

Online-Backup.dk Manager v9

Quick Start Guide for Linux (CLI)

Ahsay Systems Corporation Limited

11 May 2022

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Revision History

Date	Descriptions	Version
25 January 2022	▪ Ch. 5 – added login with 2FA using authenticator app	9.1.0.0

Table of Contents

1	Overview	1
1.1	What is this software?	1
1.2	System Architecture	1
2	System Requirements	2
2.1	Supported Platforms	2
2.2	Best Practices and Recommendations	2
2.3	Linux Packages	3
2.4	Network Bandwidth	3
3	Getting started	4
4	Download and Install AhsayOBM	5
4.1	Online Installation	6
4.1.1	SH online installer	6
4.1.2	RPM online installer	9
4.1.3	DEB online installer	11
4.2	Offline Installation	14
	TAR GZ offline installer	14
4.3	AhsayOBM Scheduler Service Check	16
4.4	RunLevel Symlink Check	16
5	Starting AhsayOBM	17
6	AhsayOBM Main Menu	26
6.1	List Backup Sets	26
6.2	Delete Backup Set	28
6.3	Export Backup Set Settings to XML	29
6.4	Import Backup Set Settings from XML	30
6.5	Generate new Backup Set Settings Template	32
6.6	Change Language Settings	33
6.7	Update Profile Settings	34
6.8	Quit	43
7	Creating a File Backup Set using ssh	44
8	Overview on the Backup Process	48
8.1	Periodic Data Integrity Check (PDIC) Process	49
8.2	Backup Set Index Handling Process	51
8.2.1	Start Backup Job	51
8.2.2	Completed Backup Job	52
8.3	Data Validation Check Process	53

9	Running Backup Jobs	54
10	Restoring Data	61
11	Contact Ahsay	67
11.1	Technical Assistance	67
11.2	Documentation	67
Appendix		68
Appendix A	File Backup Set XML Template (Raw)	68
Appendix B	File Backup Set XML Template (with explanation)	76
Appendix C	Example File Backup Set Setting	92
Appendix D	Uninstall AhsayOBM (SH online installer)	95
Appendix E	Uninstall AhsayOBM (RPM online installer)	96
Appendix F	Uninstall AhsayOBM (DEB online installer)	97
Appendix G	Handling of Non-regular Files	98
Appendix H	How to Create a File Backup Set in Predefined Destination	99
Appendix I	How to Change Ownership of Backup Set	101
Appendix J	Script Files	105
Appendix K	How to Create a Free Trial Account	154
Appendix L	How to Manually Upgrade AhsayOBM	157

1 Overview

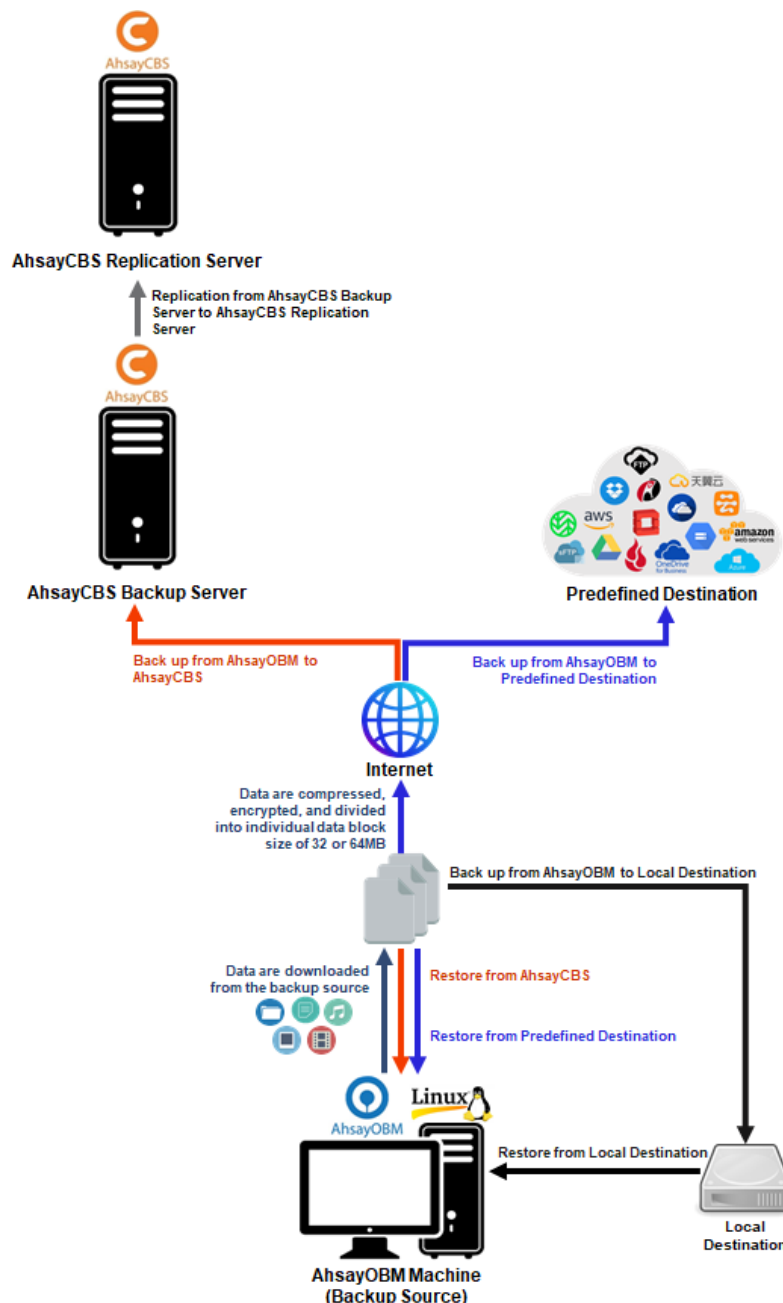
1.1 What is this software?

Ahsay brings you specialized client backup software, namely AhsayOBM, to provide a comprehensive backup solution for protecting file(s) / folder(s) on your machine, with a wide variety of backup destinations (major cloud storage service providers, FTP/SFTP, local drive, etc.) of your choice.

1.2 System Architecture

Below is the system architecture diagram illustrating the major elements involved in the backup and restore process among the backup machine, AhsayOBM and AhsayCBS.

In this user guide, we will focus on the software installation, as well as the end-to-end backup and restore process using the AhsayOBM as a client backup software.



2 System Requirements

2.1 Supported Platforms

Refer to the following article for the list of supported operating systems:

[FAQ: Ahsay Software Compatibility List \(SCL\) for version 9.1 or above](#)

2.2 Best Practices and Recommendations

Periodic Backup Schedule

The periodic backup schedule should be reviewed regularly to ensure the interval is sufficient to handle the data volume on the machine. Over the time, data usage pattern may change on a production server, i.e., the number of new files created, the number of files which are updated/delete, new users may be added etc.

When using periodic backup schedules with small backup intervals such as backup every 1 minute, 2 minutes, 3 minutes etc. although the increased backup frequently does ensure that changes to files are captured regularly which allows greater flexibility in recovery to a point in time.

Consider the following key points to efficiently handle backup sets with periodic backup schedule.

- Hardware – to achieve optimal performance, compatible hardware requirements is a must. Ensure you have the backup machine's appropriate hardware specifications to accommodate frequency of backups,
 - so that the data is always backed up within the periodic backup interval
 - so that the backup frequency does not affect the performance of the production server
- Storage – ensure you have enough storage quota allocated based on the amount of new data and changed data you will backup.
- Retention Policy – also make sure to consider the retention policy settings and retention area storage management which can grow because of the changes in the backup data for each backup job.

2.3 Linux Packages

The following packages have to be present on the Linux machine in order for AhsayOBM version 9 to be installed.

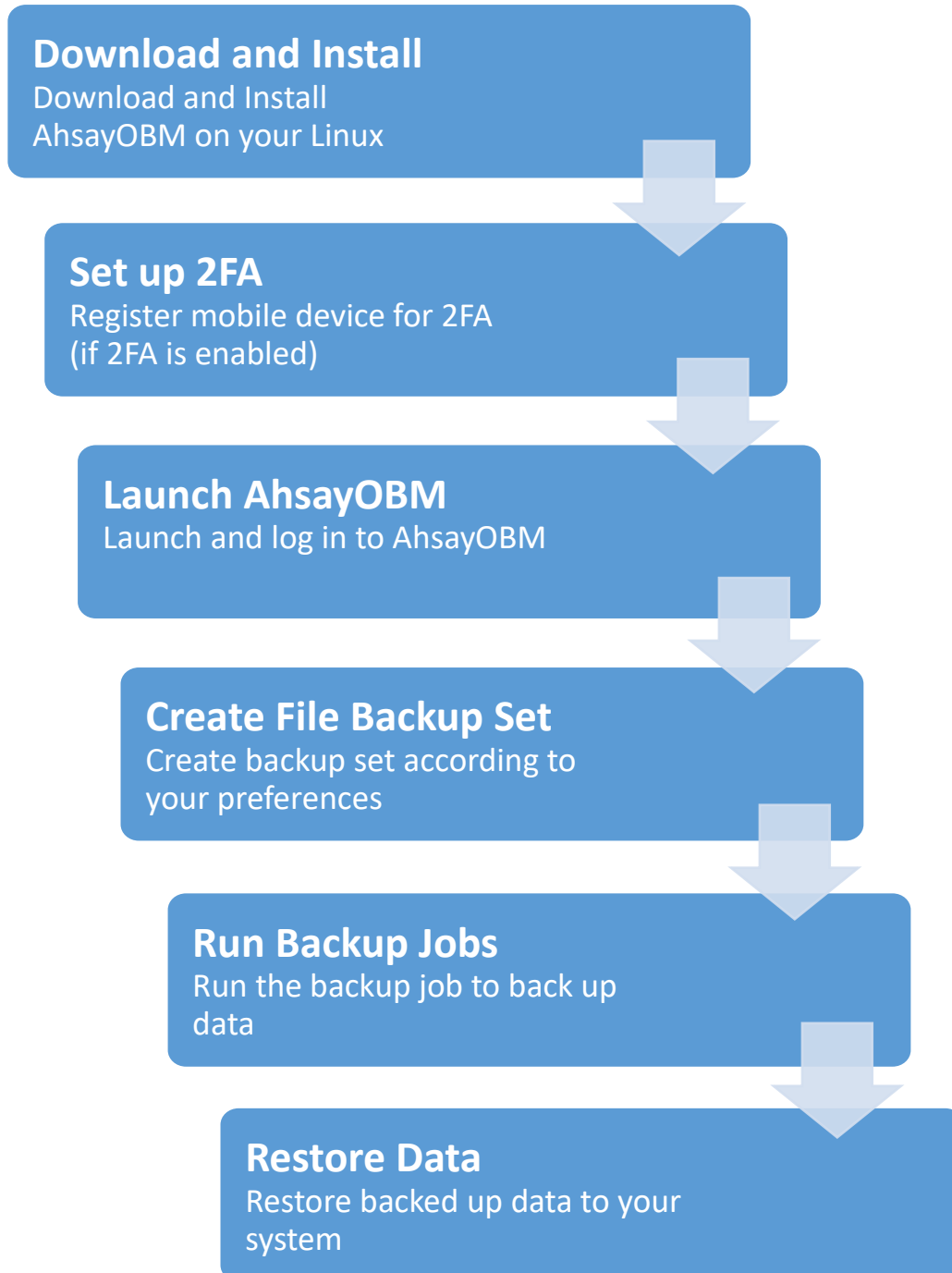
- **GNU LIBC 2.14** <https://www.gnu.org/software/libc/>
The installed 'GNU LIBC' version must at least be 2.14 for OpenJDK 8 to work.
- **psmisc** <http://psmisc.sourceforge.net/>
The 'psmisc' package which contains the 'fuser' components must be installed for the auto update agent (AUA) process to work properly for AhsayOBM on Linux.
- **curl** <https://curl.haxx.se>
The 'curl' command is used by both the AhsayOBM SH online installer and RPM online installer to download components from AhsayCBS server during the installation process.
- **tar** <https://www.gnu.org/software/tar>
The 'tar' command is used by both the AhsayOBM TAR GZ offline installer and RPM online installer to uncompress and extract installation files or components downloaded from the AhsayCBS backup server onto the Linux machine.
- **rpm** <http://rpm.org>
The 'rpm' package must be installed to use the AhsayOBM RPM online installer method on CentOS and Red Hat Enterprise Linux platforms.
- **dpkg**
Debian <https://packages.debian.org/buster/dpkg>
Ubuntu <https://packages.ubuntu.com/trusty/dpkg>
The 'dpkg' package must be installed to support AhsayOBM DEB online installer method on Debian and Ubuntu platforms.

2.4 Network Bandwidth

10 Mbps or above connection speed.

3 Getting started

This quick start guide will walk you through the following 5 major parts to get you started with using AhsayOBM.



4 Download and Install AhsayOBM

There are two installation modes of AhsayOBM, online installation and offline installation. Below is the table of comparison between online installation and offline installation.

	Online Installation	Offline Installation
Installation Time	<ul style="list-style-type: none"> ➤ Takes more time as it needs to download the binary and component files (80MB to 132MB depending on operating system) each time the installation is run. ➤ Online installer size is 6KB to 3.5MB depending on operating system as it contains only the initial installation package files. 	<ul style="list-style-type: none"> ➤ Takes less time as all the necessary binary and component files are already available in the offline installer and offline installer can be downloaded once but reused many times. ➤ Offline installer size is 80MB to 132MB depending on operating system as it contains all the necessary binary and component files.
Deployments	<ul style="list-style-type: none"> ➤ Suitable for single or small amount of device installations. ➤ Suitable for sites with fast and stable internet connection as internet connection is needed each time when an installation is run. ➤ A slow internet connection will result in longer installation time and interrupted, or unstable internet connection may lead to unsuccessful installation. ➤ Ensures the latest version of the product is installed. 	<ul style="list-style-type: none"> ➤ Suitable for multiple or mass device installations. ➤ Suitable for client sites with metered internet connections as once the offline installer is downloaded, internet connection is not needed each time when an installation is run. ➤ May need to update the product version after installation if an older offline installer is used.

NOTE

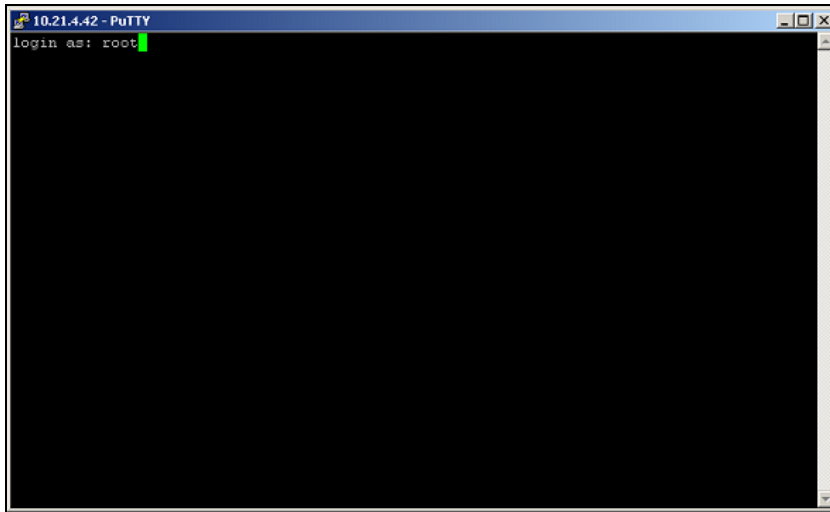
The following platforms only support online installation:

- Debian and Ubuntu – using deb package
- CentOS and Red Hat – using rpm package

4.1 Online Installation

4.1.1 SH online installer

1. Log in to the Linux machine via a ssh client using the root account.



2. Create a new directory for AhsayOBM installation using the following script.

```
# mkdir -p /usr/local/obm
# cd /usr/local/obm
```

3. Go to the download page of your backup service provider's website to download the AhsayOBM **SH online installer**.



4. Right click on the **SH online installer** link, then copy the link address of the AhsayOBM installer.



5. Use the **curl** command with the copied link address to download the AhsayOBM installer from the backup service provider's website onto the Linux machine.

```
# curl -Ok https://10.120.10.12/cbs/download/obm-nix-443-
10.120.10.12-https-00.sh?dlName=obm-linux-443-
10.120.10.12-https-00.sh
% Total      % Received % Xferd  Average Speed   Time    Time
Time Current
```

						Dload	Upload	Total	Spent
Left	Speed								
100	17971	100	17971	0	0	9568	0	0:00:01	
0:00:01	--:--:--			9735					

6. Rename the file by removing the characters from "?" until the end. In the example below, remove the characters highlighted in red:

Before:

obm-nix-443-10.120.10.12-https-00.sh?dlName=obm-linux-443-10.120.10.12-https-00.sh

After:

obm-nix-443-10.120.10.12-https-00.sh

You may perform the renaming of file using the **mv** command:

```
# mv obm-nix-443-10.120.10.12-https-00.sh?dlName=obm-linux-443-10.120.10.12-https-00.sh obm-nix-443-10.120.10.12-https-00.sh
# ls -la
total 24
drwxr-xr-x.  2 root root    55 May  6 15:56 .
drwxr-xr-x. 22 root root   268 May  6 15:53 ..
-rw-r--r--.  1 root root 24034 May  6 15:53 obm-nix-443-10.120.10.12-https-00.sh
```

7. Add the executable permissions to the AhsayOBM install script.

```
# chmod 755 obm-nix-443-10.120.10.12-https-00.sh
```

8. Run the AhsayOBM installation script. At the end of the script, the installation path and "Done" will be shown to indicate that the AhsayOBM installation is successful.

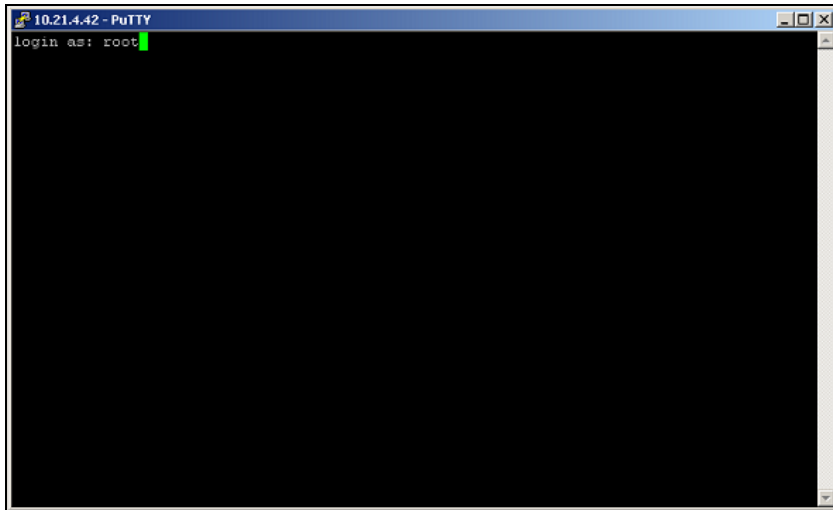
NOTE: The .sh script file should be copied and run under the directory path where you want the AhsayOBM application to be installed, i.e., /usr/local/obm

```
# ./obm-nix-443-10.120.10.12-https-00.sh
Log Time: Thu Jan  6 11:23:40 HKT 2022
Host address: https://10.120.10.12:443
Downloading file... jre-std-linux-amd64.tar.gz
% Total      % Received % Xferd  Average Speed   Time    Time
Time Current
Dload Upload  Total   Spent    Left  Speed
100 91.3M  100 91.3M    0     0  3672k      0  0:00:25
0:00:25 --:--:-- 12.0M
Download file completed
Untar component file to /tmp/_obm.190114184240/jvm
Downloading file... app-common.tar.gz
% Total      % Received % Xferd  Average Speed   Time    Time
Time Current
Dload Upload  Total   Spent    Left  Speed
100 34.9M  100 34.9M    0     0  1126k      0  0:00:31
```

```
0:00:31 --:--:-- 4478k
Download file completed
.
.
.
Untar component file to /tmp/_obm.190114184240
Downloading file... aua-inst-nix-obm.tar.gz
% Total      % Received % Xferd  Average Speed   Time    Time
Time Current
Dload Upload  Total   Spent    Left  Speed
100 54564  100 54564    0     0   329k      0 --:--:-- --:--:--
- --:--:-- 330k
Download file completed
Untar component file to /tmp/_obm.190114184240
No old application found, begin fresh install
Install Application Path: /usr/local/obm
Done
```

4.1.2 RPM online installer

1. Log in to the Linux machine via a ssh client using the root account.



2. Create a new directory for AhsayOBM installation using the following script.

```
# mkdir -p /usr/local/obm
# cd /usr/local/obm
```

3. Go to the download page of your backup service provider's website to download the AhsayOBM **RPM online installer**.



4. Right click on the **RPM online installer** link, then copy the link address of the AhsayOBM installer.



5. Use the **curl** command to download the AhsayOBM installer from the backup service provider's website onto the Linux machine.

```
# curl -Ok https://10.120.10.12/cbs/download/obm-linux-noarch-
443-10.120.10.12-https-00.rpm
% Total      % Received % Xferd  Average Speed   Time    Time
Time  Current
                               Dload  Upload  Total  Spent
Left  Speed
100  7719  100  7719    0     0  4377      0  0:00:01
0:00:01 --:--:-- 4726
```

6. Run the **rpm** command to install AhsayOBM.

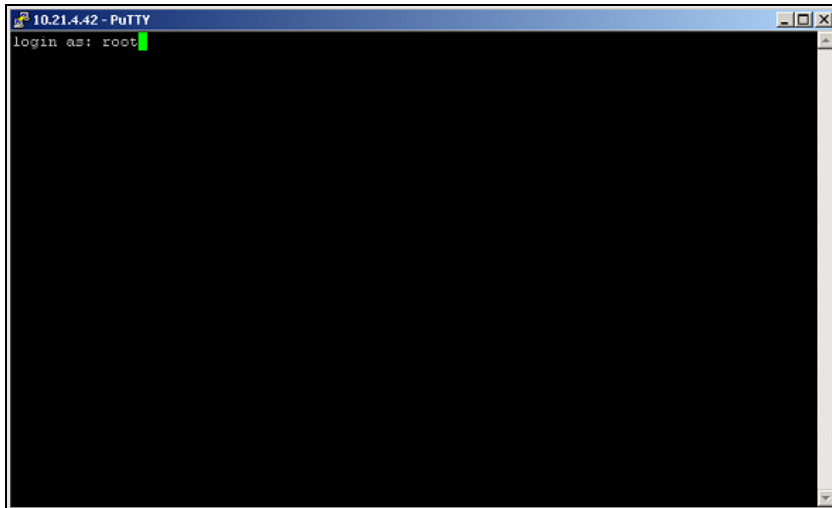
```
# rpm -i obm-linux-noarch-443-10.120.10.12-https-00.rpm
Start install obm
Log Time: Thu Jan 6 11:23:40 HKT 2022
Checking host address... rpm -i obm-linux-noarch-443-
10.120.10.12-https-00.rpm
Host address: https://10.120.10.12:443
Downloading file... jre-std-linux-amd64.tar.gz
  % Total    % Received % Xferd  Average Speed   Time    Time
  Time      Current
                                 Dload  Upload  Total  Spent
  Left  Speed
100 91.3M 100 91.3M    0     0 2717k      0  0:00:34
0:00:34 --:--:-- 10.9M
Download file completed
.
.
Downloading file... app-inst-nix-obm.tar.gz
  % Total    % Received % Xferd  Average Speed   Time    Time
  Time      Current
                                 Dload  Upload  Total  Spent
  Left  Speed
100 172k 100 172k    0     0 762k      0 --:--:-- --:--:--
- --:--:-- 774k
Download file completed
Untar component file to /tmp/_obm.190114183512
Downloading file... aua-inst-nix-obm.tar.gz
  % Total    % Received % Xferd  Average Speed   Time    Time
  Time      Current
                                 Dload  Upload  Total  Spent
  Left  Speed
100 54564 100 54564    0     0 240k      0 --:--:-- --:--:--
- --:--:-- 254k
Download file completed
Untar component file to /tmp/_obm.190114183512
No old application found, begin fresh install
Install Application Path: /usr/local/obm
Done
Install obm finished
```

7. Check if the AhsayOBM is installed correctly by running the following script.

```
Name          : obm
Version       : 9.0.3.0
Release       : 0
Architecture  : noarch
Install Date  : Thu Jan 6 10:12:08 HKT 2022
Group         : Applications/System
Size          : 24034
License       : GPLv2+
Signature     : (none)
Source RPM    : obm-9.0.3.0-0.src.rpm
Build Date   : Wed Jan 5 12:45:08 HKT 2022
Build Host    : cxb-cos6x.releng.dev.test
Relocations   : (not relocatable)
URL           : www.ahsay.com
Summary       : Ahsay Online Backup Manager
Description   :
Ahsay Online Backup Manager
```

4.1.3 DEB online installer

1. Log in to the Debian or Ubuntu machine via a ssh client using the root account.



2. Create a new directory for AhsayOBM installation using the following script.

```
# mkdir -p /usr/local/obm  
# cd /usr/local/obm
```

3. Go to the download page of your backup service provider's website to download the AhsayOBM **DEB online installer**.



4. Right click on the **DEB online installer** link, then copy the link address of the AhsayOBM installer.



5. Use the **curl** command to download the AhsayOBM installer from the backup service provider's website onto the Debian or Ubuntu machine.

```
# curl -Ok https://10.120.10.12/cbs/download/obm-ubuntu-noarch-  
443-10.120.10.12-https-00.deb?dlName=obm-ubuntu-noarch-443-  
10.120.10.12-https-00.deb  
% Total      % Received % Xferd  Average Speed   Time    Time  
Time  Current  
Dload  Upload  Total  Spent  Left  Speed
```



```
100 5768 100 5768 0 0 236 0 0:00:24 0:00:24
--:--:-- 237
```

6. Rename the file by removing the characters from "?" until the end. In the example below, remove the characters highlighted in red:

Before:

```
obm-ubuntu-noarch-443-10.120.10.12-https-00.deb?dlName=obm-ubuntu-
noarch-443-10.120.10.12-https-00.deb
```

After:

```
obm-ubuntu-noarch-443-10.120.10.12-https-00.deb
```

You may perform the renaming of file using the **mv** command:

```
# mv obm-ubuntu-noarch-443-10.120.10.12-https-00.deb?dlName=obm-
ubuntu-noarch-443-10.120.10.12-https-00.deb obm-ubuntu-noarch-
443-10.120.10.12-https-00.deb

# ls -la
total 24
drwxr-xr-x. 2 root root 55 May 6 15:56 .
drwxr-xr-x. 22 root root 268 May 6 15:53 ..
-rw-r--r--. 1 root root 24034 May 6 15:53 obm-ubuntu-noarch-
443-10.120.10.12-https-00.deb
```

7. Run the **dpkg** command to install AhsayOBM.

```
# dpkg -i obm-ubuntu-noarch-443-10.120.10.12-https-00.deb
Selecting previously unselected package obm.
(Reading database ... 210408 files and directories currently
installed.)
Preparing to unpack obm-ubuntu-noarch-443-10.120.10.12-https-
00.deb ...
Unpacking obm (9.0.3.0) ...
Setting up obm (9.0.3.0) ...
Start install obm
Log Time: Thu Jan 6 11:23:40 HKT 2022
Checking host address... dpkg -i obm-ubuntu-noarch-443-
10.120.10.12-https-00.deb
Host address: https://10.120.10.12:443
Downloading file... jre-std-linux-amd64.tar.gz
% Total      % Received % Xferd Average Speed Time Time
Time Current
Dload Upload Total Spent Left Speed
100 36.9M 100 36.9M 0 0 18.6M 0 0:00:01 0:00:01
--:--:-- 18.6M
Download file completed
.
.
.
Untar component file to /tmp/_obm.181227113558
Downloading file... aua-inst-nix-obm.tar.gz
```

```

% Total      % Received % Xferd  Average Speed   Time    Time
Time  Current
                               Dload  Upload   Total
      Spent    Left  Speed
100 49002  100 49002    0     0   899k      0  --:--:--  --:--:--
--:--:--  902k
Download file completed
Untar component file to /tmp/_obm. 181227113558
No old application found, begin fresh install
Install Application Path: /usr/local/obm
Done
Install obm finished

```

8. To check the status of the installation, run the **dpkg -s obm** script.

```

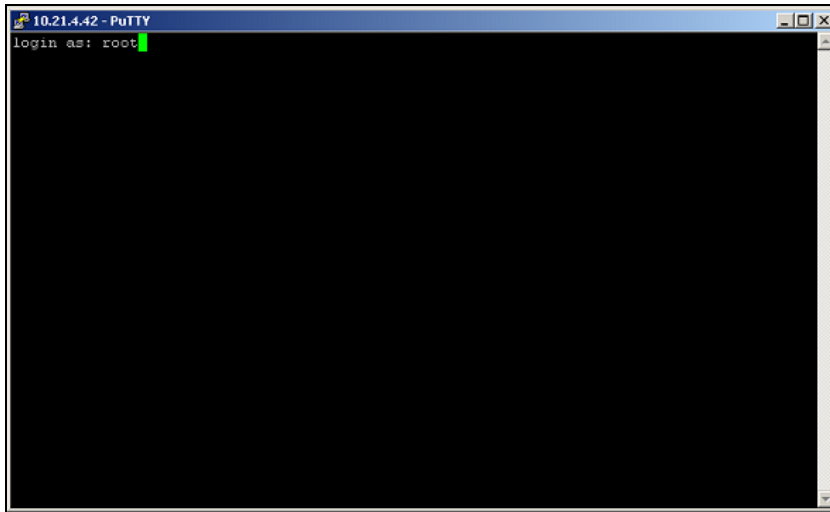
# dpkg -s obm
Package: obm
Status: install ok installed
Priority: optional
Section: utils
Installed-Size: 204800
Maintainer: Ahsay Systems Corporation <support-kb@ahsay.com>
Architecture: all
Version: 9.0.3.0
Description: Ahsay Online Backup Manager
Ahsay Online Backup Manager

```

4.2 Offline Installation

TAR GZ offline installer

1. Log in to the Linux machine via a ssh client using the root account.



2. Create a new directory for AhsayOBM installation using the following script.

```
# mkdir -p /usr/local/obm
# cd /usr/local/obm
```

3. Go to the download page of your backup service provider's website to download the AhsayOBM **TAR GZ offline installer**.



4. Right click on the **TAR GZ offline installer** link, then copy the link address of the AhsayOBM installer.



5. Use the **curl** command to download the AhsayOBM installer from the backup service provider's website onto the Linux machine.

```
# curl -Ok https://10.120.10.12/cbs/download/obm-linux.tar.gz
% Total    % Received % Xferd  Average Speed   Time    Time
Time  Current
Dload  Upload  Total   Spent    Left  Speed
100 287M    0 287M    0     0 198k      0  --:--:--
0:24:43 --:--:-- 62707
```

6. Run the **tar** command to extract the package component files.

```
# tar xvzf obm-linux.tar.gz
app.pkg/version.txt
app.pkg/app-common.tar.gz
app.pkg/app-native-nix-x64.tar.gz
app.pkg/app-native-nix-x86.tar.gz
app.pkg/app-nix-obm.tar.gz
app.pkg/aua-common.tar.gz
app.pkg/aua-native-nix-x64.tar.gz
app.pkg/aua-native-nix-x86.tar.gz
app.pkg/aua-nix-obm.tar.gz
app.pkg/util-common.tar.gz
app.pkg/util-nix-obm.tar.gz
app.pkg/properties-common.tar.gz
app.pkg/app-inst-nix-obm.tar.gz
app.pkg/aua-inst-nix-obm.tar.gz
app.pkg/jre-std-linux-amd64.tar.gz
app.pkg/jre-std-linux-x86-586.tar.gz
app.pkg/app-native-nix-others.tar.gz
app.pkg/aua-native-nix-others.tar.gz
obm-linux.sh
```

7. Use the **sh** command to install AhsayOBM.

```
sh obm-linux.sh
Log Time: Thu Jan 6 10:12:08 HKT 2022
Using package in /usr/local/obm/app.pkg
Package version: 9.0.3.0
Untar jre-std-linux-amd64.tar.gz to /tmp/_obm.210507103221/jvm
Untar app-common.tar.gz to /tmp/_obm.210507103221
Untar app-native-nix-x64.tar.gz to /tmp/_obm.210507103221
Untar app-nix-obm.tar.gz to /tmp/_obm.210507103221
Untar aua-common.tar.gz to /tmp/_obm.210507103221
Untar aua-native-nix-x64.tar.gz to /tmp/_obm.210507103221
Untar aua-nix-obm.tar.gz to /tmp/_obm.210507103221
Untar util-common.tar.gz to /tmp/_obm.210507103221
Untar util-nix-obm.tar.gz to /tmp/_obm.210507103221
Untar properties-common.tar.gz to /tmp/_obm.210507103221
Untar app-inst-nix-obm.tar.gz to /tmp/_obm.210507103221
Untar aua-inst-nix-obm.tar.gz to /tmp/_obm.210507103221
Backup user setting files
Backup finished
Uninstall previous version...
Remove previous application files
Remove file obm-linux.tar.gz
Remove application files finished
Install Application Path: /usr/local/obm
Restore Previous Setting backup...
Previous Setting backup restored
Done
```

4.3 AhsayOBM Scheduler Service Check

The AhsayOBM scheduler service is used to kick automated or scheduled backup jobs, to check if the AhsayOBM scheduler service is running use the **ps** command.

```
# ps -ef|grep java
root      11569      1   9 10:35 pts/0      00:00:09
/usr/local/obm/jvm/bin/bschJW -Xms128m -Xmx768m -
Dsun.nio.PageAlignDirectMemory=true -Djava.library.path=. -
cp ../cbs.jar cbs /usr/local/obm
root      11676 10144   0 10:37 pts/0      00:00:00 grep --color=auto
java
```

1. To manually start the scheduler service, use the **/usr/local/obm/bin/Scheduler.sh** script.
2. To manually stop the scheduler service, use the **/usr/local/obm/bin/StopScheduler.sh** script.

4.4 RunLevel Symlink Check

During installation, the following symlinks to the scheduler startup script **/etc/init.d/obmscheduler** will be created for Runlevels 2 to 5, to allow the AhsayOBM scheduler service to be started up automatically each time after the Linux machine is rebooted or restarted.

To verify the symlinks have been created correctly:

Example: Ubuntu 16.04 LTS

```
# ls -la /etc/rc[2-5].d/*obm*
lrwxrwxrwx 1 root root 24 Jan 10 17:09 /etc/rc2.d/S99obmscheduler
-> /etc/init.d/obmscheduler
lrwxrwxrwx 1 root root 24 Jan 10 17:09 /etc/rc3.d/S99obmscheduler
-> /etc/init.d/obmscheduler
lrwxrwxrwx 1 root root 24 Jan 10 17:09 /etc/rc4.d/S99obmscheduler
-> /etc/init.d/obmscheduler
lrwxrwxrwx 1 root root 24 Jan 10 17:09 /etc/rc5.d/S99obmscheduler
-> /etc/init.d/obmscheduler
#
```

Example: CentOS 7

```
# ls -la /etc/rc.d/rc[2-5].d/*obm*
lrwxrwxrwx. 1 root root 24 Jan 15 10:35
/etc/rc.d/rc2.d/S99obmscheduler -> /etc/init.d/obmscheduler
lrwxrwxrwx. 1 root root 24 Jan 15 10:35
/etc/rc.d/rc3.d/S99obmscheduler -> /etc/init.d/obmscheduler
lrwxrwxrwx. 1 root root 24 Jan 15 10:35
/etc/rc.d/rc4.d/S99obmscheduler -> /etc/init.d/obmscheduler
lrwxrwxrwx. 1 root root 24 Jan 15 10:35
/etc/rc.d/rc5.d/S99obmscheduler -> /etc/init.d/obmscheduler
```

5 Starting AhsayOBM

To startup AhsayOBM and connect to AhsayCBS, you need to use the **RunConfigurator.sh** script to configure the backup server URL, port and proxy server settings (if applicable) and enter the user id and password.

When you login for the first time, the Free Trial Registration option will be displayed. If you want to create a free trial account, please proceed to [Appendix K](#). Otherwise, proceed to the next step below.

```
# cd /usr/local/obm/bin
# sh RunConfigurator.sh

Startup Ahsay Online Backup Manager ...
User Configuration file not found
Create a new Configuration file at directory
[/root/.obm/config]

Login Menu (No configuration files found)
-----
(1). Login
(2). Free Trial
(3). Quit
-----
Your Choice:
```

NOTE

The Free Trial Registration option may not be available. This depends on the settings of your backup service provider. Please contact your backup service provider for more information.

Please contact your backup service provider to obtain your user login and password and backup server URL settings.

```
# cd /usr/local/obm/bin
# sh RunConfigurator.sh

Startup Ahsay Online Backup Manager ...
Config file found

Login Menu
-----
(1). Login
(2). Change Network Settings
(3). Forgot Password
(4). Quit
-----
Your Choice:
```

Once the AhsayOBM started, login menu will be displayed. If you want to modify the **network settings** before you log in, select option **(2)**.

```
Login Menu
-----
(1). Login
(2). Change Network Settings
(3). Forgot Password
(4). Quit
-----
Your Choice: 2

Network Setting
-----
(1). Backup Server URL [10.3.121.17]
(2). Port [80]
(3). Protocol [http]
(4). Proxy Setting [Not in Use]
(5). Save and Return
(6). Discard and Return
-----
Your Choice:
```

Otherwise, select option **(1)**. Input your Login name and password to log in.

```
Login Menu
-----
(1). Login
(2). Change Network Settings
(3). Forgot Password
(4). Quit
-----
Your Choice: 1

Login Name : sample
Password : *****

Please wait while verifying user account with server...
Your profile has been downloaded and updated.

Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
```

```
-----  
Your Choice:
```

➤ If Two-Factor Authentication (2FA) is enabled, there will be two login scenarios:

- [using Ahsay Mobile or third-party TOTP authenticator](#)
- [using Twilio](#)

Ahsay Mobile or third-party TOTP authenticator

A mobile device with Ahsay Mobile or a third-party authenticator app installed must first be registered using the AhsayCBS web console or an AhsayOBM with GUI before you can login for the first time. Otherwise, this message will be displayed.

```
Please wait while verifying user account with server...  
  
Your account (sample) is found on server (10.3.121.17:80).  
New configuration file has been created  
  
Mobile2FALoginFirstLogin  
-----  
  
Failed to login (Reason : Please register device in web console  
or GUI client.)
```

For instructions on how to register a mobile device for 2FA using:

- AhsayOBM please refer to [Chapter 6](#) of the AhsayOBM v9 Quick Start Guide for Linux (GUI).
- AhsayCBS web console please refer to [Chapter 7](#) of the AhsayCBS v9 Quick Start Guide.

Once a mobile device is registered for 2FA, this will be the screen displayed. Enter the passcode generated in your authenticator app and press **Enter**.

```
Please wait while verifying user account with server...  
Your profile has been downloaded and updated.  
  
Mobile2FALogin  
-----  
Please enter the passcode to continue login.  
Passcode : 544979  
  
Main Menu  
-----  
  
(1). List Backup Sets  
(2). Delete Backup Set  
(3). Export Backup Set Settings to XML  
(4). Import Backup Set Settings from XML  
(5). Generate new Backup Set Settings Template  
(6). Change Language [English]  
(7). Update Profile Settings
```


(8). Quit

Your Choice:

Twilio

Press **Enter** to continue then provide your country code, phone number and email. A passcode will be sent to the phone number provided. Enter the passcode to continue logging in. The MFA Configuration screen will only be displayed when you log in for the first time.

MFA Configuration

Multi-Factor Authentication is enabled for helping safeguard access to your account. Please provide a phone number to setup in the first-time login.

Press Enter to continue...

Supported Country List:

Andorra (+376)

United Arab Emirates (+971)

Afghanistan (+93)

Antigua and Barbuda (+1268)

Anguilla (+1264)

Albania (+355)

Armenia (+374)

Angola (+244)

Argentina (+54)

American Samoa (+1684)

Austria (+43)

Australia, Christmas Island, Cocos (Keeling) Islands (+61)

Aruba (+297)

Åland Islands, Finland (+358)

Azerbaijan (+994)

Bosnia and Herzegovina (+387)

Barbados (+1246)

Bangladesh (+880)

Belgium (+32)

Burkina Faso (+226)

Bulgaria (+359)

Bahrain (+973)

Burundi (+257)

Benin (+229)

Bermuda (+1441)

Brunei (+673)

Bolivia (+591)

Brazil (+55)

Bahamas (+1242)

Bhutan (+975)

Botswana (+267)

Belarus (+375)

Belize (+501)

DR Congo (+243)

Central African Republic (+236)
Republic of the Congo (+242)
Switzerland (+41)
Ivory Coast (+225)
Cook Islands (+682)
Chile (+56)
Cameroon (+237)
China (+86)
Colombia (+57)
Costa Rica (+506)
Cuba (+53)
Cape Verde (+238)
Cyprus (+357)
Czechia (+420)
Germany (+49)
Djibouti (+253)
Denmark (+45)
Dominica (+1767)
Dominican Republic (+1809)
Algeria (+213)
Ecuador (+593)
Estonia (+372)
Egypt (+20)
Eritrea (+291)
Spain (+34)
Ethiopia (+251)
Fiji (+679)
Falkland Islands, South Georgia (+500)
Micronesia (+691)
Faroe Islands (+298)
France (+33)
Gabon (+241)
Grenada (+1473)
Georgia (+995)
French Guiana (+594)
Guernsey, Isle of Man, Jersey, United Kingdom (+44)
Ghana (+233)
Gibraltar (+350)
Greenland (+299)
Gambia (+220)
Guinea (+224)
Guadeloupe, Saint Barthélemy, Saint Martin (+590)
Equatorial Guinea (+240)
Greece (+30)
Guatemala (+502)
Guam (+1671)
Guinea-Bissau (+245)
Guyana (+592)
Hong Kong (+852)
Honduras (+504)
Croatia (+385)
Haiti (+509)
Hungary (+36)

Indonesia (+62)
Ireland (+353)
Israel (+972)
India (+91)
Iraq (+964)
Iran (+98)
Iceland (+354)
Italy (+39)
Jamaica (+1876)
Jordan (+962)
Japan (+81)
Kenya (+254)
Kyrgyzstan (+996)
Cambodia (+855)
Kiribati (+686)
Comoros (+269)
Saint Kitts and Nevis (+1869)
South Korea (+82)
Kuwait (+965)
Cayman Islands (+1345)
Kazakhstan (+76)
Laos (+856)
Lebanon (+961)
Saint Lucia (+1758)
Liechtenstein (+423)
Sri Lanka (+94)
Liberia (+231)
Lesotho (+266)
Lithuania (+370)
Luxembourg (+352)
Latvia (+371)
Libya (+218)
Morocco, Western Sahara (+212)
Monaco (+377)
Moldova (+373)
Montenegro (+382)
Madagascar (+261)
Marshall Islands (+692)
Macedonia (+389)
Mali (+223)
Myanmar (+95)
Mongolia (+976)
Macau (+853)
Martinique (+596)
Mauritania (+222)
Montserrat (+1664)
Malta (+356)
Mauritius (+230)
Maldives (+960)
Malawi (+265)
Mexico (+52)
Malaysia (+60)
Mozambique (+258)

Namibia (+264)
New Caledonia (+687)
Niger (+227)
Norfolk Island (+672)
Nigeria (+234)
Nicaragua (+505)
Netherlands (+31)
Norway (+47)
Nepal (+977)
Niue (+683)
New Zealand, Pitcairn Islands (+64)
Oman (+968)
Panama (+507)
Peru (+51)
French Polynesia (+689)
Papua New Guinea (+675)
Philippines (+63)
Pakistan (+92)
Poland (+48)
Saint Pierre and Miquelon (+508)
Puerto Rico (+1787)
Palestine (+970)
Portugal (+351)
Palau (+680)
Paraguay (+595)
Qatar (+974)
Romania (+40)
Serbia (+381)
Russia (+7)
Rwanda (+250)
Saudi Arabia (+966)
Solomon Islands (+677)
Seychelles (+248)
Sudan (+249)
Sweden (+46)
Singapore (+65)
Slovenia (+386)
Slovakia (+421)
Sierra Leone (+232)
San Marino (+378)
Senegal (+221)
Somalia (+252)
Suriname (+597)
SouthSudan (+211)
São Tomé and Príncipe (+239)
El Salvador (+503)
Syria (+963)
Swaziland (+268)
Turksand Caicos Islands (+1649)
Chad (+235)
Togo (+228)
Thailand (+66)
Tajikistan (+992)

Timor-Leste (+670)
Turkmenistan (+993)
Tunisia (+216)
Tonga (+676)
Turkey (+90)
Trinidad and Tobago (+1868)
Taiwan (+886)
Tanzania (+255)
Ukraine (+380)
Uganda (+256)
United States, Canada (+1)
Uruguay (+598)
Uzbekistan (+998)
Saint Vincent and the Grenadines (+1784)
Venezuela (+58)
British Virgin Islands (+1284)
United States Virgin Islands (+1340)
Vietnam (+84)
Vanuatu (+678)
Samoa (+685)
Kosovo (+383)
Yemen (+967)
Mayotte, Réunion (+262)
South Africa (+27)
Zambia (+260)
Zimbabwe (+263)

The list above shows all the supported countries and
corresponding country code
Please enter your country code.

Country code : +63

Enter Phone number : 1234567890

There is no contact email address defined in your account.
Please enter an email address for account recovery.

Email : sample@email.com

We will send you a SMS message with passcode to your entered
phone number: Philippines (+63) - 1234567890. Continue?

- (1). Yes, send SMS message
- (2). Change country code
- (3). Modify phone number
- (4). Cancel

Your Choice : 1

A SMS message with a passcode was already sent to the phone
number Philippines (+63) - *****7890 (Expiry time: 04/06/2019
09:39)

Please enter the passcode with AWKQ prefix to continue login.

Passcode : 722458

This will be the screen displayed for subsequent log ins. Select the phone number to receive the passcode.

```
MFALogin
-----
Please select phone number to receive passcode via SMS message
to continue login.
(1). Philippines (+63) - *****7890
(2). Philippines (63+) - *****1234
Your Choice : 1

A SMS message with a passcode was already sent to the phone
number Philippines (+63) - *****7890 (Expiry time: 04/06/2019
09:51)
Please enter the passcode with FCAK prefix to continue login.
Passcode : 481267
```

If the password is forgotten, choose **(3)** on the login menu and input the login name. A link to reset the password will be sent to the email you provided in the AhsayCBS server.

```
Login Menu
-----
(1). Login
(2). Change Network Settings
(3). Forgot Password
(4). Quit
-----
Your Choice: 3

Login name: sample
```

Select option **(4)** to exit the Login menu.

```
Login Menu
-----
(1). Login
(2). Change Network Settings
(3). Forgot Password
(4). Quit
-----
Your Choice: 4

Exit Configurator Utility
```

6 AhsayOBM Main Menu

Once you have successfully logged on to AhsayOBM, the **main menu** will be displayed.

```
Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
```

6.1 List Backup Sets

By selecting option **(1)**, the list of backup sets you have created will be shown.

```
Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
-----
Your Choice: 1

Select a Backup Set to show more details
-----
(1). Daily Backup
(2). Sample Backup
(3). AhsayOBM Backup
(4). OBM Backup
-----
Your Choice:
```

To show more details of a specific backup set, choose a backup set to display.

```
Select a Backup Set to show more details
-----
(1). Daily Backup
(2). Sample Backup
(3). AhsayOBM Backup
-----
Your Choice: 1

Name           : Daily Backup
Owner          : centos7
Type           : FILE
Selected Source : /root/Documents
Selected Source : /mnt
Selected Source : /etc
Selected Source : /home
Deselected Source : /root/.obm
Deselected Source : /usr/local/obm
Deselected Source : /root/temp
Destination Name : AhsayCBS, Type: OBS
Encryption Key   : abc123$%
Encryption Algorithm : AES
Encryption Mode   : CBC
Encryption Key Length: 256

Press Enter to continue...
```

No backup set will be shown if no backup set has been created yet.

```
Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
-----
Your Choice: 1

No backup set has been created yet.
```


6.2 Delete Backup Set

Select option **(2)** from the main menu if you wish to delete a backup set.

```
Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
-----
Your Choice: 2

Choose your backup set to delete
-----
(1). Daily Backup
(2). Sample Backup
(3). AhsayOBM Backup
(4). OBM Backup
-----
Your Choice:
```

Select a backup set you want to delete. Once selected, choose “Y” to confirm deletion and the backup set will be deleted successfully.

Note: If you choose “Y”, the selected backup set and all its backed-up data will be deleted.

```
Choose your backup set to delete
-----
(1). Daily Backup
(2). Sample Backup
(3). AhsayOBM Backup
(4). OBM Backup
-----
Your Choice: 4

Name                : OBM Backup
Owner               : centos7
Type                : FILE
Encryption Key      : abc123$%
Encryption Algorithm : AES
Encryption Mode      : CBC
Encryption Key Length : 256

Are you sure you want to delete this backup set? (Y/N) ? y
Backup set deleted
```

6.3 Export Backup Set Settings to XML

This feature is used to export a backup set to XML file if you want to modify the backup set settings.

To do this, select option **(3)** on the main menu.

```
Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
-----
Your Choice: 3

Choose your backup set to generate XML file
-----
(1). Daily Backup
(2). Sample Backup
(3). AhsayOBM Backup
(4). OBM Backup
-----
Your Choice:
```

Select a backup set. An XML file will be generated and exported to the **/root/.obm/config** directory.

Note: The **/root/.obm/config** folder cannot be changed.

```
Choose your backup set to generate XML file
-----
(1). Daily Backup
(2). Sample Backup
(3). AhsayOBM Backup
(4). OBM Backup
-----
Your Choice: 4

XML file successfully exported to /root/.obm/config/backupSet.xml

Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
```

```
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
-----
Your Choice:
```

Note: To see the list of all configurable items with their available options, please refer to [Appendix B](#) File Backup Set XML Template (with explanation).

To see instructions on how to configure the backup set setting, please refer to number **3** **Configuring Backup Set Settings** in [Chapter 7](#).

6.4 Import Backup Set Settings from XML

This option allows user to import the updated backupSet.xml file to the AhsayCBS server.

Select option **(4)** to import the backup set XML file.

```
Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
-----
Your Choice: 4

Backup Set 'Daily Backup' already exist. Confirm overwrite? (Y/N) ?
Y
XML imported, uploading to server...

XML successfully uploaded to server

Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
```

To see if the modification of the backup set settings is successful, select option **(1)** from the main menu and select the imported XML file.

```
Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
-----
Your Choice: 1

Select a Backup Set to show more details
-----
(1). Daily Backup
(2). Sample Backup
(3). AhsayOBM Backup
(4). OBM Backup
-----
Your Choice: 1

Name           : Daily Backup
Owner          : centos7
Type           : FILE
Selected Source : /etc
Selected Source : /home
Deselected Source : /root/.obm
Deselected Source : /usr/local/obm
Deselected Source : /root/temp
Destination Name : AhsayCBS, Type: OBS
Encryption Key  : abc123$%
Encryption Algorithm : AES
Encryption Mode : CBC
Encryption Key Length: 256

Press Enter to continue...
```

6.5 Generate new Backup Set Settings Template

This feature is used to create a new backup set. The supported backup set types are **File**, **MySQL Database**, **MariaDB**, **Oracle Database Server** and **IBM Domino**.

Select option **(5)** on the main menu then select **(1). File** to generate a File Backup Set Template to the `/root/.obm/config` directory.

Note: To see example of a **File Backup Setting**, please refer to [Appendix C](#) Example File Backup Set Setting.

```
Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
-----
Your Choice: 5

Choose a template from a backup set type
-----
(1). File
(2). MySQL Database
(3). MariaDB
(4). Oracle Database Server
(5). IBM Domino
-----
Your Choice: 1

XML file successfully exported to /root/.obm/config/backupSet.xml

Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
-----
Your Choice:
```

6.6 Change Language Settings

This option allows user to modify the language settings. Select option **(6)** on the main menu then choose the selected language.

Note: The list of available languages depends on the backup service provider.

```
Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
-----
Your Choice: 6

Select
-----
(1). English
(2). □□□□□□
(3). Euskara
(4). Català
(5). Český
(6). Dansk
(7). Nederlands
(8). Suomi
(9). Français
(10). Deutsch
(11). Ελληνικά
(12). עִבְרִית
(13). Magyar
(14). Bahasa Indonesia
(15). Italiano
(16). 日本語
(17). 한국어
(18). Lietuvių
(19). Norsk
(20). Polski
(21). Português (Brasil)
(22). Português (Portugal)
(23). на русском
(24). Slovenščina
(25). Español
(26). Svenska
(27). ภาษาไทย
(28). Türkçe
```

```
(29). Tiếng Việt
(30). 简体中文
(31). 繁體中文
(32). Cancel
-----
Your Choice: 1

Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
-----
Your Choice:
```

6.7 Update Profile Settings

This option allows user to modify the profile settings.

From the main menu, select option **(7)** to update profile settings.

```
Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
-----
Your Choice: 7

Profile Menu
-----
(1). Display Name
(2). Contacts
(3). Time Zone [GMT+08:00 (HKT)]
(4). Encryption Recovery [Enabled]
(5). Change Password
(6). Return
-----
Your Choice:
```

To create a **display name**, select option **(1)** on the profile menu and input a display name.

```
Profile Menu
-----
(1). Display Name
(2). Contacts
(3). Time Zone [GMT+08:00 (HKT)]
(4). Encryption Recovery [Enabled]
(5). Change Password
(6). Return
-----
Your Choice: 1

Display name : John Backup

Display name is updated!

Profile Menu
-----
(1). Display Name [John Backup]
(2). Contacts
(3). Time Zone [GMT+08:00 (HKT)]
(4). Encryption Recovery [Enabled]
(5). Change Password
(6). Return
-----
Your Choice:
```

Select option **(2)** to see the list of contact(s).

```
Contacts
-----
(1). List
(2). Update
(3). Add
(4). Delete
(5). Save and Return
(6). Discard and return
-----
Your Choice: 1

Name: John Cruz II, Email: John2000@gmail.com
```


Choose option **(3)** to update an existing contact. Input the contact name of an existing contact you wish to update and fill in the new information.

```
Contacts
-----
(1). List
(2). Update
(3). Add
(4). Delete
(5). Save and Return
(6). Discard and return
-----
Your Choice: 2

Enter contact name : John Cruz II
Name : Luis Stark
Email : Stark3000@gmail.com
Send me encrypted email (S/MIME) (Y/N) ? n
Address : Blakewood City
Company : Ahsay
Website : www.ahsay.com
Phone 1 : 8214544
Phone 2 : 8225515
```

To check if is updated successfully, choose option (1) on the main menu to display contact list.

```
Contacts
-----
(1). List
(2). Update
(3). Add
(4). Delete
(5). Save and Return
(6). Discard and return
-----
Your Choice: 1

Name: Luis Stark, Email: Stark3000@gmail.com
```

Add a new contact by selecting option **(3)**. Fill in the information of the new added contact.

```
Contacts
-----
(1). List
(2). Update
(3). Add
(4). Delete
(5). Save and Return
(6). Discard and return
-----
Your Choice: 3
```

```
Name : Jason Webb
Email : Jwebb@gmail.com
Send me encrypted email (S/MIME) (Y/N) ? n
Address : Michigan State
Company : Ahsay
Website : www.ahsay.com
Phone 1 : 8221121
Phone 2 : 8221212
```

Contacts

```
-----
(1). List
(2). Update
(3). Add
(4). Delete
(5). Save and Return
(6). Discard and return
-----
```

Your Choice: 1

Name: Luis Stark, Email: Stark3000@gmail.com

Name: Jason Webb, Email: Jwebb@gmail.com

To delete a contact, select option **(4)** from the contact menu and input the contact name you wish to delete.

Contacts

```
-----
(1). List
(2). Update
(3). Add
(4). Delete
(5). Save and Return
(6). Discard and return
-----
```

Your Choice: 4

Enter contact name : Luis Stark

Contacts

```
-----
(1). List
(2). Update
(3). Add
(4). Delete
(5). Save and Return
(6). Discard and return
-----
```

Your Choice: 1

No contact exists

Choose option **(5)** to save settings and return to the profile menu.

```
Contacts
-----
(1). List
(2). Update
(3). Add
(4). Delete
(5). Save and Return
(6). Discard and return
-----
Your Choice: 5

Profile Menu
-----
(1). Display Name [John Backup]
(2). Contacts
(3). Time Zone [GMT+08:00 (HKT)]
(4). Encryption Recovery [Enabled]
(5). Change Password
(6). Return
-----
Your Choice:
```

If you want to discard the changes you have made, select option **(6)**.

```
Contacts
-----
(1). List
(2). Update
(3). Add
(4). Delete
(5). Save and Return
(6). Discard and return
-----
Your Choice: 6

Profile Menu
-----
(1). Display Name [John Backup]
(2). Contacts
(3). Time Zone [GMT+08:00 (HKT)]
(4). Encryption Recovery [Enabled]
(5). Change Password
(6). Return
-----
Your Choice:
```

If you want to modify the time zone, select option (3) on the profile menu. The list of the available time zones will be displayed.

```
Profile Menu
-----
(1). Display Name [John Backup]
(2). Contacts
(3). Time Zone [GMT+08:00 (HKT)]
(4). Encryption Recovery [Enabled]
(5). Change Password
(6). Return
-----
Your Choice: 3

Select
-----
(1). GMT-11:00 (NUT)
(2). GMT-11:00 (SST)
(3). GMT-10:00 (CKT)
(4). GMT-10:00 (HADT)
(5). GMT-10:00 (HST)
(6). GMT-10:00 (TAHT)
(7). GMT-09:00 (AKDT)
(8). GMT-09:00 (GAMT)
(9). GMT-08:00 (PDT)
(10). GMT-08:00 (PST)
(11). GMT-07:00 (MDT)
(12). GMT-07:00 (MST)
(13). GMT-06:00 (CST)
(14). GMT-06:00 (EAST)
(15). GMT-06:00 (GALT)
(16). GMT-05:00 (CDT)
(17). GMT-05:00 (COT)
(18). GMT-05:00 (ECT)
(19). GMT-05:00 (EST)
(20). GMT-05:00 (GMT-05:00)
(21). GMT-05:00 (PET)
(22). GMT-04:30 (VET)
(23). GMT-04:00 (ACT)
(24). GMT-04:00 (ADT)
(25). GMT-04:00 (AMT)
(26). GMT-04:00 (AST)
(27). GMT-04:00 (BOT)
(28). GMT-04:00 (CLT)
(29). GMT-04:00 (EDT)
(30). GMT-04:00 (GYT)
(31). GMT-04:00 (PYT)
(32). GMT-03:30 (NST)
(33). GMT-03:00 (ART)
(34). GMT-03:00 (BET)
(35). GMT-03:00 (BRT)
```

- (36). GMT-03:00 (FKT)
- (37). GMT-03:00 (GFT)
- (38). GMT-03:00 (PMDT)
- (39). GMT-03:00 (SRT)
- (40). GMT-03:00 (UYT)
- (41). GMT-03:00 (WGST)
- (42). GMT-02:00 (FNT)
- (43). GMT-02:00 (GST)
- (44). GMT-01:00 (AZOST)
- (45). GMT-01:00 (CVT)
- (46). GMT-01:00 (EGST)
- (47). GMT-01:00 (EGT)
- (48). GMT+00:00 (BST)
- (49). GMT+00:00 (GMT)
- (50). GMT+00:00 (IST)
- (51). GMT+00:00 (UTC)
- (52). GMT+00:00 (WEST)
- (53). GMT+00:00 (WET)
- (54). GMT+01:00 (CET)
- (55). GMT+01:00 (WAT)
- (56). GMT+02:00 (CAT)
- (57). GMT+02:00 (CEST)
- (58). GMT+02:00 (EEST)
- (59). GMT+02:00 (EET)
- (60). GMT+02:00 (IDT)
- (61). GMT+02:00 (SAST)
- (62). GMT+03:00 (ADT)
- (63). GMT+03:00 (AST)
- (64). GMT+03:00 (EAT)
- (65). GMT+03:30 (IRST)
- (66). GMT+04:00 (AMST)
- (67). GMT+04:00 (AZST)
- (68). GMT+04:00 (GEST)
- (69). GMT+04:00 (GST)
- (70). GMT+04:00 (MSD)
- (71). GMT+04:00 (MUT)
- (72). GMT+04:00 (RET)
- (73). GMT+04:00 (SAMST)
- (74). GMT+04:00 (SCT)
- (75). GMT+05:00 (AQTST)
- (76). GMT+05:00 (MAWT)
- (77). GMT+05:00 (MVT)
- (78). GMT+05:00 (PKT)
- (79). GMT+05:00 (TFT)
- (80). GMT+05:00 (TJT)
- (81). GMT+05:00 (TMT)
- (82). GMT+05:00 (UZT)
- (83). GMT+05:30 (IST)
- (84). GMT+05:30 (LKT)
- (85). GMT+06:00 (ALMST)
- (86). GMT+06:00 (BDT)
- (87). GMT+06:00 (BTT)
- (88). GMT+06:00 (IOT)

- (89). GMT+06:00 (KGST)
- (90). GMT+06:00 (YEKST)
- (91). GMT+07:00 (CXT)
- (92). GMT+07:00 (ICT)
- (93). GMT+07:00 (JAVT)
- (94). GMT+07:00 (NOVT)
- (95). GMT+08:00 (BNT)
- (96). GMT+08:00 (BORT)
- (97). GMT+08:00 (CST)
- (98). GMT+08:00 (HKT)
- (99). GMT+08:00 (KRAT)
- (100). GMT+08:00 (MYT)
- (101). GMT+08:00 (PHT)
- (102). GMT+08:00 (SGT)
- (103). GMT+08:00 (ULAT)
- (104). GMT+08:00 (WST)
- (105). GMT+09:00 (IRKST)
- (106). GMT+09:00 (JAYT)
- (107). GMT+09:00 (JST)
- (108). GMT+09:00 (KST)
- (109). GMT+09:00 (PWT)
- (110). GMT+09:30 (CST)
- (111). GMT+10:00 (ChST)
- (112). GMT+10:00 (DDUT)
- (113). GMT+10:00 (EST)
- (114). GMT+10:00 (PGT)
- (115). GMT+10:00 (TRUT)
- (116). GMT+10:00 (YAKT)
- (117). GMT+11:00 (KOST)
- (118). GMT+11:00 (NCT)
- (119). GMT+11:00 (PONT)
- (120). GMT+11:00 (SBT)
- (121). GMT+11:00 (VLAT)
- (122). GMT+11:00 (VUT)
- (123). GMT+12:00 (ANAST)
- (124). GMT+12:00 (FJT)
- (125). GMT+12:00 (GILT)
- (126). GMT+12:00 (MAGT)
- (127). GMT+12:00 (MHT)
- (128). GMT+12:00 (NRT)
- (129). GMT+12:00 (NZST)
- (130). GMT+12:00 (PETST)
- (131). GMT+12:00 (TVT)
- (132). GMT+12:00 (WAKT)
- (133). GMT+12:00 (WFT)
- (134). GMT+13:00 (TKT)
- (135). GMT+13:00 (WST)
- (136). Cancel

Your Choice: 98

Profile Menu

```
-----
(1). Display Name [John Backup]
(2). Contacts
(3). Time Zone [GMT+08:00 (HKT)]
(4). Encryption Recovery [Enabled]
(5). Change Password
(6). Return
-----
Your Choice:
```

Select option **(4)** from the profile menu to modify the **encryption key settings**. If this feature is on, an encryption key will be uploaded after running a recovery backup.

```
Profile Menu
-----
(1). Display Name [JohnOBM]
(2). Contacts
(3). Time Zone [GMT+08:00 (HKT)]
(4). Encryption Recovery [Disabled]
(5). Change Password
(6). Return
-----
Your Choice: 4

Upload encryption key (Y/N) ? y

Encryption recovery setting is updated!

Profile Menu
-----
(1). Display Name [JohnOBM]
(2). Contacts
(3). Time Zone [GMT+08:00 (HKT)]
(4). Encryption Recovery [Enabled]
(5). Change Password
(6). Return
-----
Your Choice:
```

If you wish to update your password, select option **(5)** from the profile menu. Input your old password and replace it with a new one. Re-enter your new password and it will be updated.

```
Profile Menu
-----
(1). Display Name [JohnOBM]
(2). Contacts
(3). Time Zone [GMT+08:00 (HKT)]
(4). Encryption Recovery [Disabled]
(5). Change Password
(6). Return
-----
Your Choice: 5
```

```
Old password : *****  
New password : *****  
Re-Enter new password : *****
```

Password is updated!

Profile Menu

- ```

(1). Display Name [JohnOBM]
(2). Contacts
(3). Time Zone [GMT+08:00 (HKT)]
(4). Encryption Recovery [Disabled]
(5). Change Password
(6). Return

```

*Your Choice:*

## 6.8 Quit

Select this option to exit AhsayOBM.

*Main Menu*

- ```
-----  
(1). List Backup Sets  
(2). Delete Backup Set  
(3). Export Backup Set Settings to XML  
(4). Import Backup Set Settings from XML  
(5). Generate new Backup Set Settings Template  
(6). Change Language [English]  
(7). Update Profile Settings  
(8). Quit  
-----
```

Your Choice: 8

Exit Configurator Utility

7 Creating a File Backup Set using ssh

There are two ways to create a File Backup Set. One is to create it using AhsayCBS while another way is through ssh. If you prefer creating the File backup set using AhsayCBS, refer to this document for more information: [AhsayCBS v9 User's Guide](#).

1. To create a File backup set select **(5). Generate new Backup Set Settings Template** from the menu.

```
Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
-----
Your Choice: 5
```

2. Select **(1). File** to generate a File Backup Set template file to the **/root/.obm/config** directory.

```
Choose a template from a backup set type
-----
(1). File
(2). MySQL Database
(3). MariaDB
(4). Oracle Database Server
(5). IBM Domino
-----
Your Choice: 1

XML file successfully exported to
  /root/.obm/config/backupSet.xml

Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
-----
Your Choice:
```

3. **Configuring Backup Set Settings.**

To configure the backup set setting you need to edit the **/root/.obm/config/backupSet.xml** file using a text editor, for example vi

You can either quit the RunConfigurator.sh script or open a new ssh session to edit the backupSet.xml file.

Please refer to [Appendix A](#), [B](#), and [C](#) for details and examples on how to create a backup sets using the **backupSet.xml** file.

Notes:

- i. Before importing the backupSet.xml file please remove any unused destinations and backup schedule settings. Otherwise the following error will be displayed **"Failed to import XML file (Reason: Value of Name is empty!)"** when trying to import the backupSet.xml file.*
- ii. Setup of the following cloud storage destinations; OneDrive, OneDrive For Business, DropBox, and Google Drive are not supported in Linux CLI environment, as these cloud storage destinations require authentication using a web browser.*

4. Importing the updated backupSet.xml file to AhsayOBM

After you have edited the backupSet.xml file with your chosen backup settings you need to import the settings back to AhsayOBM so they can be uploaded to AhsayCBS backup server in order to create the backup set.

For example: to create a new file backup set called "filebackup" with encryption enabled and default encryption settings.

```
Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
-----
Your Choice: 4
-----

The backup set "filebackup" is not owned by this computer, do
you want to take the ownership? (Y/N) ? Y
New backup set created.
Enable Encryption (Y/N) ? Y
Use default encryption settings (Y/N) ? Y
XML imported, uploading to server...

XML successfully uploaded to server
```

5. Verify the Backup Set Settings

To verify the uploaded backup set settings are correct select **(1). List Backup Sets** and then select the backup you wish to verify, for example backup set name filebackup.

```
Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
```

```

(7). Update Profile Settings
(8). Quit
-----
Your Choice: 1

Select a Backup Set to show more details
-----
(1). filebackup
-----
Your Choice: 1

Name                : filebackup
Owner               : centos-7-1810-temp
Type                : FILE
Selected Source     : /backupsamples
Deselected Source  : /root/.obm
Deselected Source  : /temp
Destination Name    : AhsayCBS, Type: OBS
Encryption Key      :
                    qtpHlg3uNVfoYkuZNOmpsPNf3ct3cCBgFI0CA1b3LC4=
Encryption Algorithm : AES
Encryption Mode     : CBC
Encryption Key Length: 256

Press Enter to continue...

```

Congratulations! The backup set configuration is now complete!

Notes:

- i. We would like to stress that it is very important to keep a separate record of your encryption key in a safe place, as you will not be able to restore your data without the correct encryption key.*
- ii. If you re-install AhsayOBM or install AhsayOBM on another machine the encryption will be required for restoring data from the backup set.*

6. Verify the Backup Schedule

To verify the scheduled backup settings are correct, check the AhsayOBM scheduler log (**debug.log**) located in **/root/.obm/log/Scheduler** folder.

```

# cat /root/.obm/log/Scheduler/debug.log
[2022/01/07 12:14:46][info] Scheduler Version='9.0.2.24'
[2022/01/07 12:14:46][info] OS Name='Linux 3.10.0-
957.5.1.el7.x86_64' Version='3.10.0-957.5.1.el7.x86_64'
[2022/01/07 12:14:46][info] Java Vendor='Oracle Corporation'
Version='1.8.0_181'
[2022/01/07 12:14:46][info] Computer Name='centos-7-1810-temp'
[2022/01/07 12:14:46][info] User='LinuxTest''
[2022/01/07 12:14:46][info] Starting UserScheduler ...
[2022/01/07 12:14:46][info] UserScheduler started.
[2022/01/07 12:14:46][info] [filebackup (1641454921535)] Start
scheduler.
[2022/01/07 12:14:46][info] Profile is updated. Reloading
scheduler ... Completed
[2022/01/07 12:14:46][info] [filebackup (1641454921535)] Next
backup will run in 57 hr 45 min 13 sec.

```

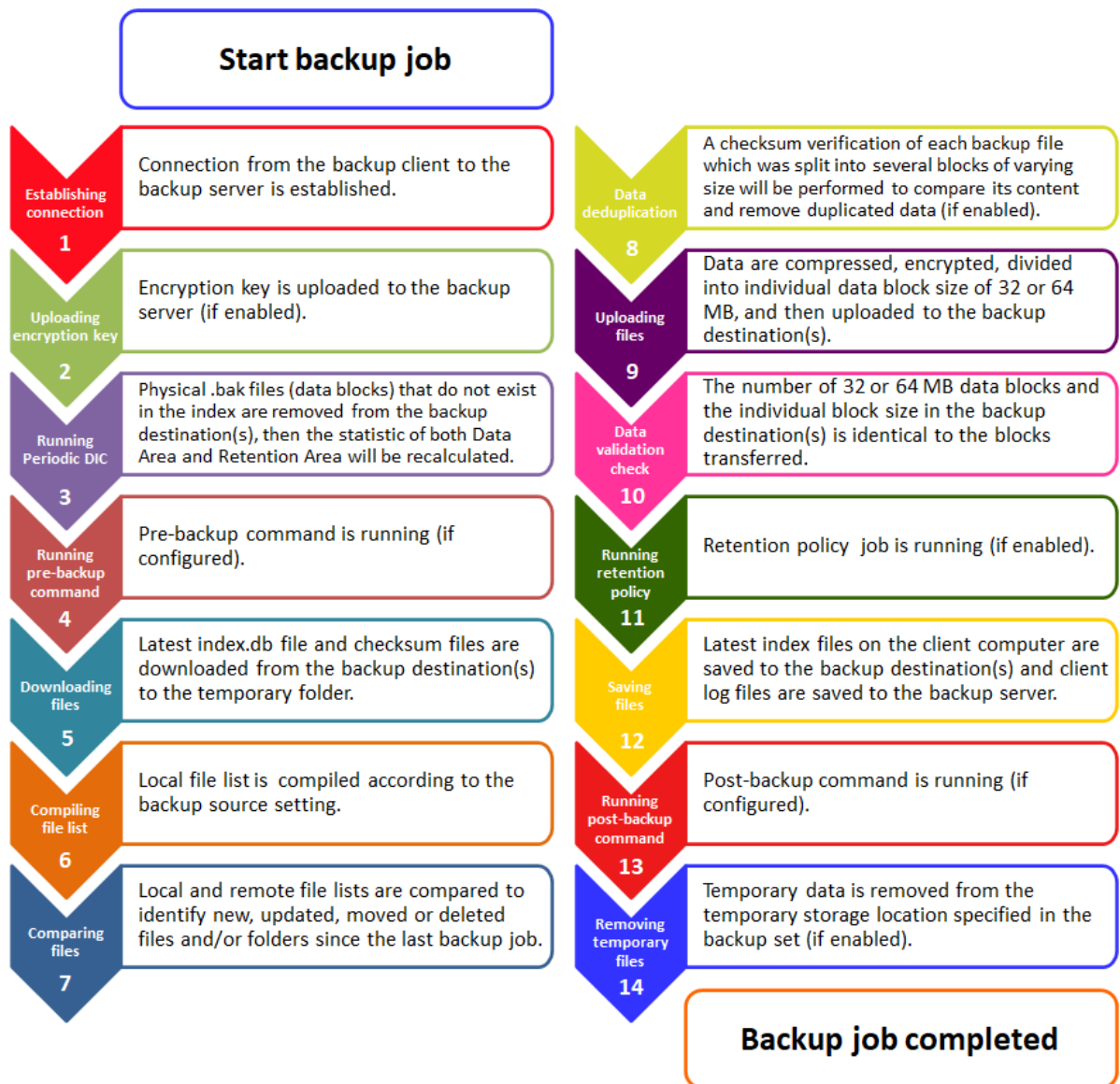
```
[2022/01/07 12:19:46][info] Loading profile...
[2022/01/07 12:19:46][info] Loading profile from server ...
[2022/01/07 12:19:46][info] Loading profile from server ...
    Completed
[2022/01/07 12:19:46][info] Loading profile... Completed
[2022/01/07 12:19:46][info] Profile is reloaded from server.
    Reloading scheduler ...
[2022/01/07 12:19:46][info] [filebackup (1641454921535)] Next
    backup will run in 57 hr 40 min 13 sec.
[2022/01/07 12:19:46][info] Profile is reloaded from server.
    Reloading scheduler ... Completed
```

The AhsayOBM scheduler service connects to the AhsayCBS backup server every 5 minutes to retrieve the latest profile updates. It will display a countdown of when the scheduled backup job(s) will be kicked off.

8 Overview on the Backup Process

The following steps are performed during a backup job. For an overview of the detailed process for Steps 3, 5, 10, and 12, please refer to the following chapters.

- ▶ [Periodic Data Integrity Check \(PDIC\) Process \(Step 3\)](#)
- ▶ Backup Set Index Handling Process
 - [Start Backup Job \(Step 5\)](#)
 - [Completed Backup Job \(Step 12\)](#)
- ▶ [Data Validation Check Process \(Step 10\)](#)



8.1 Periodic Data Integrity Check (PDIC) Process

The PDIC will run on the first backup job that falls on the corresponding day of the week from **Monday to Friday**.

To minimize the impact of the potential load of large number of PDIC jobs running at the same time on the AhsayCBS server, the schedule of a PDIC job for each backup set is automatically determined by the result of the following formula:

$$\text{PDIC schedule} = \%BackupSetID\% \text{ modulo } 5$$

or

$$\%BackupSetID\% \text{ mod } 5$$

The calculated **result** will map to the corresponding day of the week (i.e., from Monday to Friday).

0	Monday
1	Tuesday
2	Wednesday
3	Thursday
4	Friday

NOTE: The PDIC schedule cannot be changed.

Example:

Backup set ID: 1594627447932

Calculation: $1594627447932 \text{ mod } 5 = 2$

2	Wednesday
----------	------------------

In this example:

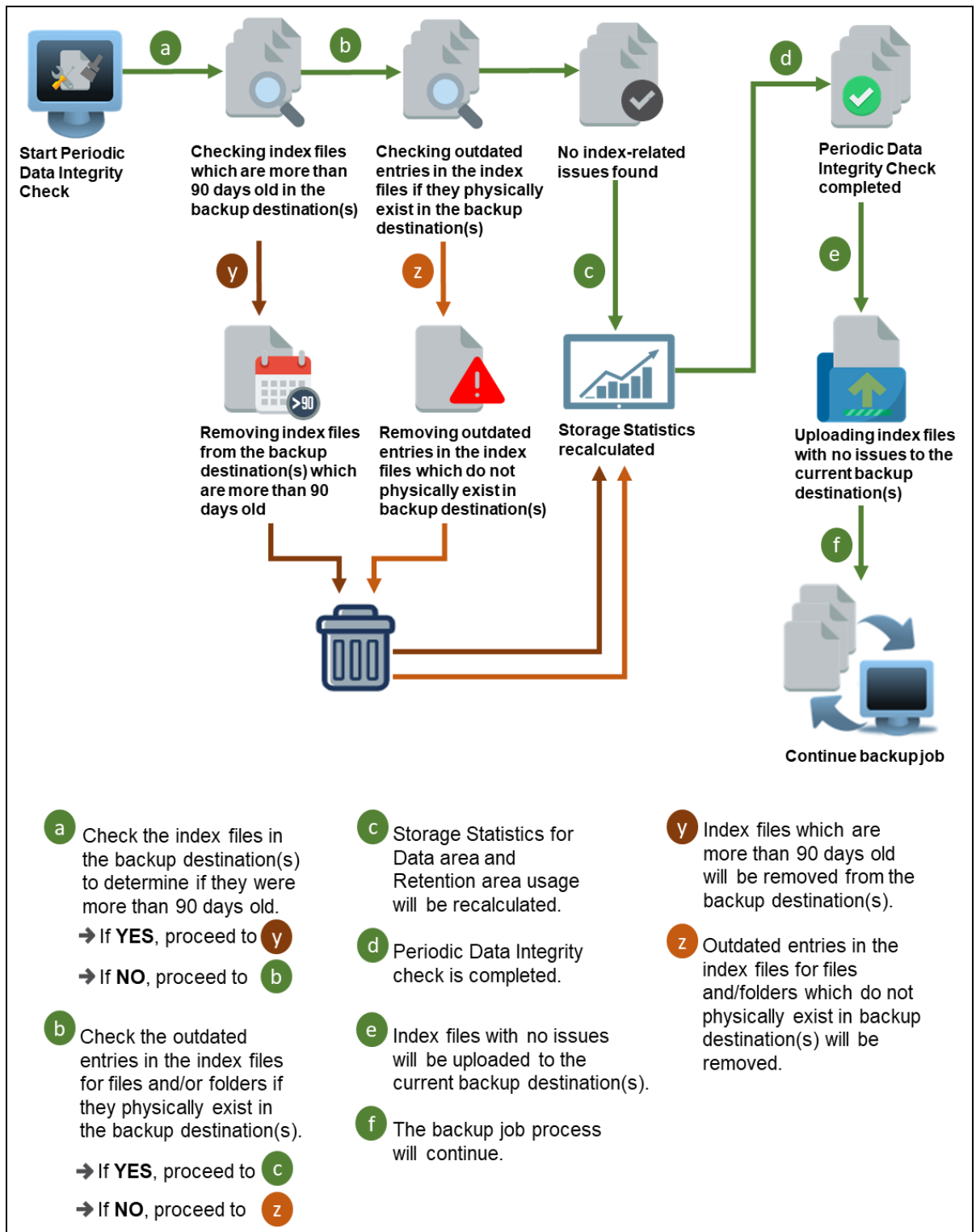
- the PDIC will run on the first backup job that falls on Wednesday; or
- if there is no active backup job(s) running from Monday to Friday, then the PDIC will run on the next available backup job.

NOTE

Although according to the PDIC formula for determining the schedule is **$\%BackupSetID\% \text{ mod } 5$** , this schedule only applies if the previous PDIC job was actually run more than 7 days prior.

Under certain conditions, the PDIC may not run strictly according to this formula. For example:

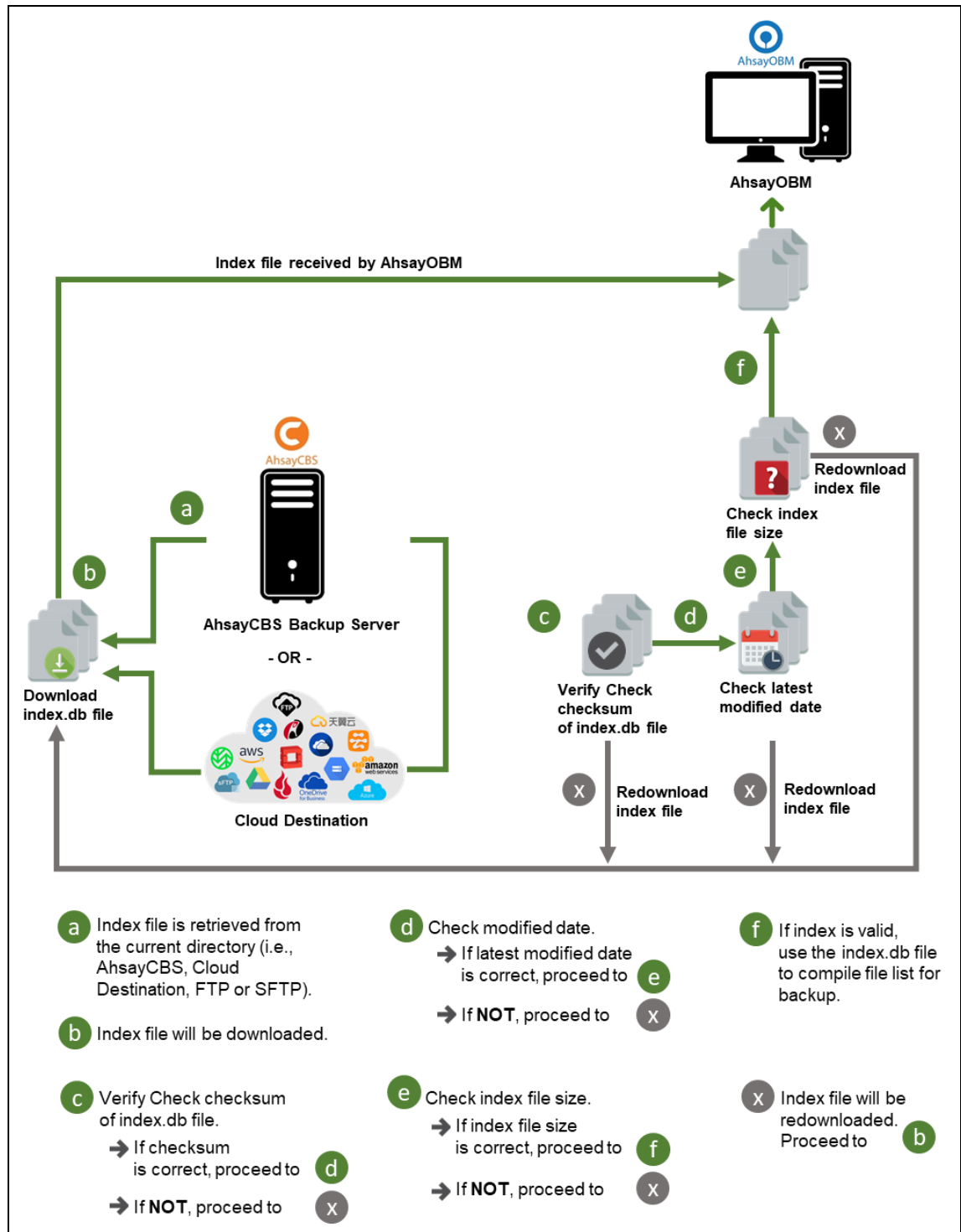
1. The PDIC job will run on the first backup job after upgrade to the latest client version from AhsayOBM v6, v7, or pre-8.3.6.0 version.
2. If backup jobs for a backup set are not run on a regular daily backup schedule (for example: on a weekly or monthly schedule), then the PDIC job will run if it detects that the previous PDIC job was run more than 7 days ago.
3. Every time a data integrity check (DIC) is run, the latest PDIC run date is reset, the next PDIC job will run after 7 days.
4. The PDIC job will not run if there are no files in both the data and retention areas. For example: a newly created backup set with no backup job history or a backup set where all the data has been deleted using the Delete Backup Data feature.
5. The PDIC job will not run on a backup set that contains any data which still in v6 format. It will only run if all v6 data format on a backup set has undergone data migration to v9 block format.



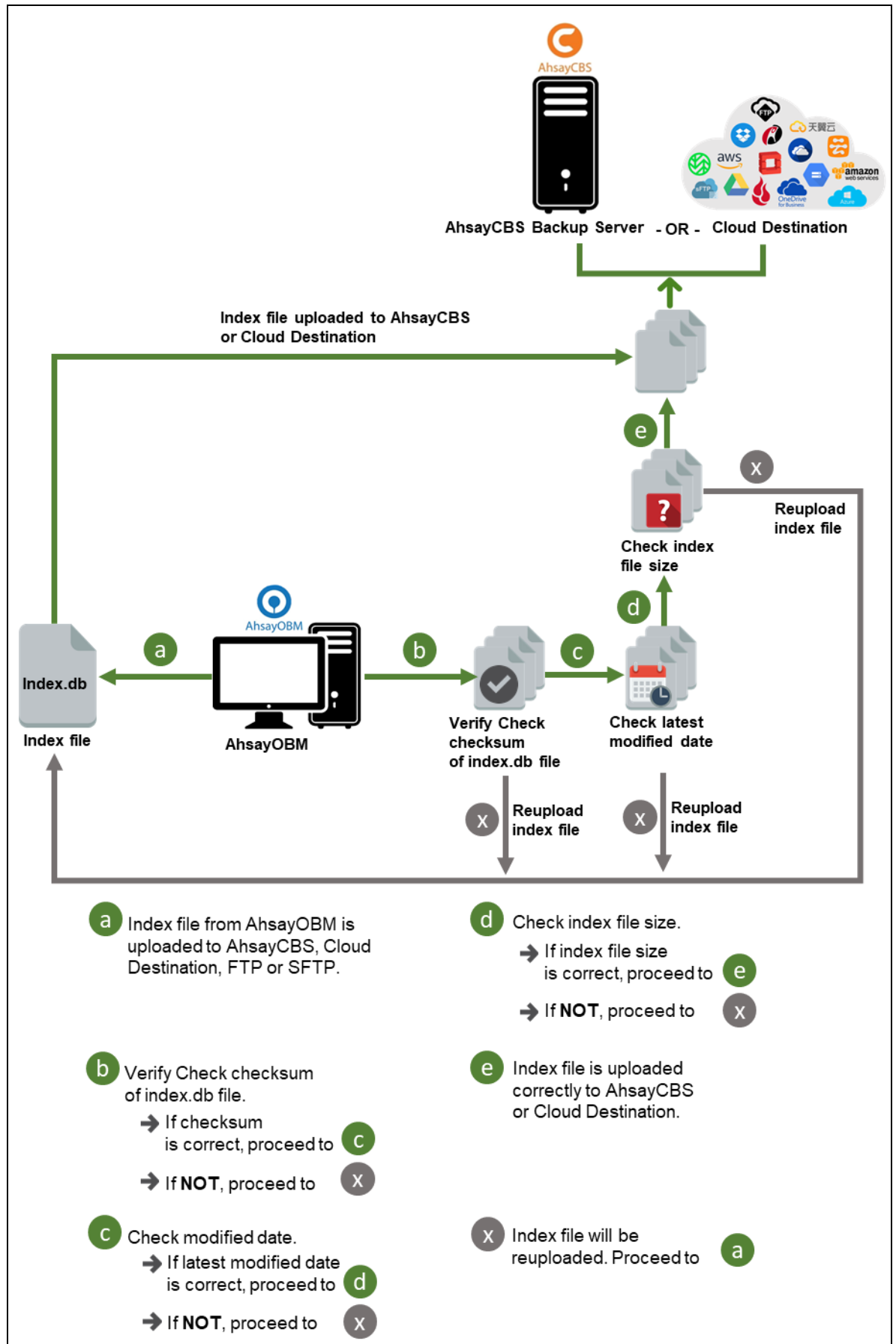
8.2 Backup Set Index Handling Process

To minimize the possibility of index related issues affecting backups, each time index files are downloaded from and uploaded to backup destination(s); the file size, last modified date, and checksum is verified to ensure index file integrity.

8.2.1 Start Backup Job

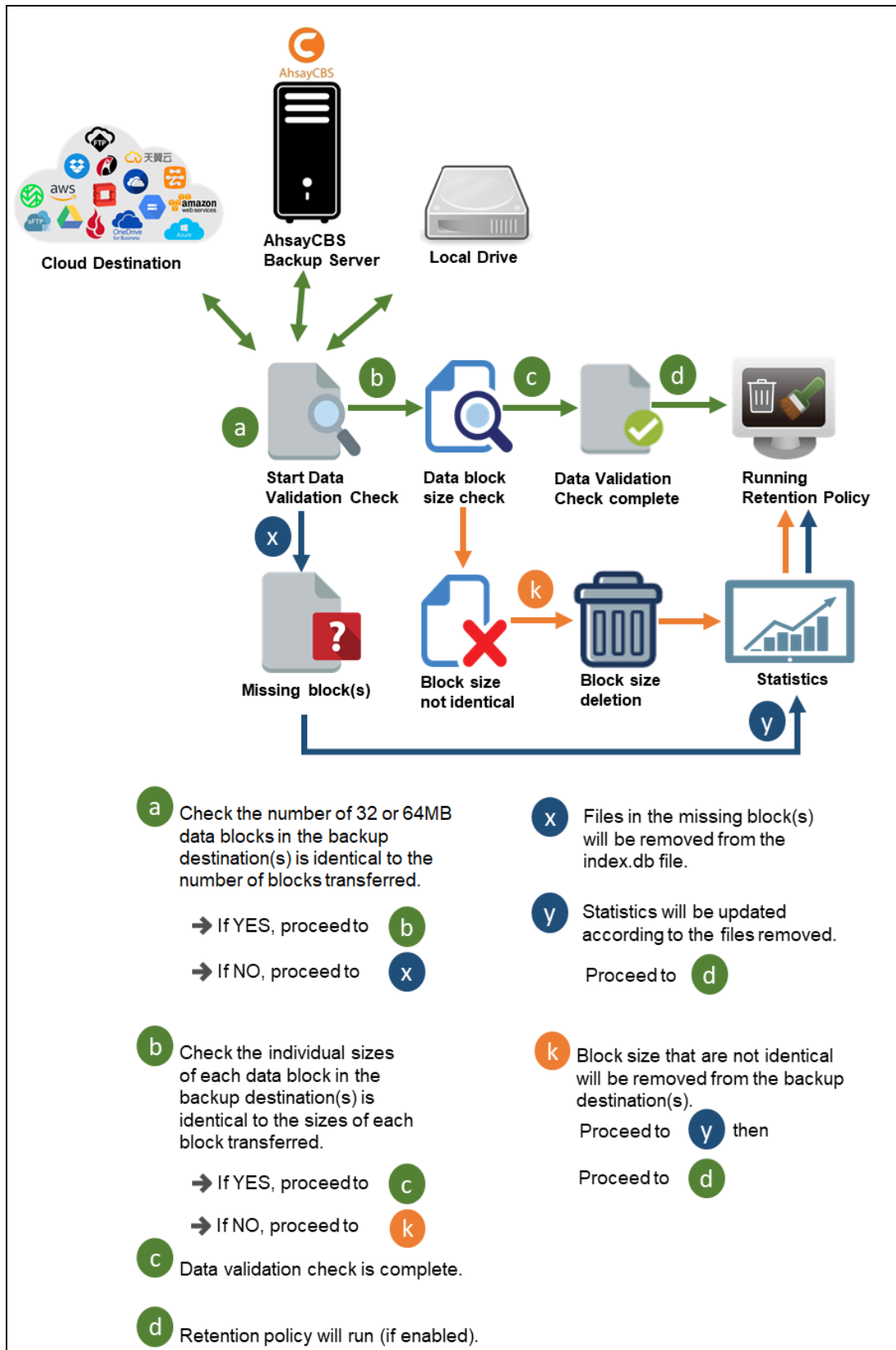


8.2.2 Completed Backup Job



8.3 Data Validation Check Process

As an additional measure to ensure that all files transferred to the backup destination(s) are received and saved correctly, both the number of 32 or 64 MB data block files and the size of each block file are checked again after the files are transferred.



9 Running Backup Jobs

Use the `RunBackupSet.sh` script to start a backup job manually.

```
# cd /usr/local/obm/bin
# sh RunBackupSet.sh "Sample Backup Set 03"
-
Using APP_HOME      : /usr/local/obm
Using SETTING_HOME  :
Using JAVA_HOME     : /usr/local/obm/jvm
Using JAVA_EXE      : /usr/local/obm/jvm/bin/java
Using JAVA_OPTS     : -Xrs -Xms128m -Xmx2048m -
XX:MaxDirectMemorySize=512m -client -
Dsun.nio.PageAlignDirectMemory=true
Using JNI_PATH      : -Djava.library.path=../LinX64
Using CLASSPATH     : ../cb.jar
-
Running Backup Set - ' Sample Backup Set 03' ...
[2022/01/05 15:47:57] [info] [-] Start [ AhsayOBM v9.0.2.24 ]
[2022/01/05 15:47:57] [info] [-] Saving encrypted backup set
encryption keys to server...
[2022/01/05 15:47:58] [info] [1641349114378] Start Backup ...
[Deduplication: enabled, Deduplication scope: All files within
the same backup set, Migrate Delta: enabled]
[2022/01/05 15:47:58] [info] [1641349114378] Using Temporary
Directory /root/.obm/temp/1641347569071/OBS@1641349114378
[2022/01/05 15:48:00] [info] [1641349114378] Start Periodic Data
Integrity Check on backup set = "Sample Backup Set 03"
destination = "AhsayCBS"
[2022/01/05 15:48:00] [info] [1641349114378] Start data integrity
check on backup set "Sample Backup Set 03(1641347569071)",
"AhsayCBS(1641349114378)", crc disabled, rebuild index disabled
[2022/01/05 15:48:00] [info] [1641349114378] Start processing
data integrity check on backup set= "Sample Backup Set 03"
destination= "AhsayCBS"
[2022/01/05 15:48:02] [info] [1641349114378] Download valid index
files from backup job "Current" to
"/root/.obm/temp/1641347569071/OBS@1641349114378/index".
[2022/01/05 15:48:02] [info] [1641349114378] Skipped to run Data
Integrity Check for backup set "Sample Backup Set 03" in
destination "AhsayCBS" because no data is in index.
[2022/01/05 15:48:03] [info] [1641349114378] Data integrity check
on backup set= "Sample Backup Set 03" destination= "AhsayCBS" is
completed
[2022/01/05 15:48:03] [info] [1641349114378] Finished data
integrity check on backup set "Sample Backup Set
03(1641347569071)", "AhsayCBS(1641349114378)", crc disabled,
rebuild index disabled
[2022/01/05 15:48:03] [info] [1641349114378] Completed data
integrity check on backup set "Sample Backup Set
03(1641347569071)", "AhsayCBS(1641349114378)", crc disabled,
rebuild index disabled
[2022/01/05 15:48:03] [info] [-] Start running pre-commands
[2022/01/05 15:48:03] [info] [-] Finished running pre-commands
[2022/01/05 15:48:03] [info] [1641349114378] Downloading server
file list...
[2022/01/05 15:48:03] [info] [1641349114378] Download valid index
files from backup job "Current" to
"/root/.obm/temp/1641347569071/OBS@1641349114378/index".
[2022/01/05 15:48:03] [info] [1641349114378] Downloading server
file list... Completed
```

```
[2022/01/05 15:48:04] [info] [1641349114378] Reading backup
source from hard disk...
[2022/01/05 15:48:04] [info] [1641349114378] Reading backup
source from hard disk... Completed
[2022/01/05 15:48:04] [info] [1641349114378] [New Directory]... /
[2022/01/05 15:48:04] [info] [1641349114378] [New Directory]...
/root
[2022/01/05 15:48:05] [info] [1641349114378] [New Directory]...
/root/Documents
[2022/01/05 15:48:05] [info] [1641349114378] [New Directory]...
/root/Documents/testfiles
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100%
of "/root/Documents/sample1.rtf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 10% of
"/root/Documents/sample1.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 21% of
"/root/Documents/sample1.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 11% of
"/root/Documents/sample1.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 25% of
"/root/Documents/sample1.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 36% of
"/root/Documents/sample1.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 32% of
"/root/Documents/sample1.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 47% of
"/root/Documents/sample1.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 59% of
"/root/Documents/sample1.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 43% of
"/root/Documents/sample1.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 70% of
"/root/Documents/sample1.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 53% of
"/root/Documents/sample1.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 81% of
"/root/Documents/sample1.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100%
of "/root/Documents/sample1.txt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 92% of
"/root/Documents/sample1.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 64% of
"/root/Documents/sample1.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100%
of "/root/Documents/sample1.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100%
of "/root/Documents/sample1.xls"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 75% of
"/root/Documents/sample1.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 49% of
"/root/Documents/sample2.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 74% of
"/root/Documents/sample2.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 99% of
"/root/Documents/sample2.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100%
of "/root/Documents/sample2.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 12% of
"/root/Documents/sample2.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100%
of "/root/Documents/sample2.rtf"
```



```
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 80% of
"/root/Documents/sample_640x360.avi"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 40% of
"/root/Documents/sample_960x540.mkv"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 90% of
"/root/Documents/sample_960x540.mpg"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 90% of
"/root/Documents/sample_640x360.avi"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100%
of "/root/Documents/sample_960x540.mpg"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100%
of "/root/Documents/sample_640x360.avi"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 50% of
"/root/Documents/sample_960x540.mkv"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 60% of
"/root/Documents/sample_960x540.mkv"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 70% of
"/root/Documents/sample_960x540.mkv"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 72% of
"/root/Documents/settings.sys"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 80% of
"/root/Documents/sample_960x540.mkv"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100%
of "/root/Documents/settings.sys"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 90% of
"/root/Documents/sample_960x540.mkv"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 11% of
"/root/Documents/testfiles/sample1.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100%
of "/root/Documents/sample_960x540.mkv"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 25% of
"/root/Documents/testfiles/sample1.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 36% of
"/root/Documents/testfiles/sample1.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 10% of
"/root/Documents/testfiles/sample1.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 47% of
"/root/Documents/testfiles/sample1.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100%
of "/root/Documents/testfiles/sample1.rtf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 59% of
"/root/Documents/testfiles/sample1.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100%
of "/root/Documents/testfiles/sample1.txt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 70% of
"/root/Documents/testfiles/sample1.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 21% of
"/root/Documents/testfiles/sample1.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 81% of
"/root/Documents/testfiles/sample1.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 32% of
"/root/Documents/testfiles/sample1.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 49% of
"/root/Documents/testfiles/sample2.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 43% of
"/root/Documents/testfiles/sample1.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 74% of
"/root/Documents/testfiles/sample2.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 99% of
"/root/Documents/testfiles/sample2.pdf"
```

[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100% of "/root/Documents/testfiles/sample2.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] com.ahsay.afc.event.d@6ce6b6a1
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 53% of "/root/Documents/testfiles/sample1.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100% of "/root/Documents/testfiles/sample1.xls"
[2022/01/05 15:48:05] [info] [1641349114378] com.ahsay.afc.event.d@5d640301
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 64% of "/root/Documents/testfiles/sample1.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 92% of "/root/Documents/testfiles/sample1.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100% of "/root/Documents/testfiles/sample1.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] com.ahsay.afc.event.d@701eac98
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 75% of "/root/Documents/testfiles/sample1.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 12% of "/root/Documents/testfiles/sample2.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 24% of "/root/Documents/testfiles/sample2.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 37% of "/root/Documents/testfiles/sample2.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 89% of "/root/Documents/testfiles/sample1.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 49% of "/root/Documents/testfiles/sample2.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100% of "/root/Documents/testfiles/sample1.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] com.ahsay.afc.event.d@2380b5c0
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 61% of "/root/Documents/testfiles/sample2.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100% of "/root/Documents/testfiles/sample2.rtf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 71% of "/root/Documents/testfiles/sample2.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] com.ahsay.afc.event.d@27bf3568
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100% of "/root/Documents/testfiles/sample2.xls"
[2022/01/05 15:48:05] [info] [1641349114378] com.ahsay.afc.event.d@53a3e6dd
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100% of "/root/Documents/testfiles/sample3.txt"
[2022/01/05 15:48:05] [info] [1641349114378] com.ahsay.afc.event.d@579c6871
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100% of "/root/Documents/testfiles/sample2.txt"
[2022/01/05 15:48:05] [info] [1641349114378] com.ahsay.afc.event.d@62bdbffb
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100% of "/root/Documents/testfiles/sample3.xls"
[2022/01/05 15:48:05] [info] [1641349114378] com.ahsay.afc.event.d@26ecf4e9
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100% of "/root/Documents/testfiles/sample2.ppt"


```
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 80% of
"/root/Documents/testfiles/sample_960x540.mkv"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 90% of
"/root/Documents/testfiles/sample_960x540.mkv"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100%
of "/root/Documents/testfiles/sample_960x540.mkv"
[2022/01/05 15:48:05] [info] [1641349114378]
com.ahsay.afc.event.d@19ealc7
[2022/01/05 15:48:06] [info] [1641349114378] Start validating the
presence and size of backup data in destination "AhsayCBS"...
[2022/01/05 15:48:06] [info] [1641349114378] File:
"1641347569071/blocks/2022-01-05-15-47-41/0/000000.bak", Size:
1,335,776, OK
[2022/01/05 15:48:06] [info] [1641349114378] File:
"1641347569071/blocks/2022-01-05-15-47-41/0/000001.bak", Size:
1,307,600, OK
[2022/01/05 15:48:06] [info] [1641349114378] File:
"1641347569071/blocks/2022-01-05-15-47-41/0/000002.bak", Size:
1,754,864, OK
[2022/01/05 15:48:06] [info] [1641349114378] File:
"1641347569071/blocks/2022-01-05-15-47-41/0/000003.bak", Size:
45,440, OK
[2022/01/05 15:48:06] [info] [1641349114378] Finished validating
the presence and size of backup data in destination "AhsayCBS"
[2022/01/05 15:48:06] [info] [1641349114378] Total New Files = 31
[2022/01/05 15:48:06] [info] [1641349114378] Total New
Directories = 4
[2022/01/05 15:48:06] [info] [1641349114378] Total New Links = 0
[2022/01/05 15:48:06] [info] [1641349114378] Total Updated Files
= 0
[2022/01/05 15:48:06] [info] [1641349114378] Total Attributes
Changed Files = 0
[2022/01/05 15:48:06] [info] [1641349114378] Total Deleted Files
= 0
[2022/01/05 15:48:06] [info] [1641349114378] Total Deleted
Directories = 0
[2022/01/05 15:48:06] [info] [1641349114378] Total Deleted Links
= 0
[2022/01/05 15:48:06] [info] [1641349114378] Total Moved Files =
0
[2022/01/05 15:48:06] [info] [1641349114378] Total Dedupe Saving
for this job = 4.57MB
[2022/01/05 15:48:06] [info] [1641349114378] Total Backup Data
Size for this job = 9.41MB
[2022/01/05 15:48:06] [info] [1641349114378] Total Dedupe Saving
for destination = 4.57MB
[2022/01/05 15:48:06] [info] [1641349114378] Total Backup Data
Size for destination = 9.41MB
[2022/01/05 15:48:06] [info] [-] Saving server information to
destination.
[2022/01/05 15:48:07] [info] [1641349114378] Saving encrypted
backup file index to 1641347569071/blocks/2022-01-05-15-47-41 at
destination AhsayCBS...
[2022/01/05 15:48:07] [info] [-] Start running post-commands
[2022/01/05 15:48:07] [info] [-] Finished running post-commands
[2022/01/05 15:48:10] [info] [1641349114378] Deleting temporary
file /root/.obm/temp/1641347569071/OBS@1641349114378
[2022/01/05 15:48:10] [info] [1641349114378] Backup Completed
Successfully
```

10 Restoring Data

1. To restore files that have been backed up from your backup destination, you need to use the Restore.sh script by using a text editor like vi to configure the restore settings like:

- Backup Set Name -> BACKUP_SET=""
- Backup Destination -> DESTINATION=""
- Location of Restored Files -> RESTORE_TO=""
- Files/Folders to be Restored -> RESTORE_FROM=""
- Snapshot to be restored ->POINT_IN_TIME=""
- Applying the original permission to the restore files ->RESTORE_PERMISSION=""
- Verifying in-file delta file checksum during restore ->VERIFY_CHKSUM=""

```
# cd /usr/local/obm/bin
# vi Restore.sh

#!/bin/sh

##### Restore.sh
#####
# You can use this shell script to restore backup files using
command-line.
# Just customize the "User Define Section" below with values for
your restore
# action.

#####
##

##### Start: User Defined Section
#####

# ----- BACKUP_SET -----
# | The name or ID of the backup set that you want to restore.
# | If backup set name is not in English, please use ID instead.
# | e.g. BACKUP_SET="1119083740107"
# | or BACKUP_SET="FileBackupSet-1"
# |
# | You can leave this parameter blank if you have only 1 backup
set.
# -----
BACKUP_SET="Sample Backup Set 03"

# ----- DESTINATION -----
--
# The name or ID of the backup destination that you want to
restore from.
# If backup destination name is not in English, please use ID
instead.
# | e.g. DESTINATION="1740107119083"
# | or DESTINATION="Destination-1"
# |
# | You can leave this parameter blank if you have only 1
destination.
```

```

# -----
DESTINATION="AhsayCBS"

# ----- RESTORE_TO -----
# | Directory to where you want files to be restored
# | set to "" to restore files to original location
# | e.g. RESTORE_TO="/tmp"
# -----
RESTORE_TO="/usr/local/alternate"

# ----- RESTORE_FROM -----
# | File/Directory on the backup server that you would like to
restore
# | e.g. RESTORE_FROM="/Data"
# -----
RESTORE_FROM="/root/Documents"

# ----- POINT_IN_TIME -----
# The point-in-time snapshot (successful backup) that you want to
restore |
# from the backup server. Use "Current" for the latest backup
snapshot |
# e.g. POINT_IN_TIME="2006-10-04-12-57-13"
# or POINT_IN_TIME="Current"
#
# You can retrieve the point in time by using the
ListBackupJob.sh
# -----
POINT_IN_TIME="Current"

# ----- RESTORE_PERMISSION -----
# | set to "Y" if you want to restore file permissions
# | set to "N" if you do NOT want to restore file permissions
# -----
RESTORE_PERMISSION="N"

# ----- SKIP_INVALID_KEY -----
# | set to "Y" if you want to skip restore file with invalid key
# | set to "N" if you want to prompt user to input a correct key
# -----
SKIP_INVALID_KEY="N"

# ----- SYNC_OPTION -----
# | Delete extra files
# | set to "Y" if you want to enable sync option
# | set to "N" if you do NOT want to enable sync option
# | set to "" to prompt for selection
# -----
SYNC_OPTION="N"

# ----- REPLACE_EXISTING_FILE -----
# set to "--all" to replace all existing file(s) of the same
filename
# set to "--none" to skip all existing file(s) with the same
filename
# set to "" to prompt for selection
# -----
REPLACE_EXISTING_FILE="--all"

# ----- SETTING_HOME -----
# | Directory to your setting home.

```

```

# | Default to ${HOME}/.obm when not set.
# | e.g. SETTING_HOME="${HOME}/.obm"
# -----
SETTING_HOME=""

# ----- FILTER -----
# Filter out what files you want to restore
# -Pattern=xxx-Type=yyy-Target=zzz
# where xxx is the filter pattern,
# yyy is the filter type, which can be one of the following:
# [exact | exactMatchCase | contains | containsMatchCase|
|
| startWith | startWithMatchCase | endWith | endWithMatchCase]
|
# zzz is the filter target, which can be one of the following:
# [toFile | toFileDir | toDir]
|
#
# e.g. FILTER="-Pattern=.txt-Type=exact-Target=toFile"
# -----
FILTER=""

# ----- TEMP_DIR -----
# | Directory to where you want to store restore files
temporarily
# | set to "" to use the temporary directory in the backup set
# | e.g. TEMP_DIR="/tmp"
# -----
TEMP_DIR="/root/temp"

# ----- VERIFY_CHKSUM -----
# | set to "Y" if you want to verify in-file delta file checksum
during restore|
# | set to "N" if you do NOT want to verify in-file delta file
checksum during |
# | restore
|
# -----
VERIFY_CHKSUM="N"

##### END: User Defined Section #####

```

2. After the Restore.sh script is configured the files can be restored by running the Restore.sh script.

```

# cd /usr/local/obm/bin
# sh Restore.sh
Using APP_HOME:           : /usr/local/obm
Using BACKUP_SET         : Sample Backup Set 03
Using RESTORE_FROM       : /root/Documents
Using RESTORE_TO         : /usr/local/alternate
Using POINT_IN_TIME      : Current
Using RESTORE_PERMISSION : N
Using TEMP_DIR           : /root/temp
Filter Pattern not set, filter would not apply to restore
[2022-01-05 16:03:53] Start [ AhsayOBM v9.0.2.24 ]
[2022-01-05 16:03:53] OS: Linux 4.18.0-240.1.1.el8_3.x86_64
(localhost.localdomain); CPU Model: VMware-Intel(R) Xeon(R) Gold
5218R CPU @ 2.10GHz,Intel(R) Xeon(R) Gold 5218R CPU @
2.10GHz,Intel(R) Xeon(R) Gold 5218R CPU @ 2.10GHz,Intel(R)

```

```
Xeon(R) Gold 5218R CPU @ 2.10GHz; Number of Processors: 4; Heap
Size: 109.1MB (Current) / 1.8GB (Maximum); Physical Memory:
565.7MB (Free) / 3.6GB (Total)
[2022-01-05 16:03:53] start,Start [ AhsayOBM
v9.0.2.24 ],0,0,0,,0,0

[2022-01-05 16:03:53] Selected job: 2022-01-05-16-03-45
[2022-01-05 16:03:53] Selected source: [/root/Documents]
[2022-01-05 16:03:53] Info: [followLink=false
marshalTargetPath=false deleteForSync=false skipFaultKey=false
verifyDeltaFileChecksum=false ignoreSegmentInfoCorruptedData=true
restorePermission=false [RestoreLocation] type=RAW
path=[/usr/local/alternate]]
[2022-01-05 16:03:54] Creating new directory...
"/usr/local/alternate/root"
[2022-01-05 16:03:54] Creating new directory...
"/usr/local/alternate/root/Documents"
[2022-01-05 16:03:54] Creating new directory...
"/usr/local/alternate/root/Documents/testfiles"
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/settings.sys" (Total 44K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample1.ppt" (Total 891K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample1.ppt"
(Total 891K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample3.xls" (Total 13K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample3.xls"
(Total 13K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample2.xls" (Total 7K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample2.xls"
(Total 7K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample_640x360.avi" (Total
569K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample_640x360.avi
" (Total 569K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample1.pdf" (Total 567K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample1.pdf"
(Total 567K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample2.pdf" (Total 64K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample2.pdf"
(Total 64K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample2.rtf" (Total 1K
bytes)
```

```

[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample2.rtf"
(Total 1K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample2.txt" (Total 2K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample2.txt"
(Total 2K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample3.txt" (Total 3K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample3.txt"
(Total 3K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample_960x540.mpg" (Total
733K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample_960x540.mpg
" (Total 733K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample1.rtf"
(Total 102K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample1.txt"
(Total 607 bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample1.rtf" (Total 116K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample1.txt" (Total 14K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample1.xls" (Total 16K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample1.xls"
(Total 16K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample2.ppt" (Total 518K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample2.ppt"
(Total 518K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample_960x540.mkv" (Total
1.26M bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample_960x540.mkv
" (Total 1.26M bytes)
[2022-01-05 16:03:55] Restore Completed Successfully
[2022-01-05 16:03:55] end,RESTORE_STOP_SUCCESS,0,0,0,,0,0

```

3. Verify the files are restored on the machine.

```

# ls -la /usr/local/alternate/root/Documents/testfiles/
total 4816
drwxr-xr-x. 2 root root    4096 Jan  5 16:03 .
drwxr-xr-x. 3 root root    4096 Jan  5 16:03 ..

```

```
-rw-r--r--. 1 root root 581407 Dec 9 18:28 sample1.pdf
-rw-r--r--. 1 root root 912384 Dec 9 18:29 sample1.ppt
-rw-r--r--. 1 root root 105344 Dec 9 18:31 sample1.rtf
-rw-r--r--. 1 root root 607 Dec 9 18:24 sample1.txt
-rw-r--r--. 1 root root 16384 Dec 9 18:30 sample1.xls
-rw-r--r--. 1 root root 65715 Dec 9 18:29 sample2.pdf
-rw-r--r--. 1 root root 530432 Dec 9 18:29 sample2.ppt
-rw-r--r--. 1 root root 1958 Dec 9 18:31 sample2.rtf
-rw-r--r--. 1 root root 2859 Dec 9 18:25 sample2.txt
-rw-r--r--. 1 root root 7168 Dec 9 18:30 sample2.xls
-rw-r--r--. 1 root root 3541 Dec 9 18:25 sample3.txt
-rw-r--r--. 1 root root 13312 Dec 9 18:30 sample3.xls
-rw-r--r--. 1 root root 583572 Dec 9 18:26 sample_640x360.avi
-rw-r--r--. 1 root root 1319066 Dec 9 18:27 sample_960x540.mkv
-rw-r--r--. 1 root root 751261 Dec 9 18:27 sample_960x540.mpg
```

11 Contact Ahsay

11.1 Technical Assistance

To contact Ahsay support representatives for technical assistance, visit the Partner Portal:
<https://www.ahsay.com/partners/>

Also use the Ahsay Wikipedia for resource such as Hardware Compatibility List, Software Compatibility List, and other product information:
<https://wiki.ahsay.com/>

11.2 Documentation

Documentations for all Ahsay products are available at:
https://www.ahsay.com/jsp/en/downloads/ahsay-downloads_documentation_guides.jsp

You can send us suggestions for improvements or report on issues in the documentation by contacting us at:
<https://www.ahsay.com/partners/>

Please specify the specific document title as well as the change required/suggestion when contacting us.

Appendix

Appendix A File Backup Set XML Template (Raw)

```
<?xml version="1.0" encoding="UTF-8"?>
<Setting>
  <!-- This is the backup set setting -->
  <Key name="Backup Set Setting" allowMultiple="Y">
    <!-- Backup set type (Read Only) -->
    <Value data="FILE" name="Type" type="string" />
    <!-- Backup set name -->
    <Value data="" name="Name" type="string" />
    <!-- Temporary directory for storing backup files -->
    <Value data="" name="Temporary Working Directory"
    type="string" />
    <!-- Remove temporary files after backup -->
    <!-- Y: Yes -->
    <!-- N: No -->
    <Value data="Y" name="Delete temporary files after backup"
    type="boolean" />
    <!-- Support of opening backup data directly without restoration
-->
    <!-- Y: Yes -->
    <!-- N: No -->
    <Value data="N" name="OpenDirect" type="boolean" />
    <!-- Select compression type -->
    <!-- GzipDefaultCompression : Normal -->
    <!-- GzipBestSpeedCompression: Fast (Compressed size larger than
normal) -->
    <!-- SnappyDefaultCompression: Fast with optimization for local
-->
    <!-- Leave the field blank for no compression -->
    <Value data="" name="Compression Type" type="string" />
    <!-- Backup files' permissions -->
    <!-- Y: Yes -->
    <!-- N: No -->
    <Value data="Y" name="Upload files permission" type="boolean"
/>
    <!-- Follow link of the backup files -->
    <!-- Y: Yes -->
    <!-- N: No -->
    <Value data="Y" name="Follow links" type="boolean" />
    <!-- This includes the files you want to backup -->
    <!-- Copy and paste the whole <Key> to add more selected
sources -->
    <Key name="Selected Source">
      <!-- Please enter your file path, e.g. /root/Documents -->
      <Value data="" name="Path" type="string" />
    </Key>
    <!-- This excludes the files from the included source -->
    <!-- Copy and paste the whole <Key> to add more deselected
sources -->
    <Key name="Deselected Source">
      <!-- Please enter your file path, e.g. /root/Documents -->
      <Value data="" name="Path" type="string" />
    </Key>
    <!-- Settings for your scheduled backups -->
    <Key name="Schedule Settings">
      <!-- Enable scheduled backup on this computer -->
```

```

<!-- Y: Yes -->
<!-- N: No -->
<Value data="N" name="Enable" type="boolean" />
<!-- Daily settings -->
<!-- Copy and paste the whole <Key> to add more daily
schedules -->
<Key name="Daily Schedule Settings" allowMultiple="Y">
  <!-- Name of schedule -->
  <Value data="Daily-Schedule" name="Name" type="string" />
  <!-- Start hour -->
  <!-- 0, 1, 2... 23 -->
  <!-- This value will be ignored if the schedule is set to
be periodic ("Interval" field contains value other than -1) -->
  <Value data="21" name="Hour" type="integer" />
  <!-- Start minute -->
  <!-- 0, 1, 2... 59 -->
  <!-- This value will be ignored if the schedule is set to
be periodic ("Interval" field contains value other than -1) -->
  <Value data="0" name="Minute" type="integer" />
  <!-- Duration of this backup in hours -->
  <!-- 1, 2, 3... -->
  <!-- A value of -1 means run until job finish -->
  <!-- Duration can only be -1 if the schedule is set to be
periodic ("Interval" field contains value other than -1) -->
  <Value data="-1" name="Duration" type="integer" />
  <!-- Interval -->
  <!-- 1 : 1 minute -->
  <!-- 2 : 2 minutes -->
  <!-- 3 : 3 minutes -->
  <!-- 4 : 4 minutes -->
  <!-- 5 : 5 minutes -->
  <!-- 6 : 6 minutes -->
  <!-- 10 : 10 minutes -->
  <!-- 12 : 12 minutes -->
  <!-- 15 : 15 minutes -->
  <!-- 20 : 20 minutes -->
  <!-- 30 : 30 minutes -->
  <!-- 60 : 1 hour -->
  <!-- 120: 2 hours -->
  <!-- 180: 3 hours -->
  <!-- 240: 4 hours -->
  <!-- 360: 6 hours -->
  <!-- 480: 8 hours -->
  <!-- 720: 12 hours -->
  <!-- A value of -1 means a non-periodic normal schedule -
->
  <Value data="-1" name="Interval" type="integer" />
</Key>
<!-- Weekly settings -->
<!-- Copy and paste the whole <Key> to add more weekly
schedules -->
<Key name="Weekly Schedule Settings" allowMultiple="Y">
  <!-- Name of schedule -->
  <Value data="Weekly-Schedule" name="Name" type="string"
/>
  <!-- Start hour -->
  <!-- 0, 1, 2... 23 -->
  <!-- This value will be ignored if the schedule is set to
be periodic ("Interval" field contains value other than -1) -->
  <Value data="21" name="Hour" type="integer" />
  <!-- Start minute -->

```

```

        <!-- 0, 1, 2... 59 -->
        <!-- This value will be ignored if the schedule is set to
be periodic ("Interval" field contains value other than -1) -->
        <Value data="0" name="Minute" type="integer" />
        <!-- Duration of this backup in hours -->
        <!-- 1, 2, 3... -->
        <!-- A value of -1 means run until job finish -->
        <!-- Duration can only be -1 if the schedule is set to be
periodic ("Interval" field contains value other than -1) -->
        <Value data="-1" name="Duration" type="integer" />
        <!-- Interval -->
        <!-- 1 : 1 minute -->
        <!-- 2 : 2 minutes -->
        <!-- 3 : 3 minutes -->
        <!-- 4 : 4 minutes -->
        <!-- 5 : 5 minutes -->
        <!-- 6 : 6 minutes -->
        <!-- 10 : 10 minutes -->
        <!-- 12 : 12 minutes -->
        <!-- 15 : 15 minutes -->
        <!-- 20 : 20 minutes -->
        <!-- 30 : 30 minutes -->
        <!-- 60 : 1 hour -->
        <!-- 120: 2 hours -->
        <!-- 180: 3 hours -->
        <!-- 240: 4 hours -->
        <!-- 360: 6 hours -->
        <!-- 480: 8 hours -->
        <!-- 720: 12 hours -->
        <!-- A value of -1 means a non-periodic normal schedule -
->
        <Value data="-1" name="Interval" type="integer" />
        <!-- Backup on these days of the week -->
        <!-- Y: Yes -->
        <!-- N: No -->
        <Value data="Y" name="Sunday" type="boolean" />
        <Value data="Y" name="Monday" type="boolean" />
        <Value data="Y" name="Tuesday" type="boolean" />
        <Value data="Y" name="Wednesday" type="boolean" />
        <Value data="Y" name="Thursday" type="boolean" />
        <Value data="Y" name="Friday" type="boolean" />
        <Value data="Y" name="Saturday" type="boolean" />
</Key>
<!-- Monthly settings -->
<!-- Copy and paste the whole <Key> to add more monthly
schedules -->
<Key name="Monthly Schedule Settings">
    <!-- Name of schedule -->
    <Value data="Monthly-Schedule" name="Name"
type="string" />
    <!-- Start hour -->
    <!-- 0, 1, 2... 23 -->
    <Value data="21" name="Hour" type="integer" />
    <!-- Start minute -->
    <!-- 0, 1, 2... 59 -->
    <Value data="0" name="Minute" type="integer" />
    <!-- Duration of this backup in hours -->
    <!-- 1, 2, 3... -->
    <!-- A value of -1 means run until job finish -->
    <Value data="-1" name="Duration" type="integer" />
    <!-- Schedule date of month -->

```

```

<!-- 1, 2, 3... 31 -->
<!-- 32: Last -->
<!-- Set to 0 if you want to use the format of
occurrence + criteria, e.g. Third Wednesday, instead --
>
<Value data="1" name="Schedule Date" type="integer" />
<!-- Backup occurrence -->
<!-- First / Second / Third / Fourth / Last -->
<!-- If "Schedule Date" is not zero, this value will be
ignored -->
<Value data="First" name="Occurrence" type="string" />
<!-- Backup criteria -->
<!-- Sunday / Monday / Tuesday / Wednesday / Thursday /
Friday / Saturday / Weekday / Weekend -->
<!-- If "Schedule Date" is not zero, this value will be
ignored -->
<Value data="Friday" name="Criteria" type="string" />
</Key>
<!-- Custom settings -->
<!-- Copy and paste the whole <Key> to add more custom
schedules -->
<Key name="Custom Schedule Settings">
  <!-- Name of schedule -->
  <Value data="Custom" name="Name" type="string" />
  <!-- Start hour -->
  <!-- 0, 1, 2... 23 -->
  <Value data="21" name="Hour" type="integer" />
  <!-- Start minute -->
  <!-- 0, 1, 2... 59 -->
  <Value data="0" name="Minute" type="integer" />
  <!-- Duration of this backup in hours -->
  <!-- 1, 2, 3... -->
  <!-- A value of -1 means run until job finish -->
  <Value data="-1" name="Duration" type="integer" />
  <!-- Date for performing custom schedule backup -->
  <!-- Input in the format of YYYY-MM-DD -->
  <Value data="2016-4-30" name="Schedule Date"
type="string" />
</Key>
</Key>
<!-- This is the collection of destinations -->
<Key name="Destination Settings">
  <!-- Concurrency level is the number of destinations to run
backup concurrently -->
  <!-- 2, 3, 4... -->
  <!-- 1 : Backup to destinations one by one sequentially -->
  <!-- -1: Backup to all destinations concurrently -->
  <Value data="1" name="Concurrency Level" type="integer" />
  <!-- AhsayCBS destination is where the files are backup to
server -->
  <Key name="AhsayCBS Destination Settings">
  </Key>
  <!-- Local destination means backup files are stored in
your computer -->
  <!-- Copy and paste the whole <Key> to add more local
destinations -->
  <Key name="Local Destination Settings">
    <!-- Name of your destination -->
    <Value data="" name="Name" type="string" />
    <!-- Directory to store your backup files -->
    <!-- e.g. /tmp -->

```

```

    <Value data="" name="Local Path" type="string" />
</Key>
<!-- Aliyun destination for storing files -->
<!-- Copy and paste the whole <Key> to add more Aliyun
destinations -->
<Key name="Aliyun Destination Settings">
  <!-- Name of your destination -->
  <Value data="" name="Name" type="string" />
  <!-- Access key ID -->
  <Value data="" name="Access Key ID" type="string" />
  <!-- Access key secret -->
  <Value data="" name="Access Key Secret" type="string"
/>
  <!-- Region -->
  <!-- oss-cn-hangzhou      : Hangzhou -->
  <!-- oss-cn-shenzhen    : Shenzhen -->
  <!-- oss-cn-beijing     : Beijing -->
  <!-- oss-cn-qingdao     : Qingdao -->
  <!-- oss-cn-shanghai    : Shanghai -->
  <!-- oss-cn-hongkong    : Hong Kong -->
  <!-- oss-us-west-1      : US Silicon Valley -->
  <!-- oss-ap-southeast-1: Asia Pacific (Singapore) -->
  <Value data="" name="Region" type="string" />
  <!-- Bucket to store backup data -->
  <!-- Leave the field empty to use default -->
  <Value data="" name="Bucket Name" type="string" />
  <!-- Select whether to use proxy -->
  <!-- Y: Yes -->
  <!-- N: No -->
  <Value data="N" name="Enable proxy during backup"
type="boolean" />
</Key>
<!-- CTYun destination for storing files -->
<!-- Copy and paste the whole <Key> to add more CTYun
destinations -->
<Key name="CTYun Destination Settings">
  <!-- Name of your destination -->
  <Value data="" name="Name" type="string" />
  <!-- Access key ID -->
  <Value data="" name="Access Key ID" type="string" />
  <!-- Access secret key -->
  <Value data="" name="Access Secret Key" type="string"
/>
  <!-- Select whether to use proxy -->
  <!-- Y: Yes -->
  <!-- N: No -->
  <Value data="N" name="Enable proxy during backup"
type="boolean" />
</Key>
<!-- AmazonS3 destination for storing files -->
<!-- Copy and paste the whole <Key> to add more AmazonS3
destinations -->
<Key name="AmazonS3 Destination Settings">
  <!-- Name of your destination -->
  <Value data="" name="Name" type="string" />
  <!-- Access key ID -->
  <Value data="" name="Access Key ID" type="string" />
  <!-- Secret access key -->
  <Value data="" name="Secret Access Key" type="string"
/>
  <!-- Location -->

```

```

<!-- us-east-1      : US East (N. Virginia) -->
<!-- us-west-2      : US West (Oregon) -->
<!-- us-west-1      : US West (Northern California) -->
<!-- eu-west-1      : EU (Ireland) -->
<!-- eu-central-1   : EU (Frankfurt) -->
<!-- ap-southeast-1: Asia Pacific (Singapore) -->
<!-- ap-northeast-1: Asia Pacific (Tokyo) -->
<!-- ap-southeast-2: Asia Pacific (Sydney) -->
<!-- sa-east-1      : South America (Sao Paulo) -->
<!-- us-gov-west-1  : AWS GovCloud (US) -->
<!-- cn-north-1     : China (Beijing) -->
<!-- ap-northeast-2: Asia Pacific (Seoul) -->
<Value data="" name="Location" type="string" />
<!-- Select whether to use proxy -->
<!-- Y: Yes -->
<!-- N: No -->
<Value data="N" name="Enable proxy during backup"
type="boolean" />
</Key>
<!-- AWSCompatible destination for storing files -->
<!-- Copy and paste the whole <Key> to add more
AWSCompatible destinations -->
<Key name="AWSCompatible Destination Settings">
  <!-- Name of your destination -->
  <Value data="" name="Name" type="string" />
  <!-- Host -->
  <Value data="" name="Host" type="string" />
  <!-- Port -->
  <Value data="0" name="Port" type="integer" />
  <!-- Access key ID -->
  <Value data="" name="Access Key ID" type="string" />
  <!-- Secret access key -->
  <Value data="" name="Secret Access Key" type="string"
/>
  <!-- Bucket to store backup data (please create this
bucket manually first) -->
  <Value data="" name="Bucket Name" type="string" />
  <!-- Select whether to use proxy -->
  <!-- Y: Yes -->
  <!-- N: No -->
  <Value data="N" name="Enable proxy during backup"
type="boolean" />
</Key>
<!-- GoogleCloudStorage destination for storing files -->
<!-- Windows Azure destination for storing files -->
<!-- Copy and paste the whole <Key> to add more Windows
Azure destinations -->
<Key name="Windows Azure Destination Settings">
  <!-- Name of your destination -->
  <Value data="" name="Name" type="string" />
  <!-- Storage account name -->
  <Value data="" name="Storage Account Name"
type="string" />
  <!-- Access key -->
  <Value data="" name="Access Key" type="string" />
</Key>
<!-- Rackspace destination for storing files -->
<!-- Copy and paste the whole <Key> to add more Rackspace
destinations -->
<Key name="Rackspace Destination Settings">
  <!-- Name of your destination -->

```

```

    <Value data="" name="Name" type="string" />
    <!-- Username -->
    <Value data="" name="Username" type="string" />
    <!-- API key -->
    <Value data="" name="API Key" type="string" />
    <!-- Select whether to use proxy -->
    <!-- Y: Yes -->
    <!-- N: No -->
    <Value data="N" name="Enable proxy during backup"
    type="boolean" />
</Key>
<!-- OpenStack destination for storing files -->
<!-- Copy and paste the whole <Key> to add more OpenStack
destinations -->
<Key name="OpenStack Destination Settings">
    <!-- Name of your destination -->
    <Value data="" name="Name" type="string" />
    <!-- Host -->
    <Value data="" name="Host" type="string" />
    <!-- Keystone public port -->
    <Value data="5000" name="Keystone Public Port"
    type="integer" />
    <!-- Username -->
    <Value data="" name="Username" type="string" />
    <!-- Password -->
    <Value data="" name="Password" type="string" />
    <!-- Select whether to use proxy -->
    <!-- Y: Yes -->
    <!-- N: No -->
    <Value data="N" name="Enable proxy during backup"
    type="boolean" />
</Key>
<!-- Wasabi destination for storing files -->
<!-- Copy and paste the whole <Key> to add more Wasabi
destinations -->
<Key name="Wasabi Destination Settings" allowMultiple="Y">
    <!-- Name of your destination -->
    <Value data="" name="Name" type="string" />
    <!-- Access key -->
    <Value data="" name="Access Key" type="string" />
    <!-- Secret Key -->
    <Value data="" name="Secret Key" type="string" />
    <!-- Region -->
    <!-- us-west-1      : us-west-1 -->
    <!-- ap-northeast-1: ap-northeast-1 -->
    <!-- ap-northeast-2: ap-northeast-2 -->
    <!-- eu-central-1   : eu-central-1 -->
    <!-- eu-west-1      : eu-west-1 -->
    <!-- us-central-1   : us-central-1 -->
    <!-- us-east-1      : us-east-1 -->
    <!-- us-east-2      : us-east-2 -->
    <Value data="" name="Region" type="string" />
    <!-- Bucket to store backup data -->
    <!-- Leave the field empty to use default -->
    <Value data="" name="Bucket Name" type="string" />
    <!-- Select whether to use proxy -->
    <!-- Y: Yes -->
    <!-- N: No -->
    <Value data="N" name="Enable proxy during backup"
type="boolean" />
</Key>

```

```

<!-- FTP destination for storing files -->
<!-- Copy and paste the whole <Key> to add more FTP
destinations -->
<Key name="FTP Destination Settings">
  <!-- Name of your destination -->
  <Value data="" name="Name" type="string" />
  <!-- Host -->
  <Value data="" name="Host" type="string" />
  <!-- Port -->
  <Value data="0" name="Port" type="integer" />
  <!-- Username -->
  <Value data="" name="Username" type="string" />
  <!-- Password -->
  <Value data="" name="Password" type="string" />
  <!-- FTP directory to store backup data -->
  <!-- Leave the field empty to store to ~/Ahsay -->
  <Value data="" name="Directory" type="string" />
  <!-- Select whether to use proxy -->
  <!-- Y: Yes -->
  <!-- N: No -->
  <Value data="N" name="Enable proxy during backup"
type="boolean" />
</Key>
</Key>
<!-- This shows the deduplication setting -->
<Key name="Deduplication Setting">
  <!-- Enable deduplication -->
  <!-- Y: Yes -->
  <!-- N: No -->
  <Value data="Y" name="Enable" type="boolean" />
  <!-- Deduplication scope -->
  <!-- F: Same file path within the same backup set -->
  <!-- B: All files within the same backup set -->
  <Value data="B" name="Deduplication level" type="string" />
</Key>
</Key>
</Setting>

```


Appendix B File Backup Set XML Template (with explanation)

This appendix explains all configurable items with their available options, highlighted in red, in this file backup set XML scripts.

Backup Set Setting

The following items define the basic configurations of the file backup set.

- **Backup set type** – enter the backup set type, for instance, File, MySQL etc.
- **Backup set name** – name your backup set.
- **Temporary directory for storing backup files** – Enter the directory path where you would like to have the backup files stored temporarily. The temporary directory is used for various purposes, such as storage of temporary spooled file (for database specific backup type in AhsayOBM), remote file list, local file list, temporary delta file and other files of temporary nature.
- **Remove temporary files after backup** – choose whether to remove temporary files after you finish backup.
- **Select compression type** – choose the backup compression mode among Normal, Fast, Fast with optimization for local, or No compression.

Compression type defines the compression method use during backup job for the corresponding backup set. The Compression Type can be changed at anytime after backup set creation.

There are four compression types available. By default, newly created backup sets are configured to use Fast Compression Type. Basically, there is a tradeoff between Compression Type and CPU usage.

- No Compression
- Normal (Compressed file size is smallest but with high CPU usage)
- Fast (Compressed file size is larger than Normal Compression but with lower CPU usage)
- Fast with optimization for local

The Compression Type selected will affect the size of the backup files, which in turn will affect the storage usage and therefore the storage cost for each backup set. The size of the compressed file will affect the overall backup performance, as backup of smaller files over the internet is going to be quicker than larger files.

For File backup set, then the compression type is automatically set to Fast with optimization for local in order to ensure optimal restore performance.

- **Backup files' permissions** – choose whether to backup operating system file permission of the data selected as backup source.
- **Follow link of the backup files** – choose whether to follow an NTFS junction point or NTFS symbolic link during backup. When the follow link option is enabled, not only is the symbolic link or junction point backed up, but directories and files that the junction point links to will also be backed up.

```

<?xml version="1.0" encoding="UTF-8"?>
<Setting>
<!-- This is the backup set setting -->
  <Key name="Backup Set Setting">
    <!-- Backup set type (Read Only) -->
      <Value data="FILE" name="Type" type="string" />
      <!-- Backup set name -->
      <Value data="" name="Name" type="string" />
      <!-- Temporary directory for storing backup files -->
      <Value data="" name="Temporary Working Directory"
type="string" />
      <!-- Remove temporary files after backup -->
      <!-- Y: Yes -->
      <!-- N: No -->
      <Value data="Y" name="Delete temporary files after backup"
type="boolean" />
      <!-- Select compression type -->
      <!-- GzipDefaultCompression : Normal -->
      <!-- GzipBestSpeedCompression: Fast (Compressed size larger than
normal) -->
      <!-- SnappyDefaultCompression: Fast with optimization for local
-->
      <!-- Leave the field blank for no compression -->
      <Value data="" name="Compression Type" type="string" />
      <!-- Backup files' permissions -->
      <!-- Y: Yes -->
      <!-- N: No -->
      <Value data="Y" name="Upload files permission" type="boolean"
/>
      <!-- Follow link of the backup files -->
      <!-- Y: Yes -->
      <!-- N: No -->
      <Value data="Y" name="Follow links" type="boolean" />
  </Key>

```

Selected Source

- Enter the file path where the files you would like to backup are located.

```

<!-- This includes the files you want to backup -->
<!-- Copy and paste the whole <Key> to add more selected
sources -->
<Key name="Selected Source">
  <!-- Please enter your file path, e.g. /root/Documents -->
  <Value data="" name="Path" type="string" />
</Key>

```

Deselected Source

- Enter the file path where files you would like to exclude from the backup.

```

<!-- This excludes the files from the included source -->
<!-- Copy and paste the whole <Key> to add more deselected
sources -->
<Key name="Deselected Source">
  <!-- Please enter your file path, e.g. /root/Documents -->
  <Value data="" name="Path" type="string" />
</Key>

```

Schedule Settings

- Choose whether you would like backup jobs to be run at the scheduled time you set.

```
<!-- Settings for your scheduled backups -->
<Key name="Schedule Settings">
  <!-- Enable scheduled backup on this computer -->
  <!-- Y: Yes -->
  <!-- N: No -->
  <Value data="N" name="Enable" type="boolean" />
```

Daily Schedule Settings

Set backup jobs to run daily at the time you specified.

- **Start hour** – the starting hour of the backup, from 0-23.
- **Start minute** – the starting minute of the backup, from 0-59.
- **Duration of this backup in hours** – the duration you would like this backup to perform, in hours. Set to -1 if you would like the backup job to run until it finishes.
 - **Stop** – the stop **time** of the backup job. This only applies to schedules with start backup “at” and is not supported for periodic backup schedule (start backup “every”)
 - **until full backup completed** – this option will stop a backup job once it is complete. This is the configured stop time of the backup job by default.
 - **after (defined no. of hrs.)** – this option will stop a backup job after a certain number of hours regardless of whether the backup job has completed or not. This can range from 1 to 24 hrs.

The number of hours must be enough to complete a backup of all files in the backup set. For small files in a backup, if the number of hours is not enough to back up all files, then the outstanding files will be backed up in the next backup job. However, if the backup set contains large files, this may result in partially backed up files.

For example, if a backup has 100GB file size which will take approximately 15 hours to complete on your environment, but you set the “stop” after 10 hours, the file will be partially backed up and cannot be restored. The next backup will upload the files from scratch again.

The partially backed up data will have to be removed by running the [data integrity check](#).

As a general rule, it is recommended to review this setting regularly as the data size on the backup machine may grow over time.

- **Interval** – the interval of the backup from minutes or hours.
 - minute interval, 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, or 30 minutes
 - hourly interval, 1, 2, 3, 4, 6, 8, 10, or 12 hours

```

<!-- Daily settings -->
<!-- Copy and paste the whole <Key> to add more daily
schedules -->
<Key name="Daily Schedule Settings" allowMultiple="Y">
  <!-- Name of schedule -->
  <Value data="Daily-Schedule" name="Name" type="string" />
  <!-- Start hour -->
  <!-- 0, 1, 2... 23 -->
  <!-- This value will be ignored if the schedule is set to
be periodic ("Interval" field contains value other than -1) -->
  <Value data="21" name="Hour" type="integer" />
  <!-- Start minute -->
  <!-- 0, 1, 2... 59 -->
  <!-- This value will be ignored if the schedule is set to
be periodic ("Interval" field contains value other than -1) -->
  <Value data="0" name="Minute" type="integer" />
  <!-- Duration of this backup in hours -->
  <!-- 1, 2, 3... -->
  <!-- A value of -1 means run until job finish -->
  <!-- Duration can only be -1 if the schedule is set to be
periodic ("Interval" field contains value other than -1) -->
  <Value data="-1" name="Duration" type="integer" />
  <!-- Interval -->
  <!-- 1 : 1 minute -->
  <!-- 2 : 2 minutes -->
  <!-- 3 : 3 minutes -->
  <!-- 4 : 4 minutes -->
  <!-- 5 : 5 minutes -->
  <!-- 6 : 6 minutes -->
  <!-- 10 : 10 minutes -->
  <!-- 12 : 12 minutes -->
  <!-- 15 : 15 minutes -->
  <!-- 20 : 20 minutes -->
  <!-- 30 : 30 minutes -->
  <!-- 60 : 1 hour -->
  <!-- 120: 2 hours -->
  <!-- 180: 3 hours -->
  <!-- 240: 4 hours -->
  <!-- 360: 6 hours -->
  <!-- 480: 8 hours -->
  <!-- 720: 12 hours -->
  <!-- A value of -1 means a non-periodic normal schedule -
->
  <Value data="-1" name="Interval" type="integer" />
</Key>

```

Weekly Schedule Settings

Set backup jobs to run weekly at the time you specified.

- **Start hour** – the starting hour of the backup, from 0-23.
- **Start minute** – the starting minute of the backup, from 0-59.
- **Duration of this backup in hours** – the duration you would like this backup to perform, in hours. Set to -1 if you would like the backup job to run until it finishes.
 - **Stop** – the stop **time** of the backup job. This only applies to schedules with start backup “at” and is not supported for periodic backup schedule (start backup “every”)
 - **until full backup completed** – this option will stop a backup job once it is complete. This is the configured stop time of the backup job by default.
 - **after (defined no. of hrs.)** – this option will stop a backup job after a certain number of hours regardless of whether the backup job has completed or not. This can range from 1 to 24 hrs.

The number of hours must be enough to complete a backup of all files in the backup set. For small files in a backup, if the number of hours is not enough to back up all files, then the outstanding files will be backed up in the next backup job. However, if the backup set contains large files, this may result in partially backed up files.

For example, if a backup has 100GB file size which will take approximately 15 hours to complete on your environment, but you set the “stop” after 10 hours, the file will be partially backed up and cannot be restored. The next backup will upload the files from scratch again.

The partially backed up data will have to be removed by running the [data integrity check](#).

As a general rule, it is recommended to review this setting regularly as the data size on the backup machine may grow over time.

- **Interval** – the interval of the backup from minutes or hours.
 - minute interval, 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, or 30 minutes
 - hourly interval, 1, 2, 3, 4, 6, 8, 10, or 12 hours
- **Backup on these days of the week** – choose to enable or disable backup on each day in week.

```

        <!-- Weekly settings -->
        <!-- Copy and paste the whole <Key> to add more weekly
schedules -->
        <Key name="Weekly Schedule Settings" allowMultiple="Y">
            <!-- Name of schedule -->
            <Value data="Weekly-Schedule" name="Name" type="string"
/>

            <!-- Start hour -->
            <!-- 0, 1, 2... 23 -->
            <!-- This value will be ignored if the schedule is set to
be periodic ("Interval" field contains value other than -1) -->
            <Value data="21" name="Hour" type="integer" />
            <!-- Start minute -->
            <!-- 0, 1, 2... 59 -->
            <!-- This value will be ignored if the schedule is set to
be periodic ("Interval" field contains value other than -1) -->
            <Value data="0" name="Minute" type="integer" />
            <!-- Duration of this backup in hours -->
            <!-- 1, 2, 3... -->
            <!-- A value of -1 means run until job finish -->
            <!-- Duration can only be -1 if the schedule is set to be
periodic ("Interval" field contains value other than -1) -->
            <Value data="-1" name="Duration" type="integer" />
            <!-- Interval -->
            <!-- 1 : 1 minute -->
            <!-- 2 : 2 minutes -->
            <!-- 3 : 3 minutes -->
            <!-- 4 : 4 minutes -->
            <!-- 5 : 5 minutes -->
            <!-- 6 : 6 minutes -->
            <!-- 10 : 10 minutes -->
            <!-- 12 : 12 minutes -->
            <!-- 15 : 15 minutes -->
            <!-- 20 : 20 minutes -->
            <!-- 30 : 30 minutes -->
            <!-- 60 : 1 hour -->
            <!-- 120: 2 hours -->
            <!-- 180: 3 hours -->
            <!-- 240: 4 hours -->
            <!-- 360: 6 hours -->
            <!-- 480: 8 hours -->
            <!-- 720: 12 hours -->
            <!-- A value of -1 means a non-periodic normal schedule -
->
            <Value data="-1" name="Interval" type="integer" />
            <!-- Backup on these days of the week -->
            <!-- Y: Yes -->
            <!-- N: No -->
            <Value data="Y" name="Sunday" type="boolean" />
            <Value data="Y" name="Monday" type="boolean" />
            <Value data="Y" name="Tuesday" type="boolean" />
            <Value data="Y" name="Wednesday" type="boolean" />
            <Value data="Y" name="Thursday" type="boolean" />
            <Value data="Y" name="Friday" type="boolean" />
            <Value data="Y" name="Saturday" type="boolean" />
        </Key>

```

Monthly Schedule Settings

Set backup jobs to run monthly at the time you specified.

- **Start hour** – the starting hour of the backup, from 0-23.
- **Start minute** – the starting minute of the backup, from 0-59.
- **Duration of this backup in hours** – the duration you would like this backup to perform, in hours. Set to -1 if you would like the backup job to run until it finishes.
 - **Stop** – the stop **time** of the backup job. This only applies to schedules with start backup “at” and is not supported for periodic backup schedule (start backup “every”)
 - **until full backup completed** – this option will stop a backup job once it is complete. This is the configured stop time of the backup job by default.
 - **after (defined no. of hrs.)** – this option will stop a backup job after a certain number of hours regardless of whether the backup job has completed or not. This can range from 1 to 24 hrs.

The number of hours must be enough to complete a backup of all files in the backup set. For small files in a backup, if the number of hours is not enough to back up all files, then the outstanding files will be backed up in the next backup job. However, if the backup set contains large files, this may result in partially backed up files.

For example, if a backup has 100GB file size which will take approximately 15 hours to complete on your environment, but you set the “stop” after 10 hours, the file will be partially backed up and cannot be restored. The next backup will upload the files from scratch again.

The partially backed up data will have to be removed by running the [data integrity check](#).

As a general rule, it is recommended to review this setting regularly as the data size on the backup machine may grow over time.

- **Schedule date of month** – set exact date in a month when you would like the backup to perform. Set to 0 if you would like the backup performed in a specified occurrence + criteria format, e.g. the third Wednesday in month.
- **Backup [Occurrence + Criteria] format**

You can set the backup to perform on a specified week (**Occurrence, First / Second / Third / Last**) and on a specified day of the week (**Criteria, Sun thru Sat**), for instance, the third Wednesday in a month.

 - **Backup occurrence** – set the week, i.e., First / Second / Third / Last. If you have set an exact date in the previous “Schedule date of month” configuration, this setting will be ignored.
 - **Backup criteria** – set a day of the week, i.e., Sunday thru Saturday. If you have set an exact date in the previous “Schedule date of month” configuration, this setting will be ignored.

```

<!-- Monthly settings -->
<!-- Copy and paste the whole <Key> to add more monthly
schedules -->
<Key name="Monthly Schedule Settings">
  <!-- Name of schedule -->
  <Value data="Monthly-Schedule" name="Name"
type="string" />
  <!-- Start hour -->
  <!-- 0, 1, 2... 23 -->
  <Value data="21" name="Hour" type="integer" />
  <!-- Start minute -->
  <!-- 0, 1, 2... 59 -->
  <Value data="0" name="Minute" type="integer" />
  <!-- Duration of this backup in hours -->
  <!-- 1, 2, 3... -->
  <!-- A value of -1 means run until job finish -->
  <Value data="-1" name="Duration" type="integer" />
  <!-- Schedule date of month -->
  <!-- 1, 2, 3... 31 -->
  <!-- 32: Last -->
  <!-- Set to 0 if you want to use the format of
occurrence + criteria, e.g. Third Wednesday, instead --
>
  <Value data="1" name="Schedule Date" type="integer" />
  <!-- Backup occurrence -->
  <!-- First / Second / Third / Fourth / Last -->
  <!-- If "Schedule Date" is not zero, this value will be
ignored -->
  <Value data="First" name="Occurrence" type="string" />
  <!-- Backup criteria -->
  <!-- Sunday / Monday / Tuesday / Wednesday / Thursday /
Friday / Saturday / Weekday / Weekend -->
  <!-- If "Schedule Date" is not zero, this value will be
ignored -->
  <Value data="Friday" name="Criteria" type="string" />
</Key>

```


Custom Schedule Settings

Set backup jobs to run at the date and time you specified.

- **Start hour** – the starting hour of the backup, from 0-23.
- **Start minute** – the starting minute of the backup, from 0-59.
- **Duration of this backup in hours** – the duration you would like this backup to perform, in hours. Set to -1 if you would like the backup job to run until it finishes.
 - **Stop** – the stop **time** of the backup job. This only applies to schedules with start backup “at” and is not supported for periodic backup schedule (start backup “every”)
 - **until full backup completed** – this option will stop a backup job once it is complete. This is the configured stop time of the backup job by default.
 - **after (defined no. of hrs.)** – this option will stop a backup job after a certain number of hours regardless of whether the backup job has completed or not. This can range from 1 to 24 hrs.

The number of hours must be enough to complete a backup of all files in the backup set. For small files in a backup, if the number of hours is not enough to back up all files, then the outstanding files will be backed up in the next backup job. However, if the backup set contains large files, this may result in partially backed up files.

For example, if a backup has 100GB file size which will take approximately 15 hours to complete on your environment, but you set the “stop” after 10 hours, the file will be partially backed up and cannot be restored. The next backup will upload the files from scratch again.

The partially backed up data will have to be removed by running the [data integrity check](#).

As a general rule, it is recommended to review this setting regularly as the data size on the backup machine may grow over time.

- **Date for performing custom schedule backup** - enter a specific date when you would like the backup to perform. The date format should be in YYYY-MM-DD.

```

<!-- Custom settings -->
<!-- Copy and paste the whole <Key> to add more custom
schedules -->
<Key name="Custom Schedule Settings">
  <!-- Name of schedule -->
  <Value data="Custom" name="Name" type="string" />
  <!-- Start hour -->
  <!-- 0, 1, 2... 23 -->
  <Value data="21" name="Hour" type="integer" />
  <!-- Start minute -->
  <!-- 0, 1, 2... 59 -->
  <Value data="0" name="Minute" type="integer" />
  <!-- Duration of this backup in hours -->
  <!-- 1, 2, 3... -->
  <!-- A value of -1 means run until job finish -->
  <Value data="-1" name="Duration" type="integer" />
  <!-- Date for performing custom schedule backup -->
  <!-- Input in the format of YYYY-MM-DD -->
  <Value data="2016-4-30" name="Schedule Date"
type="string" />
</Key>
</Key>

```

Destination Settings

- **Concurrency level** – set the number of destinations to run backup job concurrently
- **AhsayCBS Destination Settings** – this option allows backup files to be stored on the server
- **Local Destination Settings** – this option allows backup files to be stored in your local computer. Enter the directory path where you would like the backup files to be stored.

```

<!-- This is the collection of destinations -->
<Key name="Destination Settings">
  <!-- Concurrency level is the number of destinations to run
backup concurrently -->
  <!-- 2, 3, 4... -->
  <!-- 1 : Backup to destinations one by one sequentially -->
  <!-- -1: Backup to all destinations concurrently -->
  <Value data="1" name="Concurrency Level" type="integer" />
  <!-- AhsayCBS destination is where the files are backup to
server -->
  <Key name="AhsayCBS Destination Settings">
  </Key>
  <!-- Local destination means backup files are stored in
your computer -->
  <!-- Copy and paste the whole <Key> to add more local
destinations -->
  <Key name="Local Destination Settings">
    <!-- Name of your destination -->
    <Value data="" name="Name" type="string" />
    <!-- Directory to store your backup files -->
    <!-- e.g. /tmp -->
    <Value data="" name="Local Path" type="string" />
  </Key>
</Key>

```

- **Aliyun Destination Settings** – if you are using Aliyun as your backup destination, configure the login and network settings in this section.

```

<!-- Aliyun destination for storing files -->
<!-- Copy and paste the whole <Key> to add more Aliyun
destinations -->
<Key name="Aliyun Destination Settings">
  <!-- Name of your destination -->
  <Value data="" name="Name" type="string" />
  <!-- Access key ID -->
  <Value data="" name="Access Key ID" type="string" />
  <!-- Access key secret -->
  <Value data="" name="Access Key Secret" type="string"
  />
  <!-- Region -->
  <!-- oss-cn-hangzhou      : Hangzhou -->
  <!-- oss-cn-shenzhen    : Shenzhen -->
  <!-- oss-cn-beijing     : Beijing -->
  <!-- oss-cn-qingdao     : Qingdao -->
  <!-- oss-cn-shanghai    : Shanghai -->
  <!-- oss-cn-hongkong    : Hong Kong -->
  <!-- oss-us-west-1      : US Silicon Valley -->
  <!-- oss-ap-southeast-1: Asia Pacific (Singapore) -->
  <Value data="" name="Region" type="string" />
  <!-- Bucket to store backup data -->
  <!-- Leave the field empty to use default -->
  <Value data="" name="Bucket Name" type="string" />
  <!-- Select whether to use proxy -->
  <!-- Y: Yes -->
  <!-- N: No -->
  <Value data="N" name="Enable proxy during backup"
  type="boolean" />
</Key>

```

- **CTYun Destination Settings** – if you are using CTYun as your backup destination, configure the login and network settings in this section.

```

<!-- CTYun destination for storing files -->
<!-- Copy and paste the whole <Key> to add more CTYun
destinations -->
<Key name="CTYun Destination Settings">
  <!-- Name of your destination -->
  <Value data="" name="Name" type="string" />
  <!-- Access key ID -->
  <Value data="" name="Access Key ID" type="string" />
  <!-- Access secret key -->
  <Value data="" name="Access Secret Key" type="string"
  />
  <!-- Select whether to use proxy -->
  <!-- Y: Yes -->
  <!-- N: No -->
  <Value data="N" name="Enable proxy during backup"
  type="boolean" />
</Key>

```

- **AmazonS3 Destination Settings** – if you are using AmazonS3 as your backup destination, configure the login and network settings in this section.

```

<!-- AmazonS3 destination for storing files -->
<!-- Copy and paste the whole <Key> to add more AmazonS3
destinations -->
<Key name="AmazonS3 Destination Settings">
  <!-- Name of your destination -->
  <Value data="" name="Name" type="string" />
  <!-- Access key ID -->
  <Value data="" name="Access Key ID" type="string" />
  <!-- Secret access key -->
  <Value data="" name="Secret Access Key" type="string"
/>
  <!-- Location -->
  <!-- us-east-1      : US East (N. Virginia) -->
  <!-- us-west-2     : US West (Oregon) -->
  <!-- us-west-1     : US West (Northern California) -->
  <!-- eu-west-1     : EU (Ireland) -->
  <!-- eu-central-1  : EU (Frankfurt) -->
  <!-- ap-southeast-1: Asia Pacific (Singapore) -->
  <!-- ap-northeast-1: Asia Pacific (Tokyo) -->
  <!-- ap-southeast-2: Asia Pacific (Sydney) -->
  <!-- sa-east-1     : South America (Sao Paulo) -->
  <!-- us-gov-west-1 : AWS GovCloud (US) -->
  <!-- cn-north-1    : China (Beijing) -->
  <!-- ap-northeast-2: Asia Pacific (Seoul) -->
  <Value data="" name="Location" type="string" />
  <!-- Select whether to use proxy -->
  <!-- Y: Yes -->
  <!-- N: No -->
  <Value data="N" name="Enable proxy during backup"
type="boolean" />
</Key>

```

- **AWSCompatible Destination Settings** – if you are using AWSCompatible as your backup destination, configure the login and network settings in this section.

```

<!-- AWSCompatible destination for storing files -->
<!-- Copy and paste the whole <Key> to add more
AWSCompatible destinations -->
<Key name="AWSCompatible Destination Settings">
  <!-- Name of your destination -->
  <Value data="" name="Name" type="string" />
  <!-- Host -->
  <Value data="" name="Host" type="string" />
  <!-- Port -->
  <Value data="0" name="Port" type="integer" />
  <!-- Access key ID -->
  <Value data="" name="Access Key ID" type="string" />
  <!-- Secret access key -->
  <Value data="" name="Secret Access Key" type="string"
/>
  <!-- Bucket to store backup data (please create this
bucket manually first) -->
  <Value data="" name="Bucket Name" type="string" />
  <!-- Select whether to use proxy -->
  <!-- Y: Yes -->
  <!-- N: No -->
  <Value data="N" name="Enable proxy during backup"
type="boolean" />
</Key>

```

- **GoogleCloudStorage Destination Settings** – if you are using GoogleCloudStorage as your backup destination, configure the login and network settings in this section.

```

<!-- GoogleCloudStorage destination for storing files -->
<!-- Copy and paste the whole <Key> to add more
GoogleCloudStorage destinations -->
<Key name="GoogleCloudStorage Destination Settings"
allowMultiple="Y">
  <!-- Name of your destination -->
  <Value data="" name="Name" type="string" />
  <!-- Access key -->
  <Value data="" name="Access Key" type="string" />
  <!-- Secret -->
  <Value data="" name="Secret" type="string" />
  <!-- Storage Class -->
  <!-- MULTI_REGIONAL: Multi-Regional -->
  <!-- REGIONAL      : Regional -->
  <!-- NEARLINE      : Nearline -->
  <!-- COLDLINE      : Coldline -->
  <Value data="" name="Storage Class" type="string" />
  <!-- Location -->
  <!-- NAM4          : nam4 (Iowa and South
Virginia)          : Carolina) -->
  <!-- US            : us (multiple regions in
                    United States) -->
  <!-- NORTHAMERICA-NORTHEAST1: northamerica-northeast1
                    (Montreal) -->
  <!-- SOUTHAMERICA-EAST1    : southamerica-east1 (Sao
                    Paulo) -->
  <!-- US-CENTRAL1         : us-central1 (Iowa) -->
  <!-- US-EAST1           : us-east1 (South Carolina) -
->
  <!-- US-EAST4           : us-east4 (Northern
Virginia)          : -->
  <!-- US-WEST1          : us-west1 (Oregon) -->
  <!-- US-WEST2          : us-west2 (Los Angeles) -->
  <!-- EU                : eu (multiple regions in
                    European Union) -->
  <!-- EUR4              : eur4 (Netherlands and
                    Finland) -->
  <!-- EUROPE-NORTH1     : europe-north1 (Finland) -->
  <!-- EUROPE-WEST1      : europe-west1 (Belgium) -->
  <!-- EUROPE-WEST2      : europe-west2 (London) -->
  <!-- EUROPE-WEST3      : europe-west3 (Frankfurt) --
>
  <!-- EUROPE-WEST4      : europe-west4 (Netherlands)
-->
  <!-- EUROPE-WEST6      : europe-west6 (Zurich) -->
  <!-- ASIA              : asia (multiple regions in
                    Asia) -->
  <!-- ASIA-EAST1        : asia-east1 (Taiwan) -->
  <!-- ASIA-EAST2        : asia-east2 (Hong Kong) -->
  <!-- ASIA-NORTHEAST1   : asia-northeast1 (Tokyo) -->
  <!-- ASIA-NORTHEAST2   : asia-northeast2 (Osaka) -->
  <!-- ASIA-NORTHEAST3   : asia-northeast3 (Seoul) -->
  <!-- ASIA-SOUTH1       : asia-south1 (Mumbai) -->
  <!-- ASIA-SOUTHEAST1   : asia-southeast1 (Singapore)
-->
  <!-- AUSTRALIA-SOUTHEAST1 : australia-southeast1
(Sydney)          : -->
  <Value data="" name="Location" type="string" />

```

```

    <!-- Bucket to store backup data -->
    <!-- Leave the field empty to use default -->
    <Value data="" name="Bucket Name" type="string" />
    <!-- Select whether to use proxy -->
    <!-- Y: Yes -->
    <!-- N: No -->
    <Value data="N" name="Enable proxy during backup"
    type="boolean" />
</Key>

```

- **Windows Azure Destination Settings** – if you are using Windows Azure as your backup destination, configure the login and network settings in this section.

```

<!-- Windows Azure destination for storing files -->
<!-- Copy and paste the whole <Key> to add more Windows
Azure destinations -->
<Key name="Windows Azure Destination Settings">
  <!-- Name of your destination -->
  <Value data="" name="Name" type="string" />
  <!-- Storage account name -->
  <Value data="" name="Storage Account Name"
  type="string" />
  <!-- Access key -->
  <Value data="" name="Access Key" type="string" />
</Key>
<!-- Rackspace destination for storing files -->
<!-- Copy and paste the whole <Key> to add more Rackspace
destinations -->
<Key name="Rackspace Destination Settings">
  <!-- Name of your destination -->
  <Value data="" name="Name" type="string" />
  <!-- Username -->
  <Value data="" name="Username" type="string" />
  <!-- API key -->
  <Value data="" name="API Key" type="string" />
  <!-- Select whether to use proxy -->
  <!-- Y: Yes -->
  <!-- N: No -->
  <Value data="N" name="Enable proxy during backup"
  type="boolean" />
</Key>

```

- **OpenStack Destination Settings** – if you are using OpenStack as your backup destination, configure the login and network settings in this section.

```

<!-- OpenStack destination for storing files -->
<!-- Copy and paste the whole <Key> to add more OpenStack
destinations -->
<Key name="OpenStack Destination Settings">
  <!-- Name of your destination -->
  <Value data="" name="Name" type="string" />
  <!-- Host -->
  <Value data="" name="Host" type="string" />
  <!-- Keystone public port -->
  <Value data="5000" name="Keystone Public Port"
type="integer" />
  <!-- Username -->
  <Value data="" name="Username" type="string" />
  <!-- Password -->
  <Value data="" name="Password" type="string" />
  <!-- Select whether to use proxy -->
  <!-- Y: Yes -->
  <!-- N: No -->
  <Value data="N" name="Enable proxy during backup"
type="boolean" />
</Key>

```

- **Wasabi Destination Settings** – if you are using Wasabi as your backup destination, configure the login and network settings in this section.

```

<!-- Wasabi destination for storing files -->
<!-- Copy and paste the whole <Key> to add more Wasabi
destinations -->
<Key name="Wasabi Destination Settings" allowMultiple="Y">
  <!-- Name of your destination -->
  <Value data="" name="Name" type="string" />
  <!-- Access key -->
  <Value data="" name="Access Key" type="string" />
  <!-- Secret Key -->
  <Value data="" name="Secret Key" type="string" />
  <!-- Region -->
  <!-- us-west-1      : us-west-1 -->
  <!-- ap-northeast-1: ap-northeast-1 -->
  <!-- ap-northeast-2: ap-northeast-2 -->
  <!-- eu-central-1   : eu-central-1 -->
  <!-- eu-west-1      : eu-west-1 -->
  <!-- us-central-1   : us-central-1 -->
  <!-- us-east-1      : us-east-1 -->
  <!-- us-east-2      : us-east-2 -->
  <Value data="" name="Region" type="string" />
  <!-- Bucket to store backup data -->
  <!-- Leave the field empty to use default -->
  <Value data="" name="Bucket Name" type="string" />
  <!-- Select whether to use proxy -->
  <!-- Y: Yes -->
  <!-- N: No -->
  <Value data="N" name="Enable proxy during backup"
type="boolean" />
</Key>

```

- **FTP Destination Settings** – if you are using FTP as your backup destination, configure the login and network settings in this section.

```

<!-- FTP destination for storing files -->
<!-- Copy and paste the whole <Key> to add more FTP
destinations -->
<Key name="FTP Destination Settings">
  <!-- Name of your destination -->
  <Value data="" name="Name" type="string" />
  <!-- Host -->
  <Value data="" name="Host" type="string" />
  <!-- Port -->
  <Value data="0" name="Port" type="integer" />
  <!-- Username -->
  <Value data="" name="Username" type="string" />
  <!-- Password -->
  <Value data="" name="Password" type="string" />
  <!-- FTP directory to store backup data -->
  <!-- Leave the field empty to store to ~/Ahsay -->
  <Value data="" name="Directory" type="string" />
  <!-- Select whether to use proxy -->
  <!-- Y: Yes -->
  <!-- N: No -->
  <Value data="N" name="Enable proxy during backup"
  type="boolean" />
</Key>
</Key>

```

Deduplication setting

A checksum verification of each backup file which was split into several blocks of varying size will be performed to compare its content and identify which block is duplicated. There are 2 deduplication scope in this setting.

- **Same file path within the same backup set** - deduplication applies to the current backup job and it applies to duplicated contents within a file.
- **All files within the same backup set** - deduplication applies across different files in the backup set.

```

<!-- This shows the deduplication setting -->
<Key name="Deduplication Setting">
  <!-- Enable deduplication -->
  <!-- Y: Yes -->
  <!-- N: No -->
  <Value data="Y" name="Enable" type="boolean" />
  <!-- Deduplication scope -->
  <!-- F: Same file path within the same backup set -->
  <!-- B: All files within the same backup set -->
  <Value data="B" name="Deduplication level" type="string" />
</Key>
</Key>
</Setting>

```


Appendix C Example File Backup Set Setting

Below are the configuration parameters of the file backup set sample.

Backup Set Name	b4
Temporary Working Directory	/tmp
Remove temporary files after backup	Yes
Compression Type	Fast
Backup file permissions	Yes
Follow Link	Yes
Daily schedule	Runs every 8 hours
Destination	CBS
Backup Source	/Templates
Exclude	/root/.obm, /usr/local/obm, /tmp
Deduplication	Yes

***Configurable items are highlighted in red.**

```
<?xml version="1.0" encoding="UTF-8"?>
<Setting>
  <!-- This is the backup set setting -->
  <Key name="Backup Set Setting" allowMultiple="Y">
    <!-- Backup set type (Read Only) -->
    <Value data="FILE" name="Type" type="string" />
    <!-- Backup set name -->
    <Value data="b4" name="Name" type="string" />
    <!-- Temporary directory for storing backup files -->
    <Value data="/tmp" name="Temporary Working Directory"
type="string" />
    <!-- Remove temporary files after backup -->
    <!-- Y: Yes -->
    <!-- N: No -->
    <Value data="Y" name="Delete temporary files after backup"
type="boolean" />
    <!-- Support of opening backup data directly without restoration
-->
    <!-- Y: Yes -->
    <!-- N: No -->
    <Value data="N" name="OpenDirect" type="boolean" />
    <!-- Select compression type -->
    <!-- GzipDefaultCompression : Normal -->
    <!-- GzipBestSpeedCompression: Fast (Compressed size larger than
normal) -->
    <!-- SnappyDefaultCompression: Fast with optimization for loca -
->
    <!-- Leave the field blank for no compression -->
    <Value data="GzipBestSpeedCompression" name="Compression Type"
type="string" />
    <!-- Backup files' permissions -->
    <!-- Y: Yes -->
    <!-- N: No -->
    <Value data="Y" name="Upload files permission" type="boolean" />
    <!-- Follow link of the backup files -->
    <!-- Y: Yes -->
    <!-- N: No -->
    <Value data="Y" name="Follow links" type="boolean" />
    <!-- This includes the files you want to backup -->
```

```

    <!-- Copy and paste the whole <Key> to add more selected
sources-->
    <Key name="Selected Source">
        <!-- Please enter your file path, e.g. /root/Documents -->
        <Value data="/Templates" name="Path" type="string" />
    </Key>
    <!-- This excludes the files from the included source -->
    <!-- Copy and paste the whole <Key> to add more deselected
sources -->
    <Key name="Deselected Source">
        <!-- Please enter your file path, e.g. /root/Documents -->
        <Value data="/root/.obm" name="Path" type="string" />
    </Key>
    <Key name="Deselected Source">
        <!-- Please enter your file path, e.g. /root/Documents -->
        <Value data="/usr/local/obm" name="Path" type="string" />
    </Key>
    <Key name="Deselected Source">
        <!-- Please enter your file path, e.g. /root/Documents -->
        <Value data="/tmp " name="Path" type="string" />
    </Key>
    <!-- Settings for your scheduled backups -->
    <Key name="Schedule Settings">
        <!-- Enable scheduled backup on this computer -->
        <!-- Y: Yes -->
        <!-- N: No -->
        <Value data="Y" name="Enable" type="boolean" />
        <!-- Daily settings -->
        <!-- Copy and paste the whole <Key> to add more daily
schedules -->
        <!-- Daily settings -->
        <!-- Copy and paste the whole <Key> to add more daily schedules
-->
        <Key name="Daily Schedule Settings" allowMultiple="Y">
            <!-- Name of schedule -->
            <Value data="Daily-1" name="Name" type="string" />
            <!-- Start hour -->
            <!-- 0, 1, 2... 23 -->
            <!-- This value will be ignored if the schedule is set to be
periodic ("Interval" field contains value other than -1) -->
            <Value data="0" name="Hour" type="integer" />
            <!-- Start minute -->
            <!-- 0, 1, 2... 59 -->
            <!-- This value will be ignored if the schedule is set to be
periodic ("Interval" field contains value other than -1) -->
            <Value data="0" name="Minute" type="integer" />
            <!-- Duration of this backup in hours -->
            <!-- 1, 2, 3... -->
            <!-- A value of -1 means run until job finish -->
            <!-- Duration can only be -1 if the schedule is set to be
periodic ("Interval" field contains value other than -1) -->
            <Value data="-1" name="Duration" type="integer" />
            <!-- Interval -->
            <!-- 1 : 1 minute -->
            <!-- 2 : 2 minutes -->
            <!-- 3 : 3 minutes -->
            <!-- 4 : 4 minutes -->
            <!-- 5 : 5 minutes -->
            <!-- 6 : 6 minutes -->
            <!-- 10 : 10 minutes -->
            <!-- 12 : 12 minutes -->

```

```

        <!-- 15 : 15 minutes -->
        <!-- 20 : 20 minutes -->
        <!-- 30 : 30 minutes -->
        <!-- 60 : 1 hour -->
        <!-- 120: 2 hours -->
        <!-- 180: 3 hours -->
        <!-- 240: 4 hours -->
        <!-- 360: 6 hours -->
        <!-- 480: 8 hours -->
        <!-- 720: 12 hours -->
        <!-- A value of -1 means a non-periodic normal schedule -->
        <Value data="480" name="Interval" type="integer" />
    </Key>
    <!-- This is the collection of destinations -->
    <Key name="Destination Settings">
        <!-- Concurrency level is the number of destinations to run
        backup concurrently -->
        <!-- 2, 3, 4... -->
        <!-- 1 : Backup to destinations one by one sequentially -->
        <!-- -1: Backup to all destinations concurrently -->
        <Value data="1" name="Concurrency Level" type="integer" />
        <!-- AhsayCBS destination is where the files are backup to
server --      >
        <Key name="AhsayCBS Destination Settings">
            </Key>
        </Key>
    <!-- This shows the deduplication setting -->
    <Key name="Deduplication Setting">
        <!-- Enable deduplication -->
        <!-- Y: Yes -->
        <!-- N: No -->
        <Value data="Y" name="Enable" type="boolean" />
        <!-- Deduplication scope -->
        <!-- F: Same file path within the same backup set -->
        <!-- B: All files within the same backup set -->
        <Value data="B" name="Deduplication level" type="string" />
    </Key>
    </Key>
</Setting>

```

Appendix D Uninstall AhsayOBM (SH online installer)

To uninstall AhsayOBM installed using SH online installer, use the **uninstall.sh** script, then run the **rm** command to remove the remaining AhsayOBM files from the Linux machine.

```
# cd /usr/local/obm/bin
# sh uninstall.sh
Log Time: Thu Jan 6 15:24:59 HKT 2022

Verifying current user privilege ...
Current user has enough privilege to "uninstall".

Uninstall Ahsay Online Backup Manager from /usr/local/obm

Shutting down Scheduler
Wait 5 seconds before Scheduler exits
Kill running Ahsay Online Backup Manager
Kill Process by Image Name: /usr/local/obm/jvm/bin/bJW
Ignore Process by Image Name:
Kill Process by Image Name: /usr/local/obm/jvm/bin/bschJW
Ignore Process by Image Name:
Kill process of PID 1339
Kill Process by Image Name: /usr/local/obm/jvm/bin/java
Ignore Process by Image Name:
Removing Scheduler script obmscheduler from service
Uninstall Service for NIX type OS
Using init script path /etc/init.d
Using run level script path /etc/rc.d
Removing symbolic link from run levels
Removing script file obmscheduler from /etc/init.d
Remove shortcut /usr/share/applications/obm.desktop
Remove shortcut /root/Desktop/obm.desktop
Ahsay Online Backup Manager uninstall procedure is complete!
It is now safe to remove files from /usr/local/obm

# rm -fr /usr/local/obm
```

Appendix E Uninstall AhsayOBM (RPM online installer)

To uninstall AhsayOBM installed using RPM online installer, use the `rpm -e obm` script, then run the `rm` command to remove the remaining AhsayOBM files from the Linux machine.

```
# rpm -e obm
Log Time: Thu Jan 6 16:24:59 HKT 2022

Verifying current user privilege ...
Current user has enough privilege to "uninstall".

Uninstall Ahsay Online Backup Manager from /usr/local/obm

Shutting down Scheduler
Wait 5 seconds before Scheduler exits
Kill running Ahsay Online Backup Manager
Kill Process by Image Name: /usr/local/obm/jvm/bin/bJW
Ignore Process by Image Name:
Kill Process by Image Name: /usr/local/obm/jvm/bin/bschJW
Ignore Process by Image Name:
Kill process of PID 3337
Kill Process by Image Name: /usr/local/obm/jvm/bin/java
Ignore Process by Image Name:
Removing Scheduler script obmscheduler from service
Uninstall Service for NIX type OS
Using init script path /etc/init.d
Using run level script path /etc/rc.d
Removing symbolic link from run levels
Removing script file obmscheduler from /etc/init.d
Remove shortcut /usr/share/applications/obm.desktop
Remove shortcut /root/Desktop/obm.desktop
Ahsay Online Backup Manager uninstall procedure is complete!
It is now safe to remove files from /usr/local/obm
    Remove files in /usr/local/obm

# rm -fr /usr/local/obm
```

Appendix F Uninstall AhsayOBM (DEB online installer)

To uninstall AhsayOBM installed using DEB online installer, use the **dpkg -r obm** script, then run the **rm** command to remove the remaining AhsayOBM files from the Debian or Ubuntu machine.

```
dpkg -r obm
(Reading database ... 246553 files and directories currently installed.)
Removing obm (9.0.3.0) ...
Log Time: Thu Jan 6 17:24:59 HKT 2022

Verifying current user privilege ...
Current user has enough privilege to "uninstall".

Uninstall Ahsay Online Backup Manager from /usr/local/obm

Shutting down Scheduler
Wait 5 seconds before Scheduler exits
Kill running Ahsay Online Backup Manager
Kill Process by Image Name: /usr/local/obm/jvm/bin/bJW
Ignore Process by Image Name:
Kill Process by Image Name: /usr/local/obm/jvm/bin/bschJW
Ignore Process by Image Name:
Kill Process by Image Name: /usr/local/obm/jvm/bin/java
Ignore Process by Image Name:
Removing Scheduler script obmscheduler from service
Uninstall Service for NIX type OS
Using init script path /etc/init.d
Using run level script path /etc
Removing symbolic link from run levels
Removing script file obmscheduler from /etc/init.d
Remove shortcut /usr/share/applications/obm.desktop
Ahsay Online Backup Manager uninstall procedure is complete!
It is now safe to remove files from /usr/local/obm
    Remove files in /usr/local/obm

rm -fr /usr/local/obm
```

Appendix G Handling of Non-regular Files

The following non-regular files/folders such as device files, block files, virtual files systems, pseudo file systems etc will be automatically ignored if selected for backup. Backup log entries of these files/folders will not appear in the backup logs.

Example:

/proc
/dev
/sys
/run

For AhsayOBM installations on Linux GUI, these devices will not be shown on the backup source screen.

Appendix H How to Create a File Backup Set in Predefined Destination

File backup set in predefined destination can only be created by the user once the service provider has set up the predefined destination beforehand. This can be created through AhsayCBS and ssh.

Using AhsayCBS

Follow the steps in [Chapter 6.1](#) of the AhsayCBS User's Guide from 1 – 6.

In Step 7, add the predefined destination. Click [+] to add the predefined destination.

Destination

Backup Mode
Sequential ▾

+ -


Name


← → X ?

Check the box of the predefined destination and click the Add button.

Add Destination

Name

 AhsayCBS

 GoogleDrive-1

+ X ?

Continue with steps 8 – 10.

Once the backup set is saved you can check it in AhsayOBM by selecting to List Backup Sets.

```
Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
-----
Your Choice: 1

Select a Backup Set to show more details
-----
(1). predefined
-----
Your Choice: 1

Name           : predefined
Owner          : centos7
Type           : FILE
Selected Source : /root/Documents
Deselected Source : /root/.obm
Deselected Source : /usr/local/obm
Deselected Source : /root/tmp
Destination Name : GoogleDrive-1, Type: GDrive
Encryption Key  : abc123$%
Encryption Algorithm : AES
Encryption Mode : CBC
Encryption Key Length: 256

Press Enter to continue...
```

Using ssh

Please refer to the steps in [Chapter 7](#) on how to create a backup set using ssh.

Appendix I How to Change Ownership of Backup Set

Backup sets may be transferred from one computer to another by a simple export and import of the BackupSet.xml file provided that the following requirements are met:

1. AhsayOBM version must be the same or a newer version.
2. Both computers are on similar operating system platforms (i.e. both on Linux)

An example of this is backup set “b1” was originally created on a Linux machine “centos7” is transferred to another Linux machine “centos65”. In order to do this, follow the instructions below to change ownership of a backup set:

1. Login to the AhsayOBM Linux machine where you intend to transfer the ownership of the backup set to using root.

```
login as: root
root@10.90.30.2's password:
Last login: Wed Jul 31 09:43:09 2019 from 192.168.12.1
[root@centos65 ~]#
```

2. Change directory by using the command **cd /usr/local/obm/bin**. Then run “**sh RunConfigurator.sh**”. Login by selecting **(1). Login**.

```
[root@centos65 bin]# cd /usr/local/obm/bin
[root@centos65 bin]# sh RunConfigurator.sh
Startup Ahsay Online Backup Manager ...
Config file found

Login Menu
-----
(1). Login
(2). Change Network Settings
(3). Forgot Password
(4). Quit
-----
Your Choice: 1
```

3. Enter your Login Name and Password.

```
Login Name : LinuxTest
Password : *****

Please wait while verifying user account with server...
log4j:WARN No appenders could be found for logger
(org.apache.http.impl.conn.PoolingClientConnectionManager).
log4j:WARN Please initialize the log4j system properly.
log4j:WARN See
http://logging.apache.org/log4j/1.2/faq.html#noconfig for more
info.
Your profile has been downloaded and updated.

Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
```

```

(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
-----
Your Choice:

```

4. Select **(3). Export Backup Set Settings to XML**, to export backup set setting to xml. Choose the backup set to be exported. Enter **y** to enter the encryption key. Enter your encryption key twice to export the backup set settings.

```

Choose your backup set to generate XML file
-----
(1). b1
-----
Your Choice: 1

Update encryption key for backup set "b1"
Do you want to enter the encryption key for this backup set?
(Y/N) ? y
Enter encryption key : *****
Re-enter encryption key : *****

XML file successfully exported to
/root/.obm/config/backupSet.xml

```

Note: The step to enter the encryption key will only be displayed if the backup set have an encryption key defined.

5. Modify **/root/.obm/config/backupSet.xml** in a text editor like vi. Change the Value data under **"Schedule Settings"** and save. If Value data is **"Y"** change it to **"N"**, if **"N"** then change to **"Y"**.

```

<Key name="Schedule Settings">
    <!-- Enable scheduled backup on this computer -->
    <!-- Y: Yes -->
    <!-- N: No -->
    <Value data="Y" name="Enable" type="boolean" />

```

6. Select **(4). Import Backup Set Settings from XML**, to import backup set settings from xml.

```

Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
-----
Your Choice: 4

```

7. In the prompt, enter **y** to take ownership of the backup set. Also confirm overwrite by entering **y**. Then list backup set by selecting **(1). List Backup Sets** to verify that the ownership of the backup set has been changed to the new owner.

```
The backup set "b1" is owned by "centos7", do you want to take
the ownership? (Y/N) ? y
Backup Set 'b1' already exist. Confirm overwrite? (Y/N) ? y
XML imported, uploading to server...

XML successfully uploaded to server

Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
-----
Your Choice: 1

Select a Backup Set to show more details
-----
(1). b1
-----
Your Choice: 1

Name                : b1
Owner              : Centos65
Type                : FILE
Selected Source     : /root/Documents
Encryption Key      : abc123$%
Encryption Algorithm : AES
Encryption Mode     : CBC
Encryption Key Length: 256

Press Enter to continue...
```

8. Modify `/root/.obm/config/backupSet.xml` and change the value data of **“Schedule Settings”** back to its original value and save. If Value data is **“N”** change it to **“Y”**, if **“Y”** then change to **“N”**.

```
<Key name="Schedule Settings">
  <!-- Enable scheduled backup on this computer -->
  <!-- Y: Yes -->
  <!-- N: No -->
  <Value data="N" name="Enable" type="boolean" />
```

9. Import the BackupSet.xml again for the scheduled backup to take effect. Since in the example the scheduled backup was disabled before changing the ownership, so afterwards the scheduled backup must be enabled again for it to run on schedule. Select **(4). Import Backup Set Settings from XML**, then **y** to confirm overwrite.

```
Main Menu
-----
(1). List Backup Sets
(2). Delete Backup Set
(3). Export Backup Set Settings to XML
(4). Import Backup Set Settings from XML
(5). Generate new Backup Set Settings Template
(6). Change Language [English]
(7). Update Profile Settings
(8). Quit
-----
Your Choice: 4

Backup Set 'b1' already exist. Confirm overwrite? (Y/N) ? y
XML imported, uploading to server...

XML successfully uploaded to server
```

Appendix J Script Files

RunConfigurator.sh

This script file is used to run AhsayOBM. To configure the parameters, open the script file in a text editor like vi.

```
# vi RunConfigurator.sh
```

Configure the following parameters:

- ❶ **SETTING_HOME** – this is the directory to your setting home. If not set, the default directory is “\${HOME}/.obm”.
e.g. SETTING_HOME="/root/.obm"
- ❷ **DEBUG_MODE** – this parameter is used to enable or disable the debug mode when opening AhsayOBM.
e.g. DEBUG_MODE="- debug" or DEBUG_MODE=""

```
# vi RunConfigurator.sh

#!/bin/sh

##### RunConfigurator.sh
#####
# You can use this shell to run the application
#
#####
#####

##### START: User Defined Section
#####

# ----- SETTING_HOME -----
# | Directory to your setting home.
# |
# | Default to ${HOME}/.obm when not set.
# |
# | e.g. SETTING_HOME="${HOME}/.obm"
# |
# -----
SETTING_HOME=""

# ----- DEBUG_MODE -----
# | Enable/Disable debug mode
# |
# | e.g. DEBUG_MODE="--debug"
# |
# | or DEBUG_MODE=""
# |
# -----
DEBUG_MODE=""
```

```

##### END: User Defined Section
#####

#####
#####
#           R E T R I E V E           A P P _ H O M E           P A T H
#
#####
#####

EXE_DIR=`pwd`
SCRIPT_HOME=`dirname "$0"`
cd "$SCRIPT_HOME"
APP_BIN=`pwd`
APP_HOME=`dirname "$APP_BIN"`

#####
#####
#           R E T R I E V E           J A V A _ H O M E           P A T H
#
#####
#####

if [ "Darwin" = `uname` ]; then
    JAVA_HOME="/System/Library/Frameworks/JavaVM.framework/Home"
fi

if [ ! -x "$APP_HOME/jvm" ];
then
    echo "'$APP_HOME/jvm' does not exist!"
    if [ ! -n "$JAVA_HOME" ]; then
        echo "Please set JAVA_HOME!"
        exit 0
    else
        ln -sf "$JAVA_HOME" "$APP_HOME/jvm"
        echo "Created JAVA_HOME symbolic link at '$APP_HOME/jvm'"
    fi
fi

if [ ! -x "$APP_HOME/jvm" ];
then
    echo "Please create symbolic link for '$JAVA_HOME' to
'$APP_HOME/jvm'"
    exit 0
fi

JAVA_HOME="$APP_HOME/jvm"

# Use alternative executable name to define the GUI execution
if [ "Darwin" = `uname` ]; then
    JAVA_EXE="$JAVA_HOME/bin/java"
else
    JAVA_EXE="$JAVA_HOME/bin/bJW"
fi

# Verify the JAVA_EXE whether it is a valid JAVA Executable or not.
STRING_JAVA_VERSION="java version,openjdk version"
OUTPUT_JAVA_VERSION=`"${JAVA_EXE}" -version 2>&1`
OUTPUT_JVM_SUPPORT=0
BACKUP_IFS=$IFS

```

```

IFS=", "
for word in $STRING_JAVA_VERSION; do
    if [ `echo "${OUTPUT_JAVA_VERSION}" | grep "${word}" | grep -cv
"grep ${word}"` -le 0 ]
    then
        #echo "The Java Executable \"${JAVA_EXE}\" is not a valid Java
Executable. Exit \"``basename \"$0\"``\" now."
        continue;
    else
        OUTPUT_JVM_SUPPORT=1
        break;
    fi
done
IFS=$BACKUP_IFS
if [ $OUTPUT_JVM_SUPPORT -eq 0 ]
then
    echo "The Java Executable \"${JAVA_EXE}\" is not a valid Java
Executable. Exit \"``basename \"$0\"``\" now."
    exit 1
fi

#####
#####
#
#                               S T A R T - U P
#
#####
#####

# Set LD_LIBRARY_PATH for Lotus Notes on Linux
if [ "Linux" = `uname` ]; then
    NOTES_PROGRAM=`cat "$APP_HOME/bin/notesenv"`
    LD_LIBRARY_PATH="$APP_HOME/bin:$NOTES_PROGRAM:$LD_LIBRARY_PATH"
    export NOTES_PROGRAM
else
    LD_LIBRARY_PATH="$APP_HOME/bin:$LD_LIBRARY_PATH"
fi

DEP_LIB_PATH="X64"
case "`uname -m`" in
    i[3-6]86)
        DEP_LIB_PATH="X86"
    ;;
esac
LD_LIBRARY_PATH="${APP_BIN}/${DEP_LIB_PATH}":"":"${LD_LIBRARY_PATH}"

SHLIB_PATH="$LD_LIBRARY_PATH"
export LD_LIBRARY_PATH SHLIB_PATH

# Change to APP_BIN for JAVA execution
cd "${APP_BIN}"

# Reference path will be used to avoid empty space in the parent
directory
LIB_HOME=.
JAVA_OPTS="-Xrs -Xms128m -Xmx768m -client -
Dsun.nio.PageAlignDirectMemory=true"
JNI_PATH="-Djava.library.path=$LIB_HOME"
CLASSPATH="$LIB_HOME:$LIB_HOME/cb.jar"
MAIN_CLASS=Gui

```



```

# Execute Java VM Runtime for BackupManager
echo "Startup Ahsay Online Backup Manager ... "
"${JAVA_EXE}" $JAVA_OPTS $JNI_PATH -cp $CLASSPATH $MAIN_CLASS --config
"${DEBUG_MODE}" "${APP_HOME}" "${SETTING_HOME}"

#####
#####
#
#           R E S E T           A N D           E X I T
#
#####
#####

cd "${EXE_DIR}"
exit 0

```

Once you have configured the parameters, save the changes. Use the **sh** command to run the script. The AhsayOBM Login Menu will be displayed.

```

# sh RunConfigurator.sh
Startup Ahsay Online Backup Manager ...
Config file found

Login Menu
-----
(1). Login
(2). Change Network Settings
(3). Forgot Password
(4). Quit
-----
Your Choice:

```

ListBackupSet.sh

This script file is used to display the list of backup set under your backup account. To configure the parameters, open the script file in a text editor like vi.

```
# vi ListBackupSet.sh
```

Configure the following parameters:

- **SETTING_HOME** – this is the directory to your setting home. If not set, the default directory is "\${HOME}/.obm".

e.g. SETTING_HOME="/root/.obm"

```

# vi ListBackupSet.sh

#!/bin/sh

##### ListBackupSet.sh
#####
# You can use this shell script to list all backup sets available under
#
# your backup account.
#

```

```

#####
#####

##### Start: User Defined Section
#####

# ----- SETTING_HOME -----
# | Directory to your setting home.
# | Default to ${HOME}/.obm when not set.
# | e.g. SETTING_HOME="${HOME}/.obm"
# -----
SETTING_HOME=""

##### END: User Defined Section
#####

#####
#####
#           R E T R I E V E           A P P _ H O M E           P A T H
#
#####
#####

EXE_DIR=`pwd`
SCRIPT_HOME=`dirname "$0"`
cd "$SCRIPT_HOME"
APP_BIN=`pwd`
APP_HOME=`dirname "$APP_BIN"`

#####
#####
#           R E T R I E V E           J A V A _ H O M E           P A T H
#
#####
#####

if [ "Darwin" = `uname` ]; then
    JAVA_HOME="/System/Library/Frameworks/JavaVM.framework/Home"
fi

if [ ! -x "$APP_HOME/jvm" ];
then
    echo "'$APP_HOME/jvm' does not exist!"
    if [ ! -n "$JAVA_HOME" ]; then
        echo "Please set JAVA_HOME!"
        exit 0
    else
        ln -sf "$JAVA_HOME" "$APP_HOME/jvm"
        echo "Created JAVA_HOME symbolic link at '$APP_HOME/jvm'"
    fi
fi

if [ ! -x "$APP_HOME/jvm" ];
then
    echo "Please create symbolic link for '$JAVA_HOME' to
'$APP_HOME/jvm'"

```

```

        exit 0
    fi

    JAVA_HOME="$APP_HOME/jvm"
    JAVA_EXE="$JAVA_HOME/bin/java"

    # Verify the JAVA_EXE whether it can be executed or not.
    if [ ! -x "${JAVA_EXE}" ]
    then
        echo "The Java Executable file \"${JAVA_EXE}\" cannot be executed.
        Exit \"``basename \"$0\"``\" now."
        exit 1
    fi

    # Verify the JAVA_EXE whether it is a valid JAVA Executable or not.
    STRING_JAVA_VERSION="java version,openjdk version"
    OUTPUT_JAVA_VERSION=`"${JAVA_EXE}" -version 2>&1`
    OUTPUT_JVM_SUPPORT=0
    BACKUP_IFS=$IFS
    IFS=","
    for word in $STRING_JAVA_VERSION; do
        if [ `echo "${OUTPUT_JAVA_VERSION}" | grep "${word}" | grep -cv
        "grep ${word}"` -le 0 ]
        then
            #echo "The Java Executable \"${JAVA_EXE}\" is not a valid Java
            Executable. Exit \"``basename \"$0\"``\" now."
            continue;
        else
            OUTPUT_JVM_SUPPORT=1
            break;
        fi
    done
    IFS=$BACKUP_IFS
    if [ $OUTPUT_JVM_SUPPORT -eq 0 ]
    then
        echo "The Java Executable \"${JAVA_EXE}\" is not a valid Java
        Executable. Exit \"``basename \"$0\"``\" now."
        exit 1
    fi

#####
#####
#                               J A V A       E X E C U T I O N
#
#####
#####

# Change to APP_BIN for JAVA execution
cd "${APP_BIN}"

# Reference path will be used to avoid empty space in the parent
directory
LIB_HOME=.
JAVA_OPTS="-Xrs -Xms128m -Xmx768m -client -
Dsun.nio.PageAlignDirectMemory=true"
JNI_PATH="-Djava.library.path=$LIB_HOME"
CLASSPATH="$LIB_HOME:$LIB_HOME/cb.jar"
MAIN_CLASS=ListBackupSet

echo "Using APP_HOME      : ${APP_HOME}"
echo "Using SETTING_HOME  : ${SETTING_HOME}"

```

```

# API Arguments: ListBackupSet [APP_HOME] [SETTING_HOME]

# Do not include double-quote for java options, jni path, classpath and
main class
# Only apply double-quote for path to java executable and execution
arguments
"${JAVA_EXE}" $JAVA_OPTS $JNI_PATH -cp $CLASSPATH $MAIN_CLASS
"${APP_HOME}" "${SETTING_HOME}"

#####
#####
#                               R E S E T           A N D           E X I T
#
#####
#####

cd "${EXE_DIR}"
exit 0

```

Once you have configured the parameters, save the changes. Use the **sh** command to run the script. The list of backup sets will be displayed.

```

# sh ListBackupSet.sh
Using APP_HOME      : /usr/local/obm
Using SETTING_HOME :
BackupSet Name= Sample Backup Set 03, ID= 1641349114378

```

ListBackupJob.sh

This script file is used to display the list of backup jobs under a specific backup set. To configure the parameters, open the script file in a text editor like vi.

```
# vi ListBackupJob.sh
```

Configure the following parameters:

- ❶ **SETTING_HOME** – this is the directory to your setting home. If not set, the default directory is “\${HOME}/.obm”.

e.g. SETTING_HOME="/root/.obm"
- ❷ **BACKUP_SET** – this is the name of the backup set which contains the backup job that you want to list. There are two (2) ways to specify the backup set; by using the *backup set name* or by *backup set ID*. If the backup set name is not in English, use the backup set ID. You can leave this blank if you only have one (1) backup set.

e.g. BACKUP_SET="1119083740107" or BACKUP_SET="FileBackupSet-1"
- ❸ **BACKUP_DEST** – this is the name of the destination of the backup set. There are two (2) ways to specify the destination; by using the *destination name* or *destination ID*. If the destination name is not in English, use the DestinationID. You can leave this blank if you only have one (1) backup destination.

e.g. BACKUP_DEST="1119083740107" or BACKUP_DEST="CBS"

```

# vi ListBackupJob.sh

#!/bin/sh

##### ListBackupJob.sh
#####
# You can use this shell script to list all backup job which ran under
#
# this backup set.
#
#####
#####

##### Start: User Defined Section
#####

# ----- SETTING_HOME -----
# | Directory to your setting home.
# |
# | Default to ${HOME}/.obm when not set.
# |
# | e.g. SETTING_HOME="${HOME}/.obm"
# |
# -----
SETTING_HOME=""

# ----- BACKUP_SET -----
# | The name or ID of the backup set that you want to run
# |
# | If backup set name is not in English, please use BackupSetID
# |
# | e.g. BACKUP_SET="1119083740107"
# |
# | or BACKUP_SET="FileBackupSet-1"
# |
# |
# | You can leave this parameter blank if you have only 1 backup set.
# |
# -----
BACKUP_SET=""

# ----- BACKUP_DEST -----
# | The name or ID of the destination that you want to run
# |
# | If destination name is not in English, please use DestinationID
# |
# | e.g. BACKUP_DEST="1119083740107"
# |
# | or BACKUP_DEST="CBS"
# |
# |
# | You can leave this parameter blank if you have only 1 destination.
# |

```

```

# -----
-----
BACKUP_DEST=""

##### END: User Defined Section
#####

#####
#####
#                               S C R I P T                               U S A G E
#
#####
#####

# Input Arguments will overwrite the above settings
# defined in 'User Defined Section'.
if [ $# -ge 1 ]; then

    if [ -n "$1" ]; then
        BACKUP_SET="$1"
    fi

    if [ -n "$2" ]; then
        BACKUP_DEST="$2"
    fi

fi

#####
#####
#           R E T R I E V E           A P P _ H O M E           P A T H
#
#####

EXE_DIR=`pwd`
SCRIPT_HOME=`dirname "$0"`
cd "$SCRIPT_HOME"
APP_BIN=`pwd`
APP_HOME=`dirname "$APP_BIN"`

#####
#####
#           R E T R I E V E           J A V A _ H O M E           P A T H
#
#####

if [ "Darwin" = `uname` ]; then
    JAVA_HOME="/System/Library/Frameworks/JavaVM.framework/Home"
fi

if [ ! -x "$APP_HOME/jvm" ];
then
    echo "'$APP_HOME/jvm' does not exist!"
    if [ ! -n "$JAVA_HOME" ]; then
        echo "Please set JAVA_HOME!"
        exit 0
    else
        ln -sf "$JAVA_HOME" "$APP_HOME/jvm"
        echo "Created JAVA_HOME symbolic link at '$APP_HOME/jvm'"
    fi
fi

```

```

fi
fi

if [ ! -x "$APP_HOME/jvm" ];
then
    echo "Please create symbolic link for '$JAVA_HOME' to
'$APP_HOME/jvm'"
    exit 0
fi

JAVA_HOME="$APP_HOME/jvm"
JAVA_EXE="$JAVA_HOME/bin/java"

# Verify the JAVA_EXE whether it can be executed or not.
if [ ! -x "${JAVA_EXE}" ]
then
    echo "The Java Executable file \"${JAVA_EXE}\" cannot be executed.
Exit \"``basename \"$0\"``\" now."
    exit 1
fi

# Verify the JAVA_EXE whether it is a valid JAVA Executable or not.
STRING_JAVA_VERSION="java version,openjdk version"
OUTPUT_JAVA_VERSION=`"${JAVA_EXE}" -version 2>&1`
OUTPUT_JVM_SUPPORT=0
BACKUP_IFS=$IFS
IFS=","
for word in $STRING_JAVA_VERSION; do
    if [ `echo "${OUTPUT_JAVA_VERSION}" | grep "${word}" | grep -cv
"grep ${word}"` -le 0 ]
    then
        #echo "The Java Executable \"${JAVA_EXE}\" is not a valid Java
Executable. Exit \"``basename \"$0\"``\" now."
        continue;
    else
        OUTPUT_JVM_SUPPORT=1
        break;
    fi
done
IFS=$BACKUP_IFS
if [ $OUTPUT_JVM_SUPPORT -eq 0 ]
then
    echo "The Java Executable \"${JAVA_EXE}\" is not a valid Java
Executable. Exit \"``basename \"$0\"``\" now."
    exit 1
fi

#####
#####
#           J A V A           E X E C U T I O N
#
#####
#####

# Change to APP_BIN for JAVA execution
cd "${APP_BIN}"

# Reference path will be used to avoid empty space in the parent
directory
LIB_HOME=.

```

```

JAVA_OPTS="-Xrs -Xms128m -Xmx768m -client -
Dsun.nio.PageAlignDirectMemory=true"
JNI_PATH="-Djava.library.path=${LIB_HOME}"
CLASSPATH="${LIB_HOME}:${LIB_HOME}/cb.jar"
MAIN_CLASS=ListBackupJob

echo "Using APP_HOME      : ${APP_HOME}"
echo "Using SETTING_HOME  : ${SETTING_HOME}"
echo "Using BACKUP_SET    : ${BACKUP_SET}"

# API Arguments: ListBackupJob [APP_HOME] [BACKUP_SET] [BACKUP_DEST]
[SETTING_HOME]

# Do not include double-quote for java options, jni path, classpath and
# main class.
# Only apply double-quote for path to java executable and execution
arguments
"${JAVA_EXE}" $JAVA_OPTS $JNI_PATH -cp $CLASSPATH $MAIN_CLASS "--app-
home=${APP_HOME}" "--backup-set=${BACKUP_SET}" "--backup-
dest=${BACKUP_DEST}" "--setting-home=${SETTING_HOME}"

#####
#####
#           R E S E T           A N D           E X I T
#
#####
#####

cd "${EXE_DIR}"
exit 0

```

Once you have configured the parameters, save the changes. Use the **sh** command to run the script. The list of backup jobs of a specific backup set will be displayed.

```

# sh ListBackupJob.sh
Using APP_HOME      : /usr/local/obm
Using SETTING_HOME  :
Using BACKUP_SET    : Sample Backup Set 03
Sample Backup Set 03 [1641349114378]
2022-01-05-15-47-41

```


RunBackupSet.sh

This script file is used to manually run a backup. To configure the parameters, open the script file in a text editor like vi.

```
# vi RunBackupSet.sh
```

Configure the following parameters:

- ❶ **BACKUP_SET** – this is the name of the backup set which you want to backup. There are two (2) ways to specify the backup set; by using the *backup set name* or by *backup set ID*. If the backup set name is not in English, use the backup set ID. You can leave this blank if you only have one (1) backup set.

e.g. BACKUP_SET="1119083740107" or BACKUP_SET="FileBackupSet-1"
- ❷ **BACKUP_DESTS** – this is the name of the destination where you want your backup to be stored. There are two (2) ways to specify the destination; by using the *destination name* or *destination ID*. If the destination name is not in English, use the DestinationID. You can leave this blank if you only have one (1) backup destination.

e.g. BACKUP_DESTS="1119083740107" or BACKUP_DEST="CBS"
- ❸ **BACKUP_TYPE** – this is the backup set type. You do not need to change this if you are backing up a file backup set. There are four (4) options available for this: *FILE*, *DATABASE*, *DIFFERENTIAL* and *LOG*.

e.g. BACKUP_TYPE="FILE" for file backup
 BACKUP_TYPE="DATABASE" for full database backup
 BACKUP_TYPE="DIFFERENTIAL" for differential database backup
 BACKUP_TYPE="LOG" for log database backup
- ❹ **SETTING_HOME** – this is the directory to your setting home. If not set, the default directory is "\${HOME}/.obm".

e.g. SETTING_HOME="/root/.obm"
- ❺ **DELTA_MODE** – this is the In-File Delta setting. There are three (3) options available for this: *Incremental*, *Differential* and *Full*.

e.g. DELTA_MODE="I" for Incremental In-file delta backup
 DELTA_MODE="D" for Differential In-file delta backup
 DELTA_MODE="F" for full file backup
 DELTA_MODE="" for using backup set in-file delta setting
- ❻ **CLEANUP_MODE** – this is used to remove obsolete files from your backup destination after a backup has been run. There are two (2) options available for this: *ENABLE-CLEANUP* and *DISABLE-CLEANUP*.

e.g. CLEANUP_MODE="ENABLE-CLEANUP" or CLEANUP_MODE="DISABLE-CLEANUP"
- ❼ **DEBUG_MODE** – this is used to enable or disable debug for a backup job. There are two (2) options available for this: *ENABLE-DEBUG* and *DISABLE-DEBUG*.

e.g. `DEBUG_MODE="ENABLE-DEBUG"` or `DEBUG_MODE="DISABLE-DEBUG"`

```
# vi RunBackupSet.sh

#!/bin/sh

##### RunBackupSet.sh
#####
# You can use this shell script to run any of your backup sets from the
#
# command line. Just customize the "User Defined Section" below with
your      #
# values for your backup action.
#
#####
#####

##### START: User Defined Section
#####

# ----- BACKUP_SET -----
-----
# | The name or ID of the backup set that you want to run
|
# | If backup set name is not in English, please use ID instead.
|
# | e.g. BACKUP_SET="1119083740107"
|
# | or BACKUP_SET="FileBackupSet-1"
|
# |
|
# | You can leave this parameter blank if you have only 1 backup set.
|
# -----
-----
BACKUP_SET=""

# ----- BACKUP_DESTS -----
-----
# | The list of name or ID of the backup destinations that you want to
run. |
# | If backup destination name is not in English, please use ID
instead. |
# | e.g. BACKUP_DESTS="1740107119083"
|
# | or BACKUP_DESTS="Destination-1, Destination-2"
|
# | or BACKUP_DESTS="ALL"
|
# |
|
# | You can specify multiple destinations in comma-separated format,
|
# | or use "ALL" to run backup for all destinations.
|
# -----
-----
BACKUP_DESTS="ALL"
```

```

# ----- BACKUP_TYPE -----
# | Set backup type. You don't need to change this if you are backing
up a |
# | file backup set.
|
# | Options available: FILE/DATABASE/DIFFERENTIAL/LOG
|
# | e.g. BACKUP_TYPE="FILE"          for file backup
|
# | or BACKUP_TYPE="DATABASE"       for Full database backup
|
# | or BACKUP_TYPE="DIFFERENTIAL"   for Differential database backup
|
# | or BACKUP_TYPE="LOG"            for Log database backup
|
# -----
BACKUP_TYPE="FILE"

# ----- SETTING_HOME -----
# | Directory to your setting home.
|
# | Default to ${HOME}/.obm when not set.
|
# | e.g. SETTING_HOME="${HOME}/.obm"
|
# -----
SETTING_HOME=""

# ----- DELTA_MODE -----
# | Set In-File Delta mode.
|
# | Options available: Incremental/Differential/Full (I/D/F)
|
# | e.g. DELTA_MODE="I"    for Incremental In-file delta backup
|
# | or DELTA_MODE="D"     for Differential In-file delta backup
|
# | or DELTA_MODE="F"     for Full File backup
|
# | or DELTA_MODE=""      for using backup set in-file delta setting
|
# -----
DELTA_MODE=""

# ----- CLEANUP_MODE -----
# | You can enable Cleanup mode to remove obsolete files from your
backup |
# | destinations after backup.
|
# | Options available: ENABLE-CLEANUP/DISABLE-CLEANUP
|
# | e.g. CLEANUP_MODE="ENABLE-CLEANUP"
|

```

```

# | or CLEANUP_MODE="DISABLE-CLEANUP"
|
# -----
CLEANUP_MODE="DISABLE-CLEANUP"

# ----- DEBUG_MODE -----
-----
# | Set Debug mode.
|
# | Options available: ENABLE-DEBUG/DISABLE-DEBUG
|
# | e.g. DEBUG_MODE="ENABLE-DEBUG"
|
# | or DEBUG_MODE="DISABLE-DEBUG"
|
# -----
-----
DEBUG_MODE="DISABLE-DEBUG"

##### END: User Defined Section
#####

#####
#####
#                               S C R I P T                               U S A G E
#
#####
#####

# Input Arguments will overwrite the above settings
# defined in 'User Defined Section'.
if [ $# -ge 1 ]; then

    if [ -n "$1" ]; then
        BACKUP_SET="$1"
    fi

fi

#####
#####
#                               R E T R I E V E           A P P _ H O M E           P A T H
#
#####
#####

EXE_DIR=`pwd`
SCRIPT_HOME=`dirname "$0"`
cd "$SCRIPT_HOME"
APP_BIN=`pwd`
APP_HOME=`dirname "$APP_BIN"`

#####
#####
#                               R E T R I E V E           J A V A _ H O M E           P A T H
#
#####
#####

```

```

if [ "Darwin" = `uname` ]; then
    JAVA_HOME="/System/Library/Frameworks/JavaVM.framework/Home"
fi

if [ ! -x "$APP_HOME/jvm" ];
then
    echo "'$APP_HOME/jvm' does not exist!"
    if [ ! -n "$JAVA_HOME" ]; then
        echo "Please set JAVA_HOME!"
        exit 0
    else
        ln -sf "$JAVA_HOME" "$APP_HOME/jvm"
        if [ ! -x "$APP_HOME/jvm" ];
        then
            echo "Please create symbolic link for '$JAVA_HOME' to
'$APP_HOME/jvm'"
            exit 0
        else
            echo "Created JAVA_HOME symbolic link at '$APP_HOME/jvm'"
        fi
    fi
fi

fi

JAVA_HOME="$APP_HOME/jvm"
JAVA_EXE="$JAVA_HOME/bin/java"

# Verify the JAVA_EXE whether it can be executed or not.
if [ ! -x "${JAVA_EXE}" ]
then
    echo "The Java Executable file \"${JAVA_EXE}\" cannot be executed.
Exit \"``basename \"$0\"``\" now."
    exit 1
fi

# Verify the JAVA_EXE whether it is a valid JAVA Executable or not.
STRING_JAVA_VERSION="java version,openjdk version"
OUTPUT_JAVA_VERSION=`"${JAVA_EXE}" -version 2>&1`
OUTPUT_JVM_SUPPORT=0
BACKUP_IFS=$IFS
IFS=","
for word in $STRING_JAVA_VERSION; do
    if [ `echo "${OUTPUT_JAVA_VERSION}" | grep "${word}" | grep -cv
"grep ${word}"` -le 0 ]
    then
        #echo "The Java Executable \"${JAVA_EXE}\" is not a valid Java
Executable. Exit \"``basename \"$0\"``\" now."
        continue;
    else
        OUTPUT_JVM_SUPPORT=1
        break;
    fi
done
IFS=$BACKUP_IFS
if [ $OUTPUT_JVM_SUPPORT -eq 0 ]
then
    echo "The Java Executable \"${JAVA_EXE}\" is not a valid Java
Executable. Exit \"``basename \"$0\"``\" now."
    exit 1
fi

```

```

#####
#####
#           E X E C U T I O N       J A V A       P R O P E R T I E S
#
#####
#####

# Set LD_LIBRARY_PATH for Lotus Notes on Linux
if [ "Linux" = `uname` ];
then
    NOTES_PROGRAM=`cat "$APP_HOME/bin/notesenv"`
    LD_LIBRARY_PATH="$APP_HOME/bin:$NOTES_PROGRAM:$LD_LIBRARY_PATH"
    export NOTES_PROGRAM
else
    LD_LIBRARY_PATH="$APP_HOME/bin:$LD_LIBRARY_PATH"
fi

DEP_LIB_PATH="X64"
case "`uname -m`" in
    i[3-6]86)
        DEP_LIB_PATH="X86"
    ;;
esac
LD_LIBRARY_PATH="${APP_BIN}/${DEP_LIB_PATH}":".":"${LD_LIBRARY_PATH}"

SHLIB_PATH="$LD_LIBRARY_PATH"
export LD_LIBRARY_PATH SHLIB_PATH

#####
#####
#           J A V A       E X E C U T I O N
#
#####
#####

# Change to APP_BIN for JAVA execution
cd "${APP_BIN}"

# Reference path will be used to avoid empty space in the parent
directory
LIB_HOME=.
JAVA_OPTS="-Xrs -Xms128m -Xmx768m -XX:MaxDirectMemorySize=512m -client
-Dsun.nio.PageAlignDirectMemory=true"
JNI_PATH="-Djava.library.path=$LIB_HOME"
CLASSPATH="$LIB_HOME:$LIB_HOME/cb.jar"
MAIN_CLASS=RunBackupSet

echo "-"
echo "Using APP_HOME       : $APP_HOME"
echo "Using SETTING_HOME   : $SETTING_HOME"
echo "Using JAVA_HOME       : $JAVA_HOME"
echo "Using JAVA_EXE        : $JAVA_EXE"
echo "Using JAVA_OPTS       : $JAVA_OPTS"
echo "Using JNI_PATH        : $JNI_PATH"
echo "Using CLASSPATH       : $CLASSPATH"
echo "-"

echo "Running Backup Set - '$BACKUP_SET' ..."

# API Arguments: RunBackupSet [APP_HOME] [BACKUP_SET] [BACKUP_DESTS]
[BACKUP_TYPE] [SETTING_HOME] [DELTA_MODE] [CLEANUP_MODE] [DEBUG_MODE]

```

```

# Do not include double-quote for java options, jni path, classpath and
# main class.
# Only apply double-quote for path to java executable and execution
arguments
"${JAVA_EXE}" $JNI_PATH -cp $CLASSPATH $JAVA_OPTS $MAIN_CLASS
"${APP_HOME}" "${BACKUP_SET}" "${BACKUP_DESTS}" "${BACKUP_TYPE}"
"${SETTING_HOME}" "${DELTA_MODE}" "${CLEANUP_MODE}" "${DEBUG_MODE}"

#####
#####
#                               R E S E T           A N D           E X I T
#
#####
#####

cd "${EXE_DIR}"
exit 0

```

Once you have configured the parameters, save the changes. Use the **sh** command to run the script. The backup will be run manually.

```

# sh RunBackupSet.sh
Using APP_HOME       : /usr/local/obm
Using SETTING_HOME   :
Using JAVA_HOME      : /usr/local/obm/jvm
Using JAVA_EXE       : /usr/local/obm/jvm/bin/java
Using JAVA_OPTS      : -Xrs -Xms128m -Xmx2048m -
XX:MaxDirectMemorySize=512m -client -
Dsun.nio.PageAlignDirectMemory=true
Using JNI_PATH       : -Djava.library.path=../LinX64
Using CLASSPATH      : ../cb.jar
-
Running Backup Set - 'Sample Backup Set 03' ...
[2022/01/05 15:47:57] [info] [-] Start [ AhsayOBM v9.0.2.24 ]
[2022/01/05 15:47:57] [info] [-] Saving encrypted backup set encryption
keys to server...
[2022/01/05 15:47:58] [info] [1641349114378] Start Backup ...
[Deduplication: enabled, Deduplication scope: All files within the same
backup set, Migrate Delta: enabled]
[2022/01/05 15:47:58] [info] [1641349114378] Using Temporary Directory
/root/.obm/temp/1641347569071/OBS@1641349114378
[2022/01/05 15:48:00] [info] [1641349114378] Start Periodic Data
Integrity Check on backup set = "Sample Backup Set 03" destination =
"AhsayCBS"
[2022/01/05 15:48:00] [info] [1641349114378] Start data integrity check
on backup set "Sample Backup Set 03(1641347569071)",
"AhsayCBS(1641349114378)", crc disabled, rebuild index disabled
[2022/01/05 15:48:00] [info] [1641349114378] Start processing data
integrity check on backup set= "Sample Backup Set 03" destination=
"AhsayCBS"
[2022/01/05 15:48:02] [info] [1641349114378] Download valid index files
from backup job "Current" to
"/root/.obm/temp/1641347569071/OBS@1641349114378/index".
[2022/01/05 15:48:02] [info] [1641349114378] Skipped to run Data
Integrity Check for backup set "Sample Backup Set 03" in destination
"AhsayCBS" because no data is in index.
[2022/01/05 15:48:03] [info] [1641349114378] Data integrity check on
backup set= "Sample Backup Set 03" destination= "AhsayCBS" is completed

```

```
[2022/01/05 15:48:03] [info] [1641349114378] Finished data integrity
check on backup set "Sample Backup Set 03(1641347569071)",
"AhsayCBS(1641349114378)", crc disabled, rebuild index disabled
[2022/01/05 15:48:03] [info] [1641349114378] Completed data integrity
check on backup set "Sample Backup Set 03(1641347569071)",
"AhsayCBS(1641349114378)", crc disabled, rebuild index disabled
[2022/01/05 15:48:03] [info] [-] Start running pre-commands
[2022/01/05 15:48:03] [info] [-] Finished running pre-commands
[2022/01/05 15:48:03] [info] [1641349114378] Downloading server file
list...
[2022/01/05 15:48:03] [info] [1641349114378] Download valid index files
from backup job "Current" to
"/root/.obm/temp/1641347569071/OBS@1641349114378/index".
[2022/01/05 15:48:03] [info] [1641349114378] Downloading server file
list... Completed
[2022/01/05 15:48:04] [info] [1641349114378] Reading backup source from
hard disk...
[2022/01/05 15:48:04] [info] [1641349114378] Reading backup source from
hard disk... Completed
[2022/01/05 15:48:04] [info] [1641349114378] [New Directory]... /
[2022/01/05 15:48:04] [info] [1641349114378] [New Directory]... /root
[2022/01/05 15:48:05] [info] [1641349114378] [New Directory]...
/root/Documents
[2022/01/05 15:48:05] [info] [1641349114378] [New Directory]...
/root/Documents/testfiles
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 100% of
"/root/Documents/sample1.rtf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 10% of
"/root/Documents/sample1.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 21% of
"/root/Documents/sample1.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 11% of
"/root/Documents/sample1.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 25% of
"/root/Documents/sample1.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 36% of
"/root/Documents/sample1.pdf"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 32% of
"/root/Documents/sample1.ppt"
[2022/01/05 15:48:05] [info] [1641349114378] [New File]... 47% of
"/root/Documents/sample1.pdf"
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"/root/Documents/sample1.xls"
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com.ahsay.afc.event.d@53a3e6dd

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com.ahsay.afc.event.d@19ealc7
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presence and size of backup data in destination "AhsayCBS"...
[2022/01/05 15:48:06] [info] [1641349114378] File:
"1641347569071/blocks/2022-01-05-15-47-41/0/000000.bak", Size:
1,335,776, OK
[2022/01/05 15:48:06] [info] [1641349114378] File:
"1641347569071/blocks/2022-01-05-15-47-41/0/000001.bak", Size:
1,307,600, OK
[2022/01/05 15:48:06] [info] [1641349114378] File:
"1641347569071/blocks/2022-01-05-15-47-41/0/000002.bak", Size:
1,754,864, OK
[2022/01/05 15:48:06] [info] [1641349114378] File:
"1641347569071/blocks/2022-01-05-15-47-41/0/000003.bak", Size: 45,440,
OK
[2022/01/05 15:48:06] [info] [1641349114378] Finished validating the
presence and size of backup data in destination "AhsayCBS"
[2022/01/05 15:48:06] [info] [1641349114378] Total New Files = 31
[2022/01/05 15:48:06] [info] [1641349114378] Total New Directories = 4
[2022/01/05 15:48:06] [info] [1641349114378] Total New Links = 0
[2022/01/05 15:48:06] [info] [1641349114378] Total Updated Files = 0
[2022/01/05 15:48:06] [info] [1641349114378] Total Attributes Changed
Files = 0
[2022/01/05 15:48:06] [info] [1641349114378] Total Deleted Files = 0
[2022/01/05 15:48:06] [info] [1641349114378] Total Deleted Directories
= 0
[2022/01/05 15:48:06] [info] [1641349114378] Total Deleted Links = 0
[2022/01/05 15:48:06] [info] [1641349114378] Total Moved Files = 0
[2022/01/05 15:48:06] [info] [1641349114378] Total Dedupe Saving for
this job = 4.57MB
[2022/01/05 15:48:06] [info] [1641349114378] Total Backup Data Size for
this job = 9.41MB
[2022/01/05 15:48:06] [info] [1641349114378] Total Dedupe Saving for
destination = 4.57MB
[2022/01/05 15:48:06] [info] [1641349114378] Total Backup Data Size for
destination = 9.41MB
[2022/01/05 15:48:06] [info] [-] Saving server information to
destination.
```

```
[2022/01/05 15:48:07] [info] [1641349114378] Saving encrypted backup
file index to 1641347569071/blocks/2022-01-05-15-47-41 at destination
AhsayCBS...
[2022/01/05 15:48:07] [info] [-] Start running post-commands
[2022/01/05 15:48:07] [info] [-] Finished running post-commands
[2022/01/05 15:48:10] [info] [1641349114378] Deleting temporary file
/root/.obm/temp/1641347569071/OBS@1641349114378
[2022/01/05 15:48:10] [info] [1641349114378] Backup Completed
Successfully
```

Restore.sh

This script file is used to restore backup files to its original or alternate location. To configure the parameters, open the script file in a text editor like vi.

```
# vi Restore.sh
```

Configure the following parameters:

- **BACKUP_SET** – this is the name of the backup set which you want to restore. There are two (2) ways to specify the backup set; by using the *backup set name* or by *backup set ID*. If the backup set name is not in English, use the backup set ID. You can leave this blank if you only have one (1) backup set.
e.g. BACKUP_SET="1119083740107" or BACKUP_SET="FileBackupSet-1"
- **DESTINATION** – this is the name of the destination where the backup set was stored. There are two (2) ways to specify the destination; by using the *destination name* or *destination ID*. If the destination name is not in English, use the DestinationID. You can leave this blank if you only have one (1) backup destination.
e.g. DESTINATION="1119083740107" or DESTINATION="CBS"
- **RESTORE_TO** – this is the directory where you want to restore the backup file. You do not need to change this if you want the backup file to be restored to its original location.
e.g. RESTORE_TO="" or RESTORE_TO="/tmp"
- **RESTORE_FROM** – this is the file or directory that you would like to restore.
e.g. RESTORE_FROM="/Data"
- **POINT_IN_TIME** – this is the specific successful backup that you want to restore. You can use *Current* if you want to use the latest backup snapshot. You can see the point in time snapshot by using the *ListBackupJob.sh* script file.
e.g. POINT_IN_TIME="Current" or POINT_IN_TIME="2006-10-04-12-57-13"
- **RESTORE_PERMISSION** – you can set the file permission here.
e.g. RESTORE_PERMISSION="N" or RESTORE_PERMISSION="Y"
- **SKIP_INVALID_KEY** – you can set here if you want to skip restoring the backup file with an invalid key. There are two (2) options for this: *Y* or *N*.
e.g. SKIP_INVALID_KEY="N"
- **SYNC_OPTION** – this is the sync options if you want to delete extra files.

e.g. SYNC_OPTIONS="Y" if you want to enable sync options

SYNC_OPTIONS="N" if you do not want to enable sync options

SYNC_OPTIONS="" if you want to prompt for selection

- **REPLACE_EXISTING_FILE** – you can set here if you want files with the same filename to be replaced. There are three (3) options for this: *--all*, *--none* or blank.

e.g. REPLACE_EXISTING_FILE="--all" if you want to replace existing files with the same filename

REPLACE_EXISTING_FILE="--none" if you want to keep all existing files with the same filename

REPLACE_EXISTING_FILE="" if you want to be prompted for selection

- **SETTING_HOME** – this is the directory to your setting home. If not set, the default directory is "\${HOME}/.obm".

e.g. SETTING_HOME="/root/.obm"

- **FILTER** – you can filter the files that you want to be restored. You can use this format to set the filter *-Pattern=xxx-Type=yyy-Target=zzz*.

xxx is the filter pattern

yyy is the filter type, you have eight (8) options available for this: *exact*, *exactMatchCase*, *contains*, *containsMatchCase*, *startsWith*, *startsWithMatchCase*, *endsWith* and *endsWithMatchCase*.

zzz is the filter target, you have three (3) options available for this: *toFile*, *toFileDir* and *toDir*.

e.g. FILTER="-Pattern=.txt-Type=exact-Target=toFile"

- **TEMP_DIR** – this is the directory where the restore files will be stored temporarily. If set to "" the temporary directory in the backup set will be used.

e.g. TEMP_DIR="/tmp"

- **VERIFY_CHKSUM** – you can set here if you want the in-file delta file checksum to be verified during restore. There are two (2) options available for this: *Y* or *N*.

e.g. VERIFY_CHKSUM="N" or VERIFY_CHKSUM="Y"

```
# vi Restore.sh

#!/bin/sh

##### Restore.sh
#####
# You can use this shell script to restore backup files using command-
line. #
# Just customize the "User Define Section" below with values for your
restore #
# action.
#
#####
#####
```

```

##### Start: User Defined Section
#####

# ----- BACKUP_SET -----
# | The name or ID of the backup set that you want to restore.
# | If backup set name is not in English, please use ID instead.
# | e.g. BACKUP_SET="1119083740107"
# | or BACKUP_SET="FileBackupSet-1"
# |
# | You can leave this parameter blank if you have only 1 backup set.
# -----
BACKUP_SET=""

# ----- DESTINATION -----
# | The name or ID of the backup destination that you want to restore
# | from. |
# | If backup destination name is not in English, please use ID
# | instead. |
# | e.g. DESTINATION="1740107119083"
# | or DESTINATION="Destination-1"
# |
# | You can leave this parameter blank if you have only 1 destination.
# -----
DESTINATION=""

# ----- RESTORE_TO -----
# | Directory to where you want files to be restored
# | set to "" to restore files to original location
# | e.g. RESTORE_TO="/tmp"
# -----
RESTORE_TO=""

# ----- RESTORE_FROM -----
# | File/Directory on the backup server that you would like to restore
# | e.g. RESTORE_FROM="/Data"
# -----
RESTORE_FROM=""

```



```

# ----- POINT_IN_TIME -----
# | The point-in-time snapshot (successful backup) that you want to
restore |
# | from the backup server. Use "Current" for the latest backup
snapshot |
# | e.g. POINT_IN_TIME="2006-10-04-12-57-13"
|
# | or POINT_IN_TIME="Current"
|
# |
|
# | You can retrieve the point in time by using the ListBackupJob.sh
|
# -----
POINT_IN_TIME="Current"

# ----- RESTORE_PERMISSION -----
# | set to "Y" if you want to restore file permissions
|
# | set to "N" if you do NOT want to restore file permissions
|
# -----
RESTORE_PERMISSION="N"

# ----- SKIP_INVALID_KEY -----
# | set to "Y" if you want to skip restore file with invalid key
|
# | set to "N" if you want to prompt user to input a correct key
|
# -----
SKIP_INVALID_KEY="N"

# ----- SYNC_OPTION -----
# | Delete extra files
|
# | set to "Y" if you want to enable sync option
|
# | set to "N" if you do NOT want to enable sync option
|
# | set to "" to prompt for selection
|
# -----
SYNC_OPTION="N"

# ----- REPLACE_EXISTING_FILE -----
# | set to "--all" to replace all existing file(s) of the same filename
|
# | set to "--none" to skip all existing file(s) with the same filename
|
# | set to "" to prompt for selection
|

```

```

# -----
-----
REPLACE_EXISTING_FILE="--all"

# -----          SETTING_HOME -----
-----
# | Directory to your setting home.
|
# | Default to ${HOME}/.obm when not set.
|
# | e.g. SETTING_HOME="${HOME}/.obm"
|
# -----
-----
SETTING_HOME=""

# -----          FILTER -----
-----
# | Filter out what files you want to restore
|
# | -Pattern=xxx-Type=yyy-Target=zzz
|
# | where xxx is the filter pattern,
|
# |     yyy is the filter type, whice can be one of the following:
|
# |     [exact | exactMatchCase | contains | containsMatchCase|
|
# |     startWith | startWithMatchCase | endWith |
endWithMatchCase] |
# |     zzz is the filter target, which can be one of the following:
|
# |     [toFile | toFileDir | toDir]
|
# |
|
# | e.g. FILTER="-Pattern=.txt-Type=exact-Target=toFile"
|
# -----
-----
FILTER=""

# -----          TEMP_DIR -----
-----
# | Directory to where you want to store restore files temporarily
|
# | set to "" to use the temporary directory in the backup set
|
# | e.g. TEMP_DIR="/tmp"
|
# -----
-----
TEMP_DIR=""

# -----          VERIFY_CHKSUM -----
-----
# | set to "Y" if you want to verify in-file delta file checksum during
restore|
# | set to "N" if you do NOT want to verify in-file delta file checksum
during |

```

```

# | restore
|
# -----
-----
VERIFY_CHKSUM="N"

##### END: User Defined Section
#####

#####
#####
#       R E T R I E V E           A P P _ H O M E           P A T H
#
#####
#####

EXE_DIR=`pwd`
SCRIPT_HOME=`dirname "$0"`
cd "$SCRIPT_HOME"
APP_BIN=`pwd`
APP_HOME=`dirname "$APP_BIN"`

#####
#####
#       R E T R I E V E           J A V A _ H O M E           P A T H
#
#####
#####

if [ "Darwin" = `uname` ]; then
    JAVA_HOME="/System/Library/Frameworks/JavaVM.framework/Home"
fi

if [ ! -x "$APP_HOME/jvm" ];
then
    echo "'$APP_HOME/jvm' does not exist!"
    if [ ! -n "$JAVA_HOME" ]; then
        echo "Please set JAVA_HOME!"
        exit 0
    else
        ln -sf "$JAVA_HOME" "$APP_HOME/jvm"
        echo "Created JAVA_HOME symbolic link at '$APP_HOME/jvm'"
    fi
fi

if [ ! -x "$APP_HOME/jvm" ];
then
    echo "Please create symbolic link for '$JAVA_HOME' to
'$APP_HOME/jvm'"
    exit 0
fi

JAVA_HOME="$APP_HOME/jvm"
JAVA_EXE="$JAVA_HOME/bin/java"

# Verify the JAVA_EXE whether it can be executed or not.
if [ ! -x "${JAVA_EXE}" ]
then
    echo "The Java Executable file \"${JAVA_EXE}\" cannot be executed.
Exit \"\"`basename "$0"``\" now."
    exit 1
fi

```

```

# Verify the JAVA_EXE whether it is a valid JAVA Executable or not.
STRING_JAVA_VERSION="java version,openjdk version"
OUTPUT_JAVA_VERSION=`"${JAVA_EXE}" -version 2>&1`
OUTPUT_JVM_SUPPORT=0
BACKUP_IFS=$IFS
IFS=","
for word in $STRING_JAVA_VERSION; do
    if [ `echo "${OUTPUT_JAVA_VERSION}" | grep "${word}" | grep -cv
"grep ${word}"` -le 0 ]
    then
        #echo "The Java Executable \"${JAVA_EXE}\" is not a valid Java
Executable. Exit \"\"`basename "$0"``\" now."
        continue;
    else
        OUTPUT_JVM_SUPPORT=1
        break;
    fi
done
IFS=$BACKUP_IFS
if [ $OUTPUT_JVM_SUPPORT -eq 0 ]
then
    echo "The Java Executable \"${JAVA_EXE}\" is not a valid Java
Executable. Exit \"\"`basename "$0"``\" now."
    exit 1
fi

#####
#####
#                               J A V A                               E X E C U T I O N
#
#####
#####

# Set LD_LIBRARY_PATH for Lotus Notes on Linux
if [ "Linux" = `uname` ];
then
    NOTES_PROGRAM=`cat "$APP_BIN/notesenv"`
    LD_LIBRARY_PATH="$APP_BIN:$NOTES_PROGRAM:$LD_LIBRARY_PATH"
    export NOTES_PROGRAM
else
    LD_LIBRARY_PATH="$APP_BIN:$LD_LIBRARY_PATH"
fi

# The Restore Action must be execute at path $APP_HOME/bin
cd "${APP_BIN}"

DEP_LIB_PATH="X64"
case "`uname -m`" in
    i[3-6]86)
        DEP_LIB_PATH="X86"
    ;;
esac
LD_LIBRARY_PATH="${APP_BIN}/${DEP_LIB_PATH}":".":"${LD_LIBRARY_PATH}"

SHLIB_PATH="$LD_LIBRARY_PATH"
export LD_LIBRARY_PATH SHLIB_PATH

# Reference path will be used to avoid empty space in the parent
directory

```

```

LIB_HOME=.
JAVA_OPTS="-Xrs -Xms128m -Xmx768m -XX:MaxDirectMemorySize=512m -client
-Dsun.nio.PageAlignDirectMemory=true"
JNI_PATH="-Djava.library.path=$LIB_HOME"
CLASSPATH="$LIB_HOME:$LIB_HOME/cb.jar"
MAIN_CLASS=Restore

echo "Using APP_HOME:           : ${APP_HOME}"
echo "Using BACKUP_SET         : ${BACKUP_SET}"
echo "Using RESTORE_FROM        : ${RESTORE_FROM}"
echo "Using RESTORE_TO          : ${RESTORE_TO}"
echo "Using POINT_IN_TIME       : ${POINT_IN_TIME}"
echo "Using RESTORE_PERMISSION  : ${RESTORE_PERMISSION}"
echo "Using TEMP_DIR            : ${TEMP_DIR}"

# Do not include double-quote for java options, jni path, classpath and
# main class.
# Only apply double-quote for path to java executable and execution
arguments
"${JAVA_EXE}" $JAVA_OPTS $JNI_PATH -cp $CLASSPATH $MAIN_CLASS --
to="${RESTORE_TO}" --from="${RESTORE_FROM}" --backup-
set="${BACKUP_SET}" --backup-dest="${DESTINATION}"
"${REPLACE_EXISTING_FILE}" --date="${POINT_IN_TIME}" --set-
permission="${RESTORE_PERMISSION}" --skip-invalid-
key="${SKIP_INVALID_KEY}" --sync="${SYNC_OPTION}" --filter="${FILTER}"
--temp-dir="${TEMP_DIR}" --verify-delta-file-chksum="${VERIFY_CHKSUM}"
--app-home="${APP_HOME}" --setting-home="${SETTING_HOME}"

#####
#####
#                               R E S E T           A N D           E X I T
#
#####
#####

cd "${EXE_DIR}"
exit 0

```

Once you have configured the parameters, save the changes. Use the **sh** command to run the script. The restore will be run manually.

```

# sh Restore.sh
Using APP_HOME           : /usr/local/obm
Using BACKUP_SET         : Sample Backup Set 03
Using RESTORE_FROM       : /root/Documents
Using RESTORE_TO         : /usr/local/alternate
Using POINT_IN_TIME     : Current
Using RESTORE_PERMISSION : N
Using TEMP_DIR           : /root/temp
Filter Pattern not set, filter would not apply to restore
[2022-01-05 16:03:53] Start [ AhsayOBM v9.0.2.24 ]
[2022-01-05 16:03:53] OS: Linux 4.18.0-240.1.1.el8_3.x86_64
(localhost.localdomain); CPU Model: VMware-Intel(R) Xeon(R) Gold 5218R
CPU @ 2.10GHz,Intel(R) Xeon(R) Gold 5218R CPU @ 2.10GHz,Intel(R)
Xeon(R) Gold 5218R CPU @ 2.10GHz,Intel(R) Xeon(R) Gold 5218R CPU @
2.10GHz; Number of Processors: 4; Heap Size: 109.1MB (Current) / 1.8GB
(Maximum); Physical Memory: 565.7MB (Free) / 3.6GB (Total)
[2022-01-05 16:03:53] start,Start [ AhsayOBM v9.0.2.24 ],0,0,0,,0,0

```

```
[2022-01-05 16:03:53] Selected job: 2022-01-05-16-03-45
[2022-01-05 16:03:53] Selected source: [/root/Documents]
[2022-01-05 16:03:53] Info: [followLink=false marshalTargetPath=false
deleteForSync=false skipFaultKey=false verifyDeltaFileChecksum=false
ignoreSegmentInfoCorruptedData=true restorePermission=false
[RestoreLocation] type=RAW path=[/usr/local/alternate]]
[2022-01-05 16:03:54] Creating new directory...
"/usr/local/alternate/root"
[2022-01-05 16:03:54] Creating new directory...
"/usr/local/alternate/root/Documents"
[2022-01-05 16:03:54] Creating new directory...
"/usr/local/alternate/root/Documents/testfiles"
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/settings.sys" (Total 44K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample1.ppt" (Total 891K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample1.ppt" (Total 891K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample3.xls" (Total 13K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample3.xls" (Total 13K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample2.xls" (Total 7K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample2.xls" (Total 7K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample_640x360.avi" (Total 569K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample_640x360.avi"
(Total 569K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample1.pdf" (Total 567K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample1.pdf" (Total 567K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample2.pdf" (Total 64K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample2.pdf" (Total 64K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample2.rtf" (Total 1K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample2.rtf" (Total 1K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample2.txt" (Total 2K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample2.txt" (Total 2K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample3.txt" (Total 3K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample3.txt" (Total 3K
bytes)
```

```

[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample_960x540.mpg" (Total 733K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample_960x540.mpg"
(Total 733K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample1.rtf" (Total 102K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample1.txt" (Total 607
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample1.rtf" (Total 116K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample1.txt" (Total 14K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample1.xls" (Total 16K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample1.xls" (Total 16K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample2.ppt" (Total 518K bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample2.ppt" (Total 518K
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/sample_960x540.mkv" (Total 1.26M
bytes)
[2022-01-05 16:03:54] Downloading...
"/usr/local/alternate/root/Documents/testfiles/sample_960x540.mkv"
(Total 1.26M bytes)
[2022-01-05 16:03:55] Restore Completed Successfully
[2022-01-05 16:03:55] end,RESTORE_STOP_SUCCESS,0,0,0,,0,0

```

Decrypt.sh

This script file is used to decrypt backup files. To configure the parameters, open the script file in a text editor like vi.

```
# vi Decrypt.sh
```

Configure the following parameters:

- **SOURCE_DIR** – this is the path of the folder that contains the backup files that you want to decrypt.
 e.g. SOURCE_DIR="/usr/local/cbs/user/LinuxTest/1563436721634/blocks"
- **ENCRYPT_KEY** – this is the encryption key the backup set. You can leave this blank if you backup set is not encrypted.
 e.g. ENCRYPT_KEY="RU5DUIIQVF9LRVk="
- **DECRYPT_TO** – this is the directory where you want to store the decrypted backup file.
 e.g. DECRYPT_TO="/tmp"
- **DECRYPT_FROM** – this is the file or directory that you would like to decrypt.

e.g. `RESTORE_FROM="/Data"`

- **POINT_IN_TIME** – this is the specific successful backup that you want to decrypt. You can use *Current* if you want to use the latest backup snapshot. You can see the point in time snapshot by using the *ListBackupJob.sh* script file.

e.g. `POINT_IN_TIME="Current"` or `POINT_IN_TIME="2006-10-04-12-57-13"`

- **RESTORE_PERMISSION** – you can set the file permission here.

e.g. `RESTORE_PERMISSION="N"` or `RESTORE_PERMISSION="Y"`

- **SKIP_INVALID_KEY** – you can set here if you want to skip decrypting the backup file with an invalid key. There are two (2) options for this: *Y* or *N*.

e.g. `SKIP_INVALID_KEY="N"`

- **SYNC_OPTION** – this is the sync options if you want to delete extra files.

e.g. `SYNC_OPTIONS="Y"` if you want to enable sync options

`SYNC_OPTIONS="N"` if you do not want to enable sync options

`SYNC_OPTIONS=""` if you want to prompt for selection

- **REPLACE_EXISTING_FILE** – you can set here if you want files with the same filename to be replaced. There are three (3) options for this: *--all*, *--none* or blank.

e.g. `REPLACE_EXISTING_FILE="--all"` if you want to replace existing files with the same filename

`REPLACE_EXISTING_FILE="--none"` if you want to keep all existing files with the same filename

`REPLACE_EXISTING_FILE=""` if you want to be prompted for selection

- **SETTING_HOME** – this is the directory to your setting home. If not set, the default directory is `"${HOME}/.obm"`.

e.g. `SETTING_HOME="/root/.obm"`

- **FILTER** – you can filter the files that you want to be restored. You can use this format to set the filter `-Pattern=xxx-Type=yyy-Target=zzz`.

xxx is the filter pattern

yyy is the filter type, you have eight (8) options available for this: *exact*, *exactMatchCase*, *contains*, *containsMatchCase*, *startWith*, *startWithMatchCase*, *endWith* and *endWithMatchCase*.

zzz is the filter target, you have three (3) options available for this: *toFile*, *toFileDir* and *toDir*.

e.g. `FILTER="-Pattern=.txt-Type=exact-Target=toFile"`

- **TEMP_DIR** – this is the directory where the restore files will be stored temporarily. If set to "" the temporary directory in the backup set will be used.

e.g. `TEMP_DIR="/tmp"`

- **VERIFY_CHKSUM** – you can set here if you want the in-file delta file checksum to be verified during restore. There are two (2) options available for this: *Y* or *N*.

e.g. VERIFY_CHKSUM="N" or VERIFY_CHKSUM="Y"

```
# vi Decrypt.sh

#!/bin/sh

##### Decrypt.sh
#####
# You can use this shell script to decrypt backup files using command-
line. #
# Just customize the "User Define Section" below with values for your
decrypt #
# action.
#
#####
#####

##### Start: User Defined Section
#####

# ----- SOURCE_DIR -----
# | The path to the [<backup set ID>/blocks] folder which contains
# | the backup files that you want to decrypt.
# | This folder should located under backup destination physically.
# | e.g. SET SOURCE_DIR="/Users/john/backupdata/1498444438340/blocks"
# | where directory "/Users/john/backupdata" is path of local
destination |
# -----
SOURCE_DIR=""

# ----- ENCRYPT_KEY -----
# | The encrypting key of the backup data.
# | e.g. SET ENCRYPT_KEY="RU5DU11QVF9LRVk="
# |
# | You can leave this parameter blank if backup data is not encrypted.
# -----
ENCRYPT_KEY=""

# ----- DECRYPT_TO -----
# | Directory to where you want files to be decrypted
# | e.g. DECRYPT_TO="/tmp"
# -----
DECRYPT_TO=""
```

```

# ----- DECRYPT_FROM -----
# | File/Directory on the backup data that you would like to decrypt
# | e.g. DECRYPT_FROM="/Data"
# -----
DECRYPT_FROM=""

# ----- POINT_IN_TIME -----
# | The point-in-time snapshot (successful backup) that you want to
# | decrypt
# | from the backup data. Use "Current" for the latest backup snapshot
# | e.g. POINT_IN_TIME="2006-10-04-12-57-13"
# | or POINT_IN_TIME="Current"
# | You can retrieve the point in time by using the ListBackupJob.sh
# -----
POINT_IN_TIME="Current"

# ----- RESTORE_PERMISSION -----
# | set to "Y" if you want to restore file permissions
# | set to "N" if you do NOT want to restore file permissions
# -----
RESTORE_PERMISSION="N"

# ----- SKIP_INVALID_KEY -----
# | set to "Y" if you want to skip decrypt file with invalid key
# | set to "N" if you want to prompt to input a correct key
# -----
SKIP_INVALID_KEY="N"

# ----- SYNC_OPTION -----
# | Delete extra files
# | set to "Y" if you want to enable sync option
# | set to "N" if you do NOT want to enable sync option
# | set to "" to prompt for selection
# -----
SYNC_OPTION="N"

```

```

# ----- REPLACE_EXISTING_FILE -----
# | set to "--all" to replace all existing file(s) of the same filename
# | set to "--none" to skip all existing file(s) with the same filename
# | set to "" to prompt for selection
# -----
REPLACE_EXISTING_FILE="--all"

# ----- SETTING_HOME -----
# | Directory to your setting home. Log files will be located inside.
# | Default to ${HOME}/.obm when not set.
# | e.g. SETTING_HOME="/Users/john/.obm"
# -----
SETTING_HOME=""

# ----- FILTER -----
# | Filter out what files you want to decrypt
# | -Pattern=xxx-Type=yyy-Target=zzz
# | where xxx is the filter pattern,
# |      yyy is the filter type, whice can be one of the following:
# |      [exact | exactMatchCase | contains | containsMatchCase |
# |      startWith | startWithMatchCase | endWith |
# |      endWithMatchCase]
# |      zzz is the filter target, which can be one of the following:
# |      [toFile | toFileDir | toDir]
# |
# | e.g. FILTER="-Pattern=.txt-Type=exact-Target=toFile"
# -----
FILTER=""

# ----- TEMP_DIR -----
# | Directory to where you want to store decrypt files temporarily
# | e.g. TEMP_DIR="/tmp"
# -----
TEMP_DIR=""

# ----- VERIFY_CHKSUM -----

```

```

# | set to "Y" if you want to verify in-file delta file checksum during
decrypt|
# | set to "N" if you do NOT want to verify in-file delta file checksum
during |
# | decrypt
|
# -----
-----
VERIFY_CHKSUM="N"

##### END: User Defined Section
#####

#####
#####
#       R E T R I E V E           A P P _ H O M E           P A T H
#
#####
#####

EXE_DIR=`pwd`
SCRIPT_HOME=`dirname "$0"`
cd "$SCRIPT_HOME"
APP_BIN=`pwd`
APP_HOME=`dirname "$APP_BIN"`

#####
#####
#       R E T R I E V E           J A V A _ H O M E           P A T H
#
#####
#####

if [ "Darwin" = `uname` ]; then
    JAVA_HOME="/System/Library/Frameworks/JavaVM.framework/Home"
fi

if [ ! -x "$APP_HOME/jvm" ];
then
    echo "'$APP_HOME/jvm' does not exist!"
    if [ ! -n "$JAVA_HOME" ]; then
        echo "Please set JAVA_HOME!"
        exit 0
    else
        ln -sf "$JAVA_HOME" "$APP_HOME/jvm"
        echo "Created JAVA_HOME symbolic link at '$APP_HOME/jvm'"
    fi
fi

if [ ! -x "$APP_HOME/jvm" ];
then
    echo "Please create symbolic link for '$JAVA_HOME' to
'$APP_HOME/jvm'"
    exit 0
fi

JAVA_HOME="$APP_HOME/jvm"
JAVA_EXE="$JAVA_HOME/bin/java"

# Verify the JAVA_EXE whether it can be executed or not.
if [ ! -x "${JAVA_EXE}" ]

```

```

then
    echo "The Java Executable file \"${JAVA_EXE}\" cannot be executed.
Exit \"\"`basename "$0"``\" now."
    exit 1
fi

# Verify the JAVA_EXE whether it is a valid JAVA Executable or not.
STRING_JAVA_VERSION="java version,openjdk version"
OUTPUT_JAVA_VERSION=`"${JAVA_EXE}" -version 2>&1`
OUTPUT_JVM_SUPPORT=0
BACKUP_IFS=$IFS
IFS=","
for word in $STRING_JAVA_VERSION; do
    if [ `echo "${OUTPUT_JAVA_VERSION}" | grep "${word}" | grep -cv
"grep ${word}"` -le 0 ]
    then
        #echo "The Java Executable \"${JAVA_EXE}\" is not a valid Java
Executable. Exit \"\"`basename "$0"``\" now."
        continue;
    else
        OUTPUT_JVM_SUPPORT=1
        break;
    fi
done
IFS=$BACKUP_IFS
if [ $OUTPUT_JVM_SUPPORT -eq 0 ]
then
    echo "The Java Executable \"${JAVA_EXE}\" is not a valid Java
Executable. Exit \"\"`basename "$0"``\" now."
    exit 1
fi

#####
#####
#           J A V A           E X E C U T I O N
#
#####
#####

# Set LD_LIBRARY_PATH for Lotus Notes on Linux
if [ "Linux" = `uname` ];
then
    NOTES_PROGRAM=`cat "$APP_BIN/notesenv"`
    LD_LIBRARY_PATH="$APP_BIN:$NOTES_PROGRAM:$LD_LIBRARY_PATH"
    export NOTES_PROGRAM
else
    LD_LIBRARY_PATH="$APP_BIN:$LD_LIBRARY_PATH"
fi

# The Decrypt Action must be execute at path $APP_HOME/bin
cd "${APP_BIN}"

DEP_LIB_PATH="X64"
case "`uname -m`" in
    i[3-6]86)
        DEP_LIB_PATH="X86"
    ;;
esac
LD_LIBRARY_PATH="${APP_BIN}/${DEP_LIB_PATH}":".":"${LD_LIBRARY_PATH}"

SHLIB_PATH="$LD_LIBRARY_PATH"

```

```

export LD_LIBRARY_PATH SHLIB_PATH

# Reference path will be used to avoid empty space in the parent
directory
LIB_HOME=.
JAVA_OPTS="-Xrs -Xms128m -Xmx768m -XX:MaxDirectMemorySize=512m -client
-Dsun.nio.PageAlignDirectMemory=true"
JNI_PATH="-Djava.library.path=$LIB_HOME"
CLASSPATH="$LIB_HOME:$LIB_HOME/cb.jar"
MAIN_CLASS=Decrypt

echo "Using APP_HOME:           : ${APP_HOME}"
echo "Using SETTING_HOME:       : ${SETTING_HOME}"
echo "Using SOURCE_DIR           : ${SOURCE_DIR}"
echo "Using DECRYPT_FROM          : ${DECRYPT_FROM}"
echo "Using DECRYPT_TO            : ${DECRYPT_TO}"
echo "Using POINT_IN_TIME        : ${POINT_IN_TIME}"
echo "Using RESTORE_PERMISSION    : ${RESTORE_PERMISSION}"
echo "Using TEMP_DIR              : ${TEMP_DIR}"

# Do not include double-quote for java options, jni path, classpath and
# main class.
# Only apply double-quote for path to java executable and execution
arguments
"${JAVA_EXE}" $JAVA_OPTS $JNI_PATH -cp $CLASSPATH $MAIN_CLASS --
to="${DECRYPT_TO}" --from="${DECRYPT_FROM}" --source-
dir="${SOURCE_DIR}" --key="${ENCRYPT_KEY}" "${REPLACE_EXISTING_FILE}" -
-date="${POINT_IN_TIME}" --set-permission="${RESTORE_PERMISSION}" --
skip-invalid-key="${SKIP_INVALID_KEY}" --sync="${SYNC_OPTION}" --
filter="${FILTER}" --temp-dir="${TEMP_DIR}" --verify-delta-file-
checksum="${VERIFY_CHKSUM}" --app-home="${APP_HOME}" --setting-
home="${SETTING_HOME}"

#####
#####
#                               R E S E T           A N D           E X I T
#
#####
#####

cd "${EXE_DIR}"
exit 0

```

Once you have configured the parameters, save the changes. Use the **sh** command to run the script. The decryption will be run manually.

```

# sh Decrypt.sh
Using APP_HOME           : /usr/local/obm
Using SETTING_HOME:     :
Using SOURCE_DIR         : /root/backup/1641347569071/blocks
Using DECRYPT_FROM        : /root/Documents
Using DECRYPT_TO          : /tmp
Using POINT_IN_TIME      : Current
Using RESTORE_PERMISSION : N
Using TEMP_DIR           : /root/temp
Filter Pattern not set, filter would not apply to decrypt
[2022-01-05 16:45:14] Start [ AhsayOBM v9.0.2.24 ]
[2022-01-05 16:45:14] OS: Linux 4.18.0-240.1.1.el8_3.x86_64
(localhost.localdomain); CPU Model: VMware-Intel(R) Xeon(R) Gold 5218R

```

```
CPU @ 2.10GHz,Intel(R) Xeon(R) Gold 5218R CPU @ 2.10GHz,Intel(R) Xeon(R) Gold 5218R CPU @ 2.10GHz,Intel(R) Xeon(R) Gold 5218R CPU @ 2.10GHz; Number of Processors: 4; Heap Size: 30.5MB (Current) / 1.8GB (Maximum); Physical Memory: 457.2MB (Free) / 3.6GB (Total)
[2022-01-05 16:45:14] start,Start [ AhsayOBM v9.0.2.24 ],0,0,0,,0,0

[2022-01-05 16:45:14] Selected job: 2022-01-05-16-45-06
[2022-01-05 16:45:14] Selected source: [/root/Documents]
[2022-01-05 16:45:14] Info: [followLink=false marshalTargetPath=false deleteForSync=false skipFaultKey=false verifyDeltaFileChecksum=false ignoreSegmentInfoCorruptedData=true restorePermission=false
[RestoreLocation] type=RAW path=[/tmp]]
[2022-01-05 16:45:16] Creating new directory... "/tmp/root"
[2022-01-05 16:45:16] Creating new directory... "/tmp/root/Documents"
[2022-01-05 16:45:16] Creating new directory...
"/tmp/root/Documents/testfiles"
[2022-01-05 16:45:16] Downloading... "/tmp/root/Documents/sample1.rtf"
(Total 116K bytes)
[2022-01-05 16:45:16] Downloading... "/tmp/root/Documents/sample1.txt"
(Total 14K bytes)
[2022-01-05 16:45:16] Downloading... "/tmp/root/Documents/sample1.xls"
(Total 16K bytes)
[2022-01-05 16:45:16] Downloading... "/tmp/root/Documents/sample1.pdf"
(Total 567K bytes)
[2022-01-05 16:45:16] Downloading...
"/tmp/root/Documents/testfiles/sample1.xls" (Total 16K bytes)
[2022-01-05 16:45:16] Downloading... "/tmp/root/Documents/sample2.pdf"
(Total 64K bytes)
[2022-01-05 16:45:16] Downloading...
"/tmp/root/Documents/testfiles/sample1.pdf" (Total 567K bytes)
[2022-01-05 16:45:16] Downloading... "/tmp/root/Documents/sample1.ppt"
(Total 891K bytes)
[2022-01-05 16:45:16] Downloading... "/tmp/root/Documents/sample2.txt"
(Total 2K bytes)
[2022-01-05 16:45:16] Downloading...
"/tmp/root/Documents/testfiles/sample1.ppt" (Total 891K bytes)
[2022-01-05 16:45:16] Downloading...
"/tmp/root/Documents/testfiles/sample2.txt" (Total 2K bytes)
[2022-01-05 16:45:16] Downloading... "/tmp/root/Documents/sample2.ppt"
(Total 518K bytes)
[2022-01-05 16:45:16] Downloading... "/tmp/root/Documents/sample3.txt"
(Total 3K bytes)
[2022-01-05 16:45:16] Downloading...
"/tmp/root/Documents/testfiles/sample3.txt" (Total 3K bytes)
[2022-01-05 16:45:16] Downloading... "/tmp/root/Documents/sample2.xls"
(Total 7K bytes)
[2022-01-05 16:45:16] Downloading...
"/tmp/root/Documents/testfiles/sample2.xls" (Total 7K bytes)
[2022-01-05 16:45:16] Downloading... "/tmp/root/Documents/sample3.xls"
(Total 13K bytes)
[2022-01-05 16:45:16] Downloading...
"/tmp/root/Documents/testfiles/sample3.xls" (Total 13K bytes)
[2022-01-05 16:45:16] Downloading...
"/tmp/root/Documents/sample_640x360.avi" (Total 569K bytes)
[2022-01-05 16:45:16] Downloading...
"/tmp/root/Documents/testfiles/sample_640x360.avi" (Total 569K bytes)
[2022-01-05 16:45:16] Downloading...
"/tmp/root/Documents/testfiles/sample2.ppt" (Total 518K bytes)
[2022-01-05 16:45:16] Downloading...
"/tmp/root/Documents/testfiles/sample2.pdf" (Total 64K bytes)
```

```
[2022-01-05 16:45:16] Downloading...
"/tmp/root/Documents/testfiles/sample1.rtf" (Total 102K bytes)
[2022-01-05 16:45:16] Downloading... "/tmp/root/Documents/sample2.rtf"
(Total 1K bytes)
[2022-01-05 16:45:16] Downloading...
"/tmp/root/Documents/testfiles/sample2.rtf" (Total 1K bytes)
[2022-01-05 16:45:16] Downloading...
"/tmp/root/Documents/testfiles/sample1.txt" (Total 607 bytes)
[2022-01-05 16:45:16] Downloading... "/tmp/root/Documents/settings.sys"
(Total 44K bytes)
[2022-01-05 16:45:16] Downloading...
"/tmp/root/Documents/sample_960x540.mkv" (Total 1.26M bytes)
[2022-01-05 16:45:16] Downloading...
"/tmp/root/Documents/testfiles/sample_960x540.mkv" (Total 1.26M bytes)
[2022-01-05 16:45:16] Downloading...
"/tmp/root/Documents/sample_960x540.mpg" (Total 733K bytes)
[2022-01-05 16:45:16] Downloading...
"/tmp/root/Documents/testfiles/sample_960x540.mpg" (Total 733K bytes)
[2022-01-05 16:45:17] Restore Completed Successfully
[2022-01-05 16:45:17] end,RESTORE_STOP_SUCCESS,0,0,0,,0,0
```

RunDataIntegrityCheck.sh

This script file is used to run data integrity check on your backup set. To configure the parameters, open the script file in a text editor like vi.

```
# vi RunDataIntegrityCheck.sh
```

Configure the following parameters:

- ❶ **SETTING_HOME** – this is the directory to your setting home. If not set, the default directory is “\${HOME}/.obm”.

e.g. SETTING_HOME="/root/.obm"
- ❷ **BACKUP_SET** – this is the name of the backup set which you want to run data integrity check on. There are two (2) ways to specify the backup set; by using the *backup set name* or by *backup set ID*. If the backup set name is not in English, use the backup set ID. You can leave this blank if you only have one (1) backup set. You can also run the data integrity check on all backup sets by using “ALL”.

e.g. BACKUP_SET="1119083740107", BACKUP_SET="FileBackupSet-1" or
BACKUP_SET="ALL"
- ❸ **BACKUP_DEST** – this is the name of the destination where the backup set was stored. There are two (2) ways to specify the destination; by using the *destination name* or *destination ID*. If the destination name is not in English, use the DestinationID. You can leave this blank if you only have one (1) backup destination. This will be disregarded if BACKUP_SET="ALL".

e.g. DESTINATION="1119083740107" or DESTINATION="CBS"
- ❹ **CRC_MODE** – you can set here if you want to run cyclic redundancy check while doing the data integrity check. There are two (2) options available: *ENABLE-CRC* or *DISABLE-CRC*

e.g. CRC_MODE="DISABLE-CRC" or CRC_MODE="ENABLE-CRC"


```

# vi RunDataIntegrityCheck.sh

#!/bin/sh

##### RunDataIntegrityCheck.sh
#####
# You can use this shell script to run any of your backup sets from the
#
# command line. Just customize the "User Defined Section" below with
your      #
# values for your backup action.
#
#####
#####

##### START: User Defined Section
#####

# ----- SETTING_HOME (Optional) -----
-----
# | Directory to your setting home.
|
# | Default to ${HOME}/.obm when not set.
|
# | e.g. SETTING_HOME="${HOME}/.obm"
|
# -----
-----
SETTING_HOME=""

# ----- BACKUP_SET -----
-----
# | The name or ID of the backup set that you want to run.
|
# | If backup set name is not in English, please use ID instead.
|
# | e.g. BACKUP_SET="1119083740107"
|
# | or BACKUP_SET="FileBackupSet-1"
|
# | You can use "ALL" to run data integrity check for all backup sets.
|
# | i.e. BACKUP_SET="ALL"
|
# |
|
# | You can leave this parameter blank if you have only 1 backup set.
|
# -----
-----
BACKUP_SET="ALL"

# ----- BACKUP_DEST -----
-----
# | The name or ID of the backup destination that you want to run.
|
# | If backup destination name is not in English, please use ID
instead.      |

```

```

# | e.g. BACKUP_DEST="1740107119083"
|
# | or BACKUP_DEST="Destination-1"
|
# | You can use "ALL" to run data integrity check for all destinations.
|
# | i.e. BACKUP_DEST="ALL"
|
# |
|
# | You can leave this parameter blank if you have only 1 destination.
|
# | Remark: This option is ignored if BACKUP_SET="ALL"
|
# -----
-----
BACKUP_DEST="ALL"

# ----- CRC_MODE -----
-----
# | You can run Cyclic Redundancy Check (CRC) during data integrity
check |
# | Options available: ENABLE-CRC/DISABLE-CRC
|
# | i.e. CRC_MODE="ENABLE-CRC"
|
# | or CRC_MODE="DISABLE-CRC"
|
# -----
-----
CRC_MODE="DISABLE-CRC"

##### END: User Defined Section
#####

#####
#####
#                               S C R I P T                               U S A G E
#
#####
#####

# Input Arguments will overwrite the above settings
# defined in 'User Defined Section'.
if [ $# -ge 1 ]; then

    if [ -n "$1" ]; then
        BACKUP_SET="$1"
    fi

fi

#####
#####
#                               R E T R I E V E                               A P P _ H O M E                               P A T H
#
#####
#####

```

```

EXE_DIR=`pwd`
SCRIPT_HOME=`dirname "$0"`
cd "$SCRIPT_HOME"
APP_BIN=`pwd`
APP_HOME=`dirname "$APP_BIN"`

#####
#####
#           R E T R I E V E           J A V A _ H O M E           P A T H
#
#####
#####

if [ "Darwin" = `uname` ]; then
    JAVA_HOME="/System/Library/Frameworks/JavaVM.framework/Home"
fi

if [ ! -x "$APP_HOME/jvm" ];
then
    echo "'$APP_HOME/jvm' does not exist!"
    if [ ! -n "$JAVA_HOME" ]; then
        echo "Please set JAVA_HOME!"
        exit 0
    else
        ln -sf "$JAVA_HOME" "$APP_HOME/jvm"
        if [ ! -x "$APP_HOME/jvm" ];
        then
            echo "Please create symbolic link for '$JAVA_HOME' to
'$APP_HOME/jvm'"
            exit 0
        else
            echo "Created JAVA_HOME symbolic link at '$APP_HOME/jvm'"
        fi
    fi
fi

JAVA_HOME="$APP_HOME/jvm"
JAVA_EXE="$JAVA_HOME/bin/java"

# Verify the JAVA_EXE whether it can be executed or not.
if [ ! -x "${JAVA_EXE}" ]
then
    echo "The Java Executable file \"${JAVA_EXE}\" cannot be executed.
Exit \"``basename \"$0\" \"\" now."
    exit 1
fi

# Verify the JAVA_EXE whether it is a valid JAVA Executable or not.
STRING_JAVA_VERSION="java version,openjdk version"
OUTPUT_JAVA_VERSION=`"${JAVA_EXE}" -version 2>&1`
OUTPUT_JVM_SUPPORT=0
BACKUP_IFS=$IFS
IFS=","
for word in $STRING_JAVA_VERSION; do
    if [ `echo "${OUTPUT_JAVA_VERSION}" | grep "${word}" | grep -cv
"grep ${word}"` -le 0 ]
    then
        #echo "The Java Executable \"${JAVA_EXE}\" is not a valid Java
Executable. Exit \"``basename \"$0\" \"\" now."
        continue;
    else

```

```

        OUTPUT_JVM_SUPPORT=1
        break;
    fi
done
IFS=$BACKUP_IFS
if [ $OUTPUT_JVM_SUPPORT -eq 0 ]
then
    echo "The Java Executable \"${JAVA_EXE}\" is not a valid Java
    Executable. Exit \"``basename \"$0\"``\" now."
    exit 1
fi

#####
#####
#           E X E C U T I O N       J A V A       P R O P E R T I E S
#
#####
#####

# Set LD_LIBRARY_PATH for Lotus Notes on Linux
if [ "Linux" = `uname` ];
then
    NOTES_PROGRAM=`cat "$APP_HOME/bin/notesenv"`
    LD_LIBRARY_PATH="$APP_HOME/bin:$NOTES_PROGRAM:$LD_LIBRARY_PATH"
    export NOTES_PROGRAM
else
    LD_LIBRARY_PATH="$APP_HOME/bin:$LD_LIBRARY_PATH"
fi

DEP_LIB_PATH="X64"
case "`uname -m`" in
    i[3-6]86)
        DEP_LIB_PATH="X86"
    ;;
esac
LD_LIBRARY_PATH="${APP_BIN}/${DEP_LIB_PATH}":".":"${LD_LIBRARY_PATH}"

SHLIB_PATH="$LD_LIBRARY_PATH"
export LD_LIBRARY_PATH SHLIB_PATH

#####
#####
#           J A V A       E X E C U T I O N
#
#####
#####

# Change to APP_BIN for JAVA execution
cd "${APP_BIN}"

# Reference path will be used to avoid empty space in the parent
directory
LIB_HOME=.
JAVA_OPTS="-Xrs -Xms128m -Xmx768m -XX:MaxDirectMemorySize=512m -client
-Dsun.nio.PageAlignDirectMemory=true"
JNI_PATH="-Djava.library.path=$LIB_HOME"
CLASSPATH="$LIB_HOME:$LIB_HOME/cb.jar"
MAIN_CLASS=RunDataIntegrityCheck

echo "-"
echo "Using APP_HOME      : $APP_HOME"

```

```

echo "Using SETTING_HOME : $SETTING_HOME"
echo "Using JAVA_HOME : $JAVA_HOME"
echo "Using JAVA_EXE : $JAVA_EXE"
echo "Using JAVA_OPTS : $JAVA_OPTS"
echo "Using JNI_PATH : $JNI_PATH"
echo "Using CLASSPATH : $CLASSPATH"
echo "-"

echo "Running data integrity check for backup set - '$BACKUP_SET',
destination - '$BACKUP_DEST' ..."

# API Arguments: RunDataIntegrityCheck [APP_HOME] [SETTING_HOME]
[BACKUP_SET] [BACKUP_DEST] [CRC_MODE] [REBUILD_MODE]

# Do not include double-quote for java options, jni path, classpath and
# main class.
# Only apply double-quote for path to java executable and execution
arguments
"${JAVA_EXE}" $JNI_PATH -cp $CLASSPATH $JAVA_OPTS $MAIN_CLASS
"${APP_HOME}" "${SETTING_HOME}" "${BACKUP_SET}" "${BACKUP_DEST}"
"${CRC_MODE}" "${REBUILD_MODE}"

#####
#####
# R E S E T A N D E X I T
#
#####
#####

cd "${EXE_DIR}"
exit 0

```

Once you have configured the parameters, save the changes. Use the **sh** command to run the script. The data integrity check will be run in the backup set.

```

# sh RunDataIntegrityCheck.sh
-
Using APP_HOME : /usr/local/obm
Using SETTING_HOME :
Using JAVA_HOME : /usr/local/obm/jvm
Using JAVA_EXE : /usr/local/obm/jvm/bin/java
Using JAVA_OPTS : -Xrs -Xms128m -Xmx2048m -
XX:MaxDirectMemorySize=512m -client -
Dsun.nio.PageAlignDirectMemory=true
Using JNI_PATH : -Djava.library.path=../LinX64
Using CLASSPATH : ../cb.jar
-
Running data integrity check for backup set - 'Sample Backup Set 03',
destination - 'Local-1' ...
[doInfo] Start [ AhsayOBM v9.0.2.24 ]
[doStart] Start data integrity check on backup set "Sample Backup Set
03(1641347569071)", "Local-1(1641353833383)", crc disabled, rebuild
index disabled
[doDetail] Start processing data integrity check on backup set= "Sample
Backup Set 03" destination= "Local-1"
[doLogProgress] Start processing data integrity check on backup set=
"Sample Backup Set 03" destination= "Local-1"
[doLogProgress] Download valid index files from backup job "Current" to
"/root/.obm/temp/1641347569071/Local@1641353833383/index".

```

```
[doInfo] Download valid index files from backup job "Current" to
"/root/.obm/temp/1641347569071/Local@1641353833383/index".
[doLogProgress] Browsing "1641347569071/blocks/2022-01-05-16-39-20"
[doLogProgress] Browsing "1641347569071/blocks/2022-01-05-16-39-20/0"
[doLogProgress] Browsing "1641347569071/blocks/2022-01-05-16-51-08"
[doLogProgress] Processing Job "Current", ""
[doInfo] Vacuuming index
[doInfo] Vacuuming index... Completed
[doInfo] Existing statistics of backup set= "Sample Backup Set 03"
destination= "Local-1": Data area compressed size: 8.68MB, Data area
uncompressed size: 9.41MB, Data area file count: 31, Retention area
uncompressed size: 0B, Retention area uncompressed size: 0B, Retention
area file count: 0, Dedupe saving compressed size: 4.57MB, Dedupe
saving uncompressed size: 9.41MB
[doInfo] Recalculated statistics of backup set= "Sample Backup Set 03"
destination= "Local-1": Data area compressed size: 8.68MB, Data area
uncompressed size: 9.41MB, Data area file count: 31, Retention area
compressed size: 0B, Retention area uncompressed size: 0B, Retention
area file count: 0, Dedupe saving compressed size: 4.84MB, Dedupe
saving uncompressed size: 9.41MB
[doInfo] The statistics of backup set= "Sample Backup Set 03"
destination= "Local-1" is correct.
[doLogProgress] Saving encrypted backup file index to
1641347569071/blocks/2022-01-05-16-52-38 at destination Local-1...
[doInfo] Saving encrypted backup file index to
1641347569071/blocks/2022-01-05-16-52-38 at destination Local-1...
[doDetail] Data integrity check on backup set= "Sample Backup Set 03"
destination= "Local-1" is completed
[doLogProgress] Data integrity check on backup set= "Sample Backup Set
03" destination= "Local-1" is completed
[doEnd][INFO] Finished data integrity check on backup set "Sample
Backup Set 03(1641347569071)", "Local-1(1641353833383)", crc disabled,
rebuild index disabled
[doInfo] Completed data integrity check on backup set "Sample Backup
Set 03(1641347569071)", "Local-1(1641353833383)", crc disabled, rebuild
index disabled
```

Appendix K How to Create a Free Trial Account

Users can create a free trial account when they login to AhsayOBM for the first time. Please ensure that the following requirements are met before creating your trial account:

- A valid email address which will be used for receiving notices. A welcome message will also be sent upon creation of the account which specifies the User Setting and Quota set for backup in AhsayCBS.

While here are the limitations of a trial account:

- The Free Trial button will only be displayed once, when the user login for the first time. If you cannot create a free trial account kindly contact your backup service provider.
- Only alphanumeric characters and selected special characters, A to Z, 0 to 9, @, - and _ , are allowed to be used for the Login name. While there may be some limitations on password complexity and age which is determined by your backup service provider. Please contact your backup service provider for further details.
- The add-on modules available and quota size are determined by your backup service provider.
- The trial account period is also determined by your backup service provider. Please contact your backup service provider for details.

NOTE

The Free Trial Registration option may not be available. This depends on the settings of your backup service provider. Please contact your backup service provider for more information.

Follow the steps below to create a Free Trial backup account in AhsayOBM.

1. Select (2).

```
Login Menu (No configuration files found)
-----
(1). Login
(2). Free Trial
(3). Quit
-----
Your Choice: 2
```

2. Configure the backup server setting.

```
Backup Server URL : 10.90.10.11
Port : 80
Protocol? (1) Http (2) Https : 1
Enable Proxy (Y/N) ? n
```

3. Enter your login name, password and email address.

```
Register Trial User
Login Name : trial
Password : *****
Re-Enter password : *****
```

Email address : name@email.com

Please wait while verifying user account with server...

Your trial account (trial) has been created on server (10.90.10.11:80).

New configuration file has been created

4. Once trial account is created the Main Menu will be displayed.

Main Menu

- (1). List Backup Sets
- (2). Delete Backup Set
- (3). Export Backup Set Settings to XML
- (4). Import Backup Set Settings from XML
- (5). Generate new Backup Set Settings Template
- (6). Change Language [English]
- (7). Update Profile Settings
- (8). Quit

Your Choice:

5. After creating the trial account, you need to check several things:

- The expiry date of the trial account, which determines when it will be suspended.
- The Language which will be used for sending reports.
- And the Timezone, this is to ensure that your backup schedule will run at the correct time.

You can check this by logging in to AhsayCBS, go to **Backup / Restore > User > User Profile > General**. For more information please refer to the [AhsayCBS User's Guide](#).

User Profile	General	Backup Client Settings	Contact	User Group
Backup Set	Suspend At			
Settings	<input type="text" value="04-02-2022"/> (dd-mm-yyyy)			
Report	Status			
Statistics	<input checked="" type="radio"/> Enable			
Effective Policy	<input type="radio"/> Suspended			
	<input type="radio"/> Locked			
	Upload Encryption Key			
	<input checked="" type="checkbox"/> Upload encryption key after running backup for recovery			
Language				
<input type="text" value="English"/> ▼				
Timezone				
<input type="text" value="GMT+08:00 (HKT)"/> ▼				

6. You also need to check the available add-on modules and quota by going to the **Backup Client Settings** tab.

The screenshot shows the 'Backup Client Settings' tab for a user profile. The left sidebar contains navigation options: Backup Set, Settings, Report, Statistics, and Effective Policy. The main content area is titled 'Settings of the client backup agent for this user.' and includes the following sections:

- Backup Client:** Radio buttons for 'AhsayOBM User' (selected) and 'AhsayACB User'.
- Add-on Modules:** A grid of 20 modules, each with a checked checkbox and an icon. Some have input fields:
 - Microsoft Exchange Server
 - MySQL Database Server
 - Lotus Domino
 - Windows System Backup
 - VMware (Guest VM dropdown, 0)
 - Microsoft Exchange Mailbox (0)
 - NAS - QNAP
 - Mobile (max. 10)
 - Volume Shadow Copy
 - OpenDirect / Granular Restore (0)
 - MariaDB Database Server
 - Microsoft SQL Server
 - Oracle Database Server
 - Lotus Notes
 - Windows System State Backup
 - Hyper-V (Guest VM dropdown, 0)
 - ShadowProtect System Backup
 - NAS - Synology
 - Continuous Data Protection
 - In-File DeltaOnly apply to v8 or before
 - Office 365 Backup (0)
 - Deduplication
- Quota:** Text: 'Unlimited storage space for the destination not shown in the following table'. Includes a table with columns 'Destination' and 'Quota'.

Destination	Quota
AhsayCBS	5.0 Gbytes

 Note: '(If preempted mode is enabled in policy settings, the quota settings are disabled)'.

7. Lastly, you need to verify if your contact details are correct by going to the **Contact** tab. If you want to add more contact information, you can add it here.

The screenshot shows the 'Contact' tab for a user profile. The left sidebar is the same as in the previous screenshot. The main content area is titled 'Contact information for this user.' and includes the following section:

- Manage Contact Information:** Includes a table with columns 'Name', 'Email', and 'Encrypt Email'.

Name	Email	Encrypt Email
trial	name@email.com	No

Appendix L How to Manually Upgrade AhsayOBM

Before you proceed with upgrading of AhsayOBM to the latest version, make sure that you have read the [system requirements](#) especially if upgrading from AhsayOBM v6 or v7.

To upgrade AhsayOBM, follow the instructions below.

1. Uninstall the current AhsayOBM version depending on how AhsayOBM was installed. There are three ways to uninstall AhsayOBM.
 - ◉ To uninstall using **sh** script, refer to [Appendix D](#)
 - ◉ To uninstall using **rpm** script, refer to [Appendix E](#)
 - ◉ To uninstall using **dpkg** script, refer to [Appendix F](#)
2. Go to the download page of your backup service provider's website and select which type of installation method you would like to use.



3. Refer to [Chapter 4 Download and Install AhsayOBM](#) to download and install the latest version of AhsayOBM.
 - ◉ For online installation method using either **SH**, **RPM**, or **DEB** online installer, refer to [Ch. 4.1 Online Installation](#).
 - ◉ For offline installation method using **TAR GZ** offline installer, refer to [Ch. 4.2 Offline Installation](#).