please ensure that the system account running the MS Exchange has full access right to that directory. If it is a network drive, please use an UNC path (e.g. [\\server\share](#)), and the "Network Resources Authentication for Windows" is properly set for the corresponding backup set.

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## 6.21. "Path 'C:\Temp\MSSQLServer\1137040769567' does not exist"

If you get this error while you are doing MS SQL or MS Exchange backup, please try to use an UNC path (e.g. [//server/share](#)) in "Temporary directory for storing backup files" under [Backup Source Settings]. Please make sure that your OBM is on the same machine as your MS SQL or MS Exchange. Please also ensure that you have included the appropriate "Network Resources Authentication for Windows" information in the backup set.

For MS SQL Server, you may want to check whether if it can spool the database file correctly by running the following command:

```
(Windows Authentication mode)
osql -E -Q "DECLARE @dbname char(64) SET @dbname = 'xxx' BACKUP DATABASE
@dbname TO DISK = '//server/share/abc.txt' WITH SKIP"
```

OR

```
(SQL Server Authentication mode)
osql -U USERNAME -P PASSWORD -Q "DECLARE @dbname char(64) SET @dbname = 'xxx'
BACKUP DATABASE @dbname TO DISK = '//server/share/abc.txt' WITH SKIP"
```

Note:

USERNAME/PASSWORD = the database username/password  
xxx = the database that you would like to backup  
[//server/share/abc.txt](#) = the location for the database spooling file

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## 6.22. "Expect log sequence 'xxx' but found 'SERVERNAME\Microsoft Information Store\First Storage Group\E000xxx.log'"

This occurs when the log sequence of MS Exchange was altered by other backup software, e.g. NTBackup. Thus when the Backup Manager next performs a MS Exchange backup, the Exchange log sequence would not match the one that it is expecting. With the broken sequence, the Exchange server cannot be restored to its latest state.

To resolve this problem, you need to deactivate all other backup software that is operating on MS Exchange, and then you need to perform a Full MS Exchange database backup manually via the Backup Manager.

Alternatively, instead of backing up transaction logs during the weekdays, you can consider doing Full Exchange Database backup on a daily basis with the In-File Delta option enabled. This should avoid interference from other backup software while keeping the amount of upload data to minimal.

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**6.23. "The last backup jobs of \*.stm (2006-10-30-13-40-21) and \*.edb (2006-11-04-03-05-00) don't match for database 'ServerX\Microsoft Information Store\First Storage Group\Mailbox Store (ServerX)'"**

For MS Exchange backup, \*.stm and \*.edb are backed up in pairs, if this error occurs, it implies that during a previous backup, there was a problem with either the \*.stm or \*.edb file. If this happens, please perform a Full MS Exchange backup manually via the Backup Manger to resolve this problem.

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**6.24. "No \*.stm found for database 'ServerX\Microsoft Information Store\First Storage Group\Mailbox Store (ServerX)'"**

This suggests that the .stm file on server may have been corrupted or found missing. To resolve this error, please perform a Full MS Exchange backup manually via OBM.

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\*\*\* End of FAQ \*\*\*