

# Ahsay Online Backup Restorer v7 User Guide for Windows

Ahsay Systems Corporation Limited

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www.ahsay.com

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# **Revision History**

Date	Descriptions	Type of modification
18 Nov 2016	First Draft	New
3 November 2017	Added new Ch.4,5,8.1.2,9,10	New
16 Oct 2017	Modified Hardware Requirements for Ch.3.1; Added comparison of online and offline installation for Ch.6 ; Added Offline installation for Ch.6.2 ; Added Note for Ch.9.2, 10.2 about Granular Restore	New/ Modification

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# Table of Contents

1	Overview	6
	What is this software?	6
	System Architecture	6
	Why should I use AhsayOBR to restore backup data?	7
	Features comparison between Client Backup Agent and AhsayOBR	8
2	About This Document	10
	What is the purpose of this document?	10
	What should I expect from this document?	10
	Who should read this document?	10
	Overview of Document Content Structure	10
3	Prepare for Using AhsayOBR	11
	Hardware Requirements	11
	Software Requirements	11
4	OpenDirect Restore	12
	What is OpenDirect Restore?	12
	How does OpenDirect Restore work?	13
	Benefits of using OpenDirect Restore	14
	Requirements	15
	Supported Backup Modules	15
	License Requirements	15
	Backup Quota Storage	15
	Windows Operating System	15
	Temporary Directory Requirement	15
	Available Spare Drive Letter	15
	Network Requirements	15
	Other Dependencies	16
	Permissions	16
5	Granular Restore Technology	17
	What is Granular Restore Technology?	17
	How does Granular Restore work?	18
	Benefits of using Granular Restore	18
	Requirements	20
	Supported Backup Modules	20
	License Requirements	20
	Backup Quota Storage	20
	Operating System	20
	Temporary Directory Requirement	20
	Available Spare Drive Letter	20

	Network Requirements	21
	Other Dependencies	21
	Permissions	21
6	Download and Launch AhsayOBR	22
	Download AhsayOBR	23
	Launch AhsayOBR	24
	Option 1: Online Installation Option	24
	Option 2: Offline Installation Option	27
7	Start AhsayOBR	31
8	Restore File Backup Sets	33
	Restore Method	
	Normal Restore	
	OpenDirect Restore	42
9	Microsoft Hyper-V Guest VM Granular Restore	47
	Requirements and Limitations	47
	Start Granular Restore	48
10	VMware vCenter/ESXi Guest VM Granular Restore	56
	Requirements and Limitations	56
	Start Granular Restore	57
11	Contact Ahsay	65
	Technical Assistance	65
	Documentation	65

#### **Overview** 1

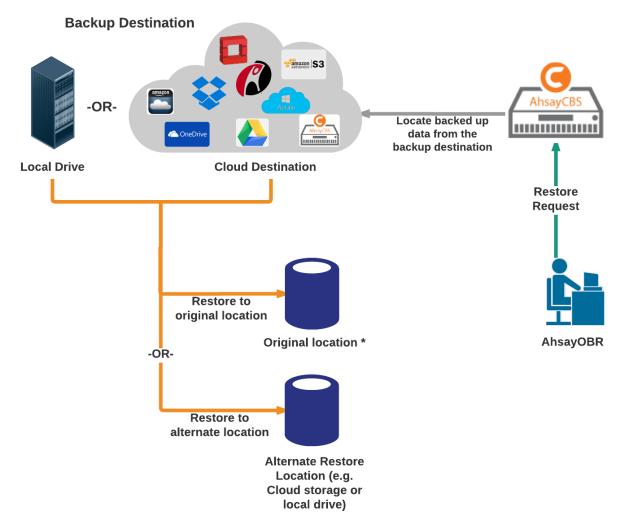
#### What is this software?

Ahsay brings you specialized restore software, namely Ahsay Online Backup Restorer (AhsayOBR), to provide a quick and secure solution for restoring your backup data anytime and anywhere. This software is designed specifically as a one-time restorer and is not served for performing backup and configuring any backup user settings. The software supports restoring data that is backed up with AhsayACB or AhsayOBM.

#### System Architecture

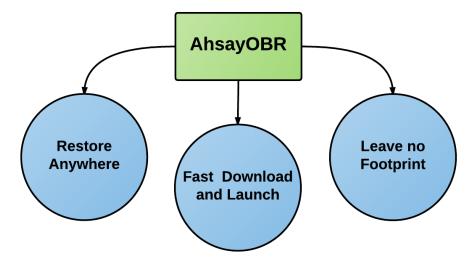
Below is the system architecture diagram illustrating the major elements involved in the process when you are using the AhsayOBR to restore data.

In this user guide, we will focus on information to get you started with using the software, as well as instructions on performing an end-to-end restore process.



\*Original location - the backed up data will be restored on the computer running the AhsayOBR under the same directory path as on the machine storing the backup source. For example, if the backup source files are stored under C:/User/Downloads folder, the data will be restored to C:/User/Downloads as well on the computer running the AhsayOBR.

#### Why should I use AhsayOBR to restore backup data?





There may be times when you wish to restore your backed up data but have no access to the computer with the Client Backup Agent (e.g. AhsayOBM) installed. AhsayOBR is exactly designed to cater to your needs under such circumstances.

You can now download and launch the OBR anytime and anywhere you like as long as you have a computer with a web browser installed and Internet connection.

# Fast Download and Launch

Unlike a Client Backup Agent (e.g. AhsayOBM) which is significantly larger in file size and takes longer time to install on your computer, AhsayOBR is a compact solution that can be downloaded and launched in a short period of time in just a few clicks.

Besides, the AhsayOBR is designed as a one-time restorer that will be removed from your computer completely after it is closed. All the restore log files or settings will also be removed from the computer altogether. So you would not need to spend the time on uninstalling the software after you finished the restore.

# Leave no Footprint

When you are trying to restore your backed up data remotely, the computer you use for restore may not have the same level of security settings as the one you normally use for backup and restore onsite. Therefore, it may not be completely secure to install a Client Backup Agent (e.g. AhsayOBM) to restore data because the backup agent will store information such as the backup user's personal info, backup set settings, backup/restore logs, etc. Using a Client Backup Agent for restore under such circumstances may pose potential thread to your personal and confidential information.

That is why the AhsayOBR is designed as a single-purpose restorer with high level of security protection. The restorer takes you right to the restore start point after login, where you can start performing a restore right away. It will also be removed completely after the restore is done, so you don't have to worry about leaving important information behind in the restore logs which could be viewed by a third party.

# Features comparison between Client Backup Agent and AhsayOBR

While you can still download a Client Backup Agent (AhsayACB / AhsayOBM) to restore data, AhsayOBR gives a quick, direct and secure solution just for the data restore purpose. Below is a table comparing some major features of both tools, and the pros and cons of using them.

Feature	Tool	Pros	Cons
Installation	AhsayOBR	<ul><li>No installation required</li><li>Faster to launch</li></ul>	Required to launch every time when you use
	Client Backup Agent	One-time installation	Larger installer size hence longer installation time
Run Direct Restore	AhsayOBR	N/A	Run Direct restore for VMware and Hyper V servers is <b>NOT</b> supported. Since AhsayOBR is not a Client Backup Agent and therefore NFS is not bundled along with the software. NFS is a mandatory item for performing Run Direct restore for VMware and Hyper V servers.
	Client Backup Agent	Support Run Direct restore for both VMware and Hyper-V servers.	N/A
OpenDirect Restore	AhsayOBR	OpenDirect restore allows you to view and download	To ensure optimal restore performance, the backup of the files
	Client Backup Agent	individual files from a compressed or image file, without having to restore compressed file or image file first. OpenDirect restore gives you the flexibility to restore selective file(s) quickly, so it saves you time and effort to achieve your restore goal.	in an OpenDirect file backup set will <b>NOT</b> be encrypted and compressed, therefore, you may have to take these factors in consideration when selecting this restore option.
Granular Restore	estore need to restore a few		To make ensure optimal restore performance, the backup of the guest
	Client Backup Agent	individual file(s) from the guest VM, therefore, granular restore gives you a fast, convenient, and flexible tool to restore selected file(s) from a guest VM quickly.	VM will <b>NOT</b> be encrypted and compressed, therefore, you may have to take this factor in consideration when using this restore method.

Cross platform usage	AhsayOBR Client Backup Agent	Although both tools are available for use on various platforms, e.g. Windows, Mac, Linux, etc., cross platform restore is <b>NOT</b> recommended. For example, files backed up on Windows are not recommended to restore on a Mac/Linux machine.	
Compatibility	AhsayOBR	Support restore of backup set created on either AhsayACB / AhsayOBM	N/A
	Client Backup Agent	N/A	Support restore of backup set created by the same type of Client Backup Agent only. E.g. backup set created on AhsayOBM can only be restored by AhsayOBM.

## 2 About This Document

#### What is the purpose of this document?

This document aims at introducing the AhsayOBR software and its features, providing all necessary information to download and launch the AhsayOBR software and instructions on performing restore.

#### What should I expect from this document?

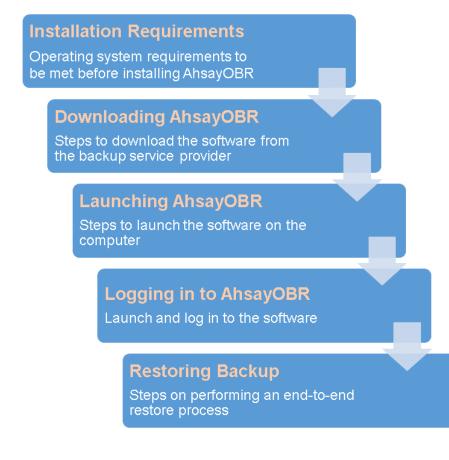
After reading through this documentation, you can expect to have sufficient knowledge to download and launch the AhsayOBR software, as well as to perform a restore.

#### Who should read this document?

This documentation is intended for backup users who need to perform restore while they have no access to their Client Backup Agent (e.g. AhsayOBM).

#### **Overview of Document Content Structure**

Below is a flow chart illustrating the major chapters this document will cover in sequence.



# 3 Prepare for Using AhsayOBR

#### **Hardware Requirements**

You can launch the AhsayOBR on a physical machine or on a virtual machine. The hardware requirements for launching AhsayOBR is the same as installing AhsayOBM.

Refer to the link below for details of the minimum and recommended requirements for launching the software:

FAQ: Ahsay Hardware Requirement List (HRL) for version 7.3 or above (5000).

Refer to the following article for the list of compatible operating system for OpenDirect and Granular Restore:

FAQ: Ahsay Software Compatibility List (SCL) for Granular and OpenDirect Restore (5250)

#### **Software Requirements**

Refer to the following article for the list of compatible operating systems and Hyper-V platforms: FAQ: Ahsay Software Compatibility List (SCL) for version 7.3 or above (5001)

Since AhsayOBR uses the system Java instead of the bundled Java installed along with the OBR, make sure Java 1.7u76 or above is installed on the system.

# 4 OpenDirect Restore

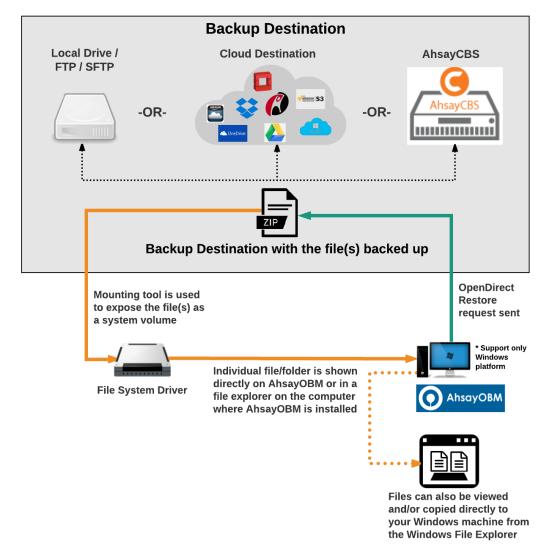
#### What is OpenDirect Restore?

OpenDirect restore is an additional restore options for restoring files from a Windows File backup set available from AhsayOBR v7.13.0.0 or above. The OpenDirect restore method makes use of the granular restore technology to make selective restore of individual files from a large compressed or image file, for example zip, RAR, ISO files, without the need to restore the compressed or image file first, to give you a fast and convenient file restore solution.

During the OpenDirect restore process, the file(s)/folders can be viewed and/or copied from the Windows File Explorer on the Windows machine you are performing the restore. OpenDirect restore is only supported on File backup sets created and backed up using AhsayOBM v7.13.0.0 or above on Windows platform with OpenDirect restore feature enabled.

#### Important

OpenDirect restore requires an additional OpenDirect / Granular restore add-on module license to work. Contact your backup service provider for further details.



#### How does OpenDirect Restore work?

## Benefits of using OpenDirect Restore

OpenDirect Restore			
	Introduction		
file by viewing and/o	allows you to quickly access individual files from a large compressed or image or copying files from the file explorer on the Windows you are performing the ing to fully restore the whole compressed or image file first.		
	Pros		
Restore of Entire Compressed File Not Required	As opposed to the normal restore where you have to restore the entire compressed or image file first before you can access any individual file in it, OpenDirect restore allows you to view and download individual files from a compressed or image file, without having to restore compressed file or image file first.		
Ability to Restore Selected Files	When restoring a large compressed or image file, sometimes, you may only need to restore individual file(s) out of the entire file, therefore, OpenDirect restore gives you the flexibility to restore selective file(s) quickly, so it saves you time and effort to achieve your restore goal.		
Cons			
No Encryption and Compression	To ensure optimal restore performance, the backup of the files in an OpenDirect file backup set will <b>NOT</b> be encrypted and compressed, therefore, you may have to take these factors in consideration when selecting this restore option.		

#### Comparison between OpenDirect File Restore and Normal File Restore

Normal Restore		
	Introduction	
The normal restore method restores the entire compressed file or image file. Backed up data can only be accessed when complete restore is performed.		
	Pros	
Backup with Compression and Encryption	Backup file(s) are compressed, therefore in smaller file size, and encrypted before being uploaded to the backup destination.	
Cons		
Slower Recovery	As the entire compressed or image file has to be restored before you can access any individual files, restore time could be long if the file size is large	

#### Requirements

#### **Supported Backup Modules**

OpenDirect restore is only supported on File backup sets created and backed up using AhsayOBR v7.13.0.0 or above on Windows platform with OpenDirect restore feature enabled.

#### **License Requirements**

An OpenDirect / Granular restore add-on module license is required per backup set for this feature to work. Contact your backup service provider for more details.

#### **Backup Quota Storage**

As compression is not enabled for OpenDirect file backup sets, to optimize restore performance the storage quota required will be higher than non-OpenDirect file backup sets. Contact your backup service provider for details.

#### Windows Operating System

AhsayOBR must be installed on a 32 bit or 64 bit Windows Operating System as libraries for OpenDirect only supports Windows platform.

Windows 7 SP1 or above	Windows 8	Windows 8.1
Windows 10	Windows 2008 R2 SP1 or above	Windows 2012
Windows 2012 R2	Windows 2016	

#### **Temporary Directory Requirement**

The temporary directory folder should have at least the same available size as the compressed or image file to be restored and should be located on a local drive to ensure optimal performance.

#### **Available Spare Drive Letter**

One spare drive letter must be available on the Windows machine for the granular restore process, as the compressed file or image is mounted on Windows as a logical drive. AhsayOBR will automatically take the next available drive letter in alphabetical order for the compressed or image file.

#### Note

- > The Windows drive letters A, B, and C are not used by OpenDirect restore.
- > The OpenDirect restore assigned drive letter(s) will be released once you exit from AhsayOBR UI.

#### **Network Requirements**

Recommended minimum network speed is at least 100Mbps download speed.

The network bandwidth requirements will increase in proportion to the size of the compressed file/image and or the incremental delta chain length to ensure optimal performance. Working with limited network bandwidth may severely affect the granular restore performance.

You can use an online network speed test website (e.g. <u>www.speedtest.net</u>) to get an idea of the actual bandwidth of the machine.

#### **Other Dependencies**

The following dependencies are restore related and therefore they will be checked by AhsayOBR only when an OpenDirect restore is performed. Absence of these elements will not affect the backup job but would cause the restore to fail.

- Microsoft Visual C++ 2015 Redistributable (x86) / (x64) https://www.microsoft.com/en-us/download/details.aspx?id=48145
- Update for Universal C Runtime in Windows <u>https://support.microsoft.com/en-us/help/2999226/update-for-universal-c-runtime-in-windows</u>
- For Windows 7 and Windows Server 2008 R2 only
   Microsoft Security Advisory 3033929
   <a href="https://technet.microsoft.com/en-us/library/security/3033929.aspx">https://technet.microsoft.com/en-us/library/security/3033929.aspx</a>

#### Permissions

The Windows login account used for installation and operation of the AhsayOBR client machine requires Administrator privileges.

# 5 Granular Restore Technology

#### What is Granular Restore Technology?

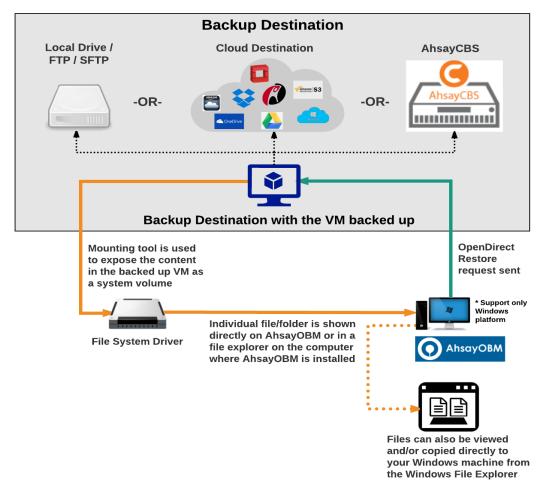
AhsayOBR granular restore technology enables the recovery of individual files from a guest VM without booting up or restoring the whole guest VM first.

Granular restore is one of the available restore options for VMware ESXi/vCenter backup sets from AhsayOBR v7.13.0.0 or above. AhsayOBR makes use of granular restore technology to enable a file level restore from a virtual disk file (VDDK) of guest VM backup possible. It is particularly useful if you only need to restore individual file(s) from a guest VM which would normally a long time to restore and then startup before you can gain access the files on the virtual disks. Granular restore gives you a fast and convenient way to recover individual files on a guest VM.

During the granular restore process, the virtual disks of the guest VM can be mounted on the Windows machine as a local drive. This will allow the individual files on the virtual disks to be viewed via the file explorer within AhsayOBR or from the Windows File Explorer on the Windows machine you are performing the restore, without having to restore the entire virtual machine. Granular restore can only mount virtual disks if the guest VM is running on a Windows Platform and it is supported for all backup destinations, i.e. AhsayCBS, Cloud storage, or Local/Network drives. The mounting of Linux/Unix file systems from virtual disk file is currently not available due to limitations of the file system drivers.

#### Important

Granular restore requires an additional OpenDirect / Granular restore add-on module license to work. Contact your backup service provider for further details.



#### How does Granular Restore work?

#### **Benefits of using Granular Restore**

Comparison between Granular Restore and Normal Restore.

Granular Restore			
	Introduction		
Granular restore allows you to quickly mount virtual disk(s) directly from the backup file of a guest VM, so that individual files from virtual disk(s) can be exposed via the file explorer on AhsayOBR, or to be copied from the file explorer on to a 64 bit Windows machine you are performing the restore.			
	Pros		
Restore of Entire Guest VM Not Required       Compared to a normal restore where you have to restore the entire guest VM first, before you can access any individual files/folders, granular restore allows you to view and download individual files, without having to restore the entire guest VM first.			

Ability to Restore Selected Files	In some cases, you may only need to restore a few individual file(s) from the guest VM, therefore, granular restore gives you a fast, convenient, and flexible tool to restore selected file(s) from a guest VM quickly.	
	With normal restore methods, if you wish to restore individual file(s) from a guest VM, you will have to create two different backup sets; a Hyper-V guest VM backup set and a separate file backup set for the file(s) you wish to restore. You will required an additional AhsayOBR installation on the guest VM environment, with Granular Restore feature, only one backup set is required.	
Only One Backup Set Required	Fewer CAL (Client Access License) required - you will only need one AhsayOBR CAL to perform guest VM, Run Direct, and Granular restore.	
	Less storage space required - as you only need to provision storage for one backup set.	
	> Less backup time required - As only one backup job needs to run.	
	Less time spent on administration - As there are fewer backup sets to maintain.	
Cons		
No Encryption and Compression	To make ensure optimal restore performance, the backup of the guest VM will <b>NOT</b> be encrypted and compressed, therefore, you may have to take this factor in consideration when using this restore method.	

Normal Restore			
	Introduction		
The normal restore method for guest VMs, restores the entire backup files to either to the original VM location or another a standby location. The files or data on the guest VM can only be accessed once the guest VM has been fully recovered and booted up.			
	Pros		
Backup with Compression and Encryption	Guest VM is encrypted and compressed, therefore is in smaller file size, and encrypted before being uploaded to the backup destination.		
	Cons		
Slower Recovery	As the entire guest VM has to be restored before you can access any of its file(s) or data, the restore time could be long if the guest VM size is large.		
Two Backup Sets and CALs Required	If you only wish to restore individual files from VM, two separate backup sets are required, one for the VM image and the other for the individual files, and therefore two CAL (client access licenses) are required.		

Г

#### Requirements

#### **Supported Backup Modules**

Granular restore is supported on Hyper-V backup sets created and backed up using AhsayOBR v7.13.0.0 or above installed on a Windows platform with the Granular Restore feature enabled on the backup set.

#### **License Requirements**

An OpenDirect / Granular restore add-on module license is required per backup set for this feature to work. Contact your backup service provider for more details.

#### **Backup Quota Storage**

As compression is not enabled for Granular backup sets, to optimize restore performance, the storage quota required will be higher than non-Granular backup sets. Contact your backup service provider for details.

#### **Operating System**

For MS Hyper-V, AhsayOBR must be installed on a 32 bit or 64 bit Windows Operating System as libraries for Hyper-V Granular Restore only supports Windows platform.

For VMware, AhsayOBR must be installed on a 64 bit Windows machine as libraries for Granular only supports 64 bit Windows operating system for VMware ESXi/VCenter.

Operating System	MS Hyper-V Backup Set	VMware ESXi/vCenter Backup Set
Windows 7 SP1 or above	N\A	Compatible
Windows 8	Compatible	Compatible
Windows 8.1	Compatible	Compatible
Windows 10	Compatible	Compatible
Windows 2008 R2 SP1 or above	N\A	Compatible
Windows 2012	Compatible	Compatible
Windows 2012 R2	Compatible	Compatible
Windows 2016	Compatible	Compatible

AhsayOBR must be installed on the following Windows Operating Systems:

#### **Temporary Directory Requirement**

Temporary Directory Folder should have at least the same available size as the guest VM to be restored.

#### **Available Spare Drive Letter**

One spare drive letter must be available on the Windows machine for the granular restore process, as the VDDK virtual disk is mounted on Windows as a logical drive. AhsayOBR will automatically take the next available drive letter in alphabetical order for the mounted virtual disk.

#### Note

- > The Windows drive letters A, B, and C are not used by granular restore.
- > The granular restore assigned drive letter(s) will be released once you exit from AhsayOBR UI.

#### **Network Requirements**

Recommended minimum network speed is at least 100Mbps download speed.

The network bandwidth requirements will increase in proportion to the size of the guest VM and or the incremental delta chain length to ensure optimal performance. Working with limited network bandwidth may severely affect the granular restore performance.

You can use an online network speed test website (e.g. <u>www.speedtest.net</u>) to get an idea of the actual bandwidth of the machine.

#### **Other Dependencies**

The following dependencies are restore related and therefore they will be checked by AhsayOBR only when a granular restore is performed. Absence of these elements will not affect the backup job but would cause the restore to fail.

- Microsoft Visual C++ 2015 Redistributable (x86) / (x64) <u>https://www.microsoft.com/en-us/download/details.aspx?id=48145</u>
- Update for Universal C Runtime in Windows <u>https://support.microsoft.com/en-us/help/2999226/update-for-universal-c-runtime-in-windows</u>
- For Windows 7 and Windows Server 2008 R2 only
   Microsoft Security Advisory 3033929
   <a href="https://technet.microsoft.com/en-us/library/security/3033929.aspx">https://technet.microsoft.com/en-us/library/security/3033929.aspx</a>

#### Permissions

The Windows login account used for installation and operation of the AhsayOBR client machine requires Administrator privileges.

# 6 Download and Launch AhsayOBR

From version 7.15.0.0 onwards, there are two installation modes of AhsayOBR, online installation and offline installation. Below is the table of comparison between online installation and offline installation.

	Online Installation	Offline Installation
Version Supported	<ul><li>From v7.3.2.0 onwards.</li></ul>	<ul><li>From v7.15.0.0 onwards.</li></ul>
Installation Time	<ul> <li>Takes more time as it needs to download the binary and component files (80MB to 140MB depending on operating system) each time the installation is run.</li> <li>Online installer size is 9KB to 3.5MB depending on operating system as it contains only the initial installation package files.</li> </ul>	<ul> <li>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.</li> <li>Offline installer size is 80MB to 140MB depending on operating system as it contains all the necessary binary and component files.</li> </ul>
Deployments	<ul> <li>Suitable for sites with fast and stable internet connection as internet connection is needed each time when an installation is run.</li> <li>A slow internet connection will result in longer installation time and interrupted or unstable internet connection may lead to unsuccessful installation.</li> <li>Ensures the latest version of the product is installed.</li> </ul>	<ul> <li>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.</li> <li>May not be the latest version.</li> </ul>

#### **Download AhsayOBR**

1. In a web browser, click the blue icon on the top right corner to open the download page for the AhsayOBR installation package file from your backup service provider's website.

English	× 🛓

2. In the **Restore** tab of the download page, you can choose the AhsayOBR installer by operating system.

G AhsayCBS	
AhsayOBM AhsayACB Mobile	Restore
Choose operating system.	
Windows	<ul> <li>▲ Download (Online)</li> <li>▲ Download (Offline)</li> </ul>
📺 Mac OS X	<ul> <li>▲ Download (Online)</li> <li>▲ Download (Offline)</li> </ul>
👌 Linux	<ul> <li>▲ Download (Online)</li> <li>▲ Download (Offline)</li> </ul>
🍯 FreeBSD	<ul> <li>▲ Download (Online)</li> <li>▲ Download (Offline)</li> </ul>
solaris Solaris (x86)	<ul> <li>▲ Download (Online)</li> <li>▲ Download (Offline)</li> </ul>
Ubuntu	<ul> <li>▲ Download (Online)</li> <li>▲ Download (Offline)</li> </ul>

3. In the **Windows** section, click on the **Download (Online)** or **Download (Offline)** button to download the AhsayOBR installation package.



#### Launch AhsayOBR

#### **Option 1: Online Installation Option**

- 1. Launch the file you have downloaded from the previous above.
- 2. You may see this security warning prompt. Click **Run** to proceed.

Open File	- Security Warning	
<b>Do yo</b> ι	u want to run this file?	
	Name:e\Downloads\obr-win-443-10.3.1.8-https (2).exe Publisher: <u>Ahsay Systems Corporation Limited</u>	
	Type: Application From: C:\Users\steven.tse\Downloads\obr-win-443-10	
	Run Cancel	
✓ Always ask before opening this file		
	While files from the Internet can be useful, this file type can potentially harm your computer. Only run software from publishers you trust. What's the risk?	

3. Click **Next** to proceed.

📷 Setup - AhsayOBM	
	Welcome to the AhsayOBM Setup Wizard
	This will install AhsayOBM on your computer.
	It is recommended that you close all other applications before continuing.
	Click Next to continue, or Cancel to exit Setup.
	Next > Cancel

4. Select **I accept the agreement** after reading the license agreement. Then, click **Next** to proceed.

Setup - AhsayOBM
License Agreement Please read the following important information before continuing.
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.
Terms of Use 1. All softwares provided by Ahsay Systems Corporation is on an "as is" basis with no warranties of any kind and Ahsay Systems Corporation will not be liable for any damages of any kind arising from the use. Ahsay Systems Corporation further disclaims all warranties, express and implied, including without limitation, any implied warranties of merchantability or fitness for a particular purpose. 2. Ahsay Systems Corporation grants you a non-exclusive, non-transferable, royalty-free, limited license to use the binary form of the software provided by Ahsay Systems Corporation for personal use only. Redistribution of programs owned by Ahsay Systems Corporation, unless explicitly granted by Ahsay Systems Corporation, is strictly prohibited.
<ul> <li>I accept the agreement</li> <li>I do not accept the agreement</li> </ul>
< Back Next > Cancel

5. The installation will start after you click **Install**.

Setup - AhsayOBM	<u> </u>
Ready to Install Setup is now ready to begin installing AhsayOBM on your computer.	0
Click Install to continue with the installation, or click Back if you want to re change any settings.	eview or
Destination location: C:\Users\steven.tse\Downloads\RestoreWizard	*
٠	*
< Back Install	Cancel

6. The component files will be downloaded first during installation.

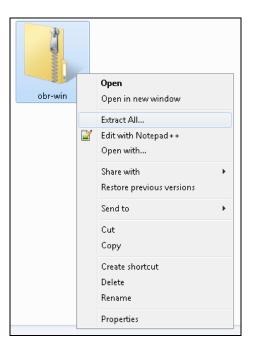
💿 Setup - AhsayOBM 👘		
<b>Downloading addition</b> Please wait while set	<b>al files</b> up downloads additional files	$\odot$
Total progress:		67.47 MB / 95.95 MB (70%)
Current file:		260.61 KB / 3.10 MB (8%)
File:	properties-common.tar.gz	
Speed:	7.7 MB/s	
Status:	Downloading	
Elapsed time:	00:00:10	
Remaining time:	00:00:03	
		Next > Cancel

7. AhsayOBR is launched successfully when you see the following screen.

O AhsayOBM			
		English	~
	Login name		
	Password		
	Save password		
	Forgot password		
	Show advanced option	ок	

#### **Option 2: Offline Installation Option**

1. Extract the offline installation package file (obr-win.zip) you have downloaded from the download section above.



2. Select a destination and extract files.

	(	×
🍚 🔒 Extract Compressed (Zipped) Folders		
Select a Destination and Extract Files		
Files will be extracted to this folder:		
C:\Users\Administrator\Desktop\obr-win	Browse	
	Extract Cance	el

3. Launch the installer you have extracted from the zip format file.



4. Click **Run** when you see this message.



5. Click **Next** to proceed.



6. Select **I accept the agreement** after reading the license agreement. Then, click **Next** to proceed.

💿 Setup - AhsayOBM	- • •
License Agreement Please read the following important information before continuing.	$\odot$
Please read the following License Agreement. You must accept the terms of agreement before continuing with the installation.	this
Terms of Use 1. All softwares provided by Ahsay Systems Corporation is on an "as is" be with no warranties of any kind and Ahsay Systems Corporation will not be for any damages of any kind arising from the use. Ahsay Systems Corporat further disclaims all warranties, express and implied, including without limita any implied warranties of merchantability or fitness for a particular purpose 2. Ahsay Systems Corporation grants you a non-exclusive, non-transferab royalty-free, limited license to use the binary form of the software provided Ahsay Systems Corporation for personal use only. Redistribution of program owned by Ahsay Systems Corporation, unless explicitly granted by Ahsay Systems Corporation , is strictly prohibited.	liable ion ttion,
<ul> <li>I accept the agreement</li> <li>I do not accept the agreement</li> </ul>	
< Back Next >	Cancel

7. The installation will start after you click **Install**.

💿 Setup - AhsayOBM	
<b>Ready to Install</b> Setup is now ready to begin installing AhsayOBM on your computer.	$\bigcirc$
Click Install to continue with the installation, or click Back if you want to re change any settings.	eview or
Destination location: C:\Users\Administrator\Desktop\obr-win\Restore\V\izard	A 
•	•
< Back Install	Cancel

8. AhsayOBR is launched successfully when you see the following screen.

AhsayOBM			- • •
			~
	O AhsayOBM		
	Login name		
	Password		
	Save password		
	Show advanced option	ОК	

# 7 Start AhsayOBR

This section provides information on how to login to AhsayOBR as well as the necessary network settings for login.

1. The AhsayOBR launches automatically and you will see the following screen. Click **Show** advanced option to enter the network settings.

AhsayOBM				- • ×
			English 🔹	•
	O AhsayOBM			
	Login name			
	Password			
	Save password			
	Show advanced option	ок		

2. Enter the Backup Server address provided by your backup service provider. If you need to use proxy to access the Internet, enable the Proxy feature and fill in the relevant information as well. Click **OK** when you are done with the settings.

<ul> <li>AhsayOBM</li> </ul>			- • ×
	Backup Server		
	http V 169.254.252.71:444 V		
	Proxy (HTTP)		
	Use proxy to access the Internet		
			OK Cancel

Englise     Login   Login   Ligin name   Username   Password   Save password   Tog t password   Mathematical Ma	• AhsayOBM		
<image/> <complex-block><section-header><section-header><section-header><section-header><section-header></section-header></section-header></section-header></section-header></section-header></complex-block>			
Login Username Password Save password Forgot password			English 🗸
Login Username Password Save password Forgot password			
Login Username Password Save password Forgot password			
Login name username Password Gave password Forgot password			
username Password Save password Forgot password		Login	
Password  Save password  Forgot password		Login name	
Save password Forgot password		username	
Save password Forgot password		Password	
Forgot password		••••••	
		Save password	
Show advanced option			
Show advanced option OK			
Show advanced option OK			
Show advanced option OK			
Show advanced option OK			
Show advanced option OK			
			ок

3. Enter the login name and password of your Client Backup account, then click **OK** to login.

## 8 Restore File Backup Sets

#### **Restore Method**

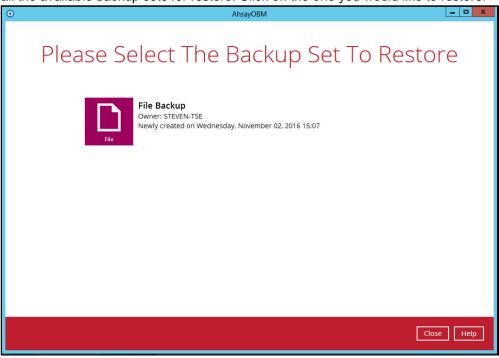
There are two restore methods available, the "Normal restore" and "Open backup data directly without restoration (OpenDirect)". OpenDirect restore applies only to file backup sets with OpenDirect feature enabled.

#### **Normal Restore**

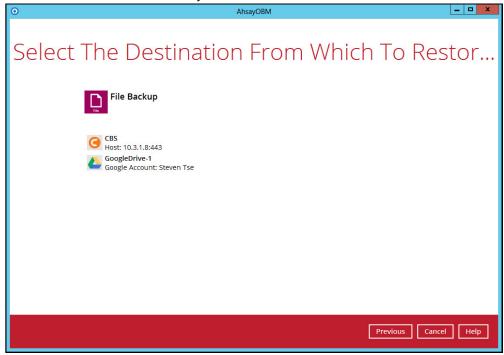
The following is a typical end-to-end process for a file normal restore. The actual steps may slightly vary depending on the module you are restoring.

# Important AhsayOBR can be used to restore data that is backed up with AhsayACB or AhsayOBM. Clicking Cancel then Yes at any point during the steps below will close the software completely. After software is closed, you will have to lunch it again according to the instructions in Launch AhsayOBR if you wish to use it.

1. After logging in to your backup account successfully, you should see a screen showing all the available backup sets for restore. Click on the one you would like to restore.



2. Click on the location from which you would like to restore the data from.



3. Select Normal restore.

Show filter

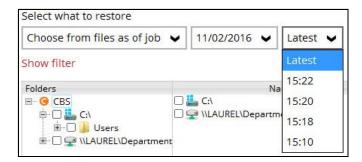
Please Choose A Restore Mode	,
Restore mode Normal restore Open backup data directly without restoration (OpenDirect)	

4. Select to restore files from a specific backup job, or from all files available, then select the files or folders that you would like to restore.

There are two options from the Select what to restore drop-down menu:

Choose from files as of job – this option allows you to select a backup version from a specific date and time to restore.

Select what to restore		
Choose from files as of job 🖌	11/02/2016 🖌	Latest 🖌
Choose from files as of job		
Choose from ALL files	N	ame
Select what to restore		
Choose from files as of job 🖌	11/02/2016 🖌	Latest 🗸



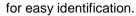
Choose from ALL files – this option allows you to restore all the available backup versions for this backup set. Among all the available backup versions, you can even select only some of the backup versions of a file to restore.

0	AhsayOBM		- • ×
Select what to restore	ur Files To B	e Restored	b
Folders	Name	Size Date modified	-
⊕- [] 🏭 C₁\ ⊯- [] 🐌 Users	File snapshot testing.oct     File snapshot testing.oct     File snapshot testing.oct     File snapshot testing.oct	1 KB 11/07/2016 18:54 1 KB 11/07/2016 18:51 1 KB 11/07/2016 18:51 1 KB 11/07/2016 18:39	
Search	Items per	page 50 V Page 1/1	•
		Previous Next	Cancel Help

Below is an example showing all the available backup versions of the file **File snapshot testing.txt**. The latest version is shown in solid black color and all the previous versions are shown in grey color. You can identify the file version from the **Date modified** column.

Name	Size	Date modified
File snapshot testing.txt	1 KB	11/07/2016 18:54
🗹 📗 File snapshot testing.txt	1 KB	11/07/2016 18:52
🗌 📗 File snapshot testing.txt	1 KB	11/07/2016 18:51
🗌 📗 File snapshot testing.txt	1 KB	11/07/2016 18:39

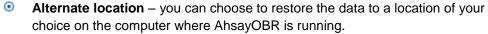
When the restore is done, you will see all the selected backup versions in the restore destination. The latest backup version has the file name as the original file, while the previous versions have the time stamps added to their file names



Name	Date modified
File snapshot testing	11/7/2016 6:54 PM
File snapshot testing_2016-11-07-18-39-11	11/7/2016 6:39 PN
File snapshot testing_2016-11-07-18-51-55	11/7/2016 6:51 PN
File snapshot testing_2016-11-07-18-53-26	11/7/2016 6:52 PM

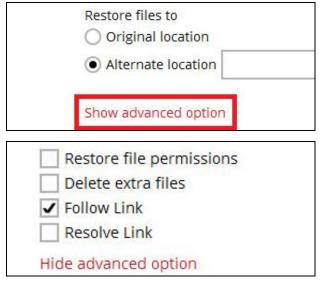
- 5. Click **Next** to proceed when you are done with the selections.
- 6. Select to restore the files to their **Original location**, or to an **Alternate location**, then click **Next** to proceed.
  - Original location the backed up data will be restored to the computer running the AhsayOBR under the same directory path as on the machine storing the backup source. For example, if the backup source files are stored under C:/User/Downloads folder, the data will be restored to C:/User/Downloads as well on the computer running the AhsayOBR.

)		AhsayOBM	_ 0
С	hoose Whe	ere The Files To	Be Restored
	Restore files to <ul> <li>Original location</li> </ul>		
	Alternate location     C:\\[     C:\\[     C:\\[     C:\\[     C:\\[     C:\\[     C:\[      C:\[      C:\[     C:\	Jsers\Administrator\Desktop	Browse
	Show advanced option		
			Previous Next Cancel Hel



0	AhsayOBM	_ 🗆 X
	AhsayOBM Change Path  Cook in: Desktop Desktop Wy Documents Computer Folder game: Collect Subcers/Adminioteol/(pesktog) OK	ed
	Network Files of gype : All Files v Cancel Previous Next Car	ncel Help

## 7. Click **Show advanced option** to configure other restore settings:



## Restore file permissions

By enabling this option, file permissions of the operating system files will be restored. File permission defines, for example, the right to view or change a file by the system owner/group/individual. If file permission is not restored properly, there is a potential risk that the restored data could be viewed by group/individual who is not supposed to have the access to.

### Delete extra files

By enabling this option, the restore process will attempt to synchronize the selected restore source with the restore destination, making sure the data in the restore destination is exactly the same as the restore source. Any data created

after backup will be treated as "extra files" and will be deleted from the restore source if this feature is enabled.

### Example:

i) Two files are created under the **Document folder 01**, namely doc 1 & doc 2.

▶ Documen	t folder 01	
^	Name	*
	doc 1	Files exected initially
	📋 doc 2	- Files created initially

- ii) A backup is performed for folder **Document folder 01**.
- iii) Two new files are created, namely doc 3 & doc 4.

Document folder 01		
^	Name	
	doc 1 - Files created BEFORE backup	
	doc 3 doc 4 Files created AFTER backup	

- iv) A restore is performed for the **Document folder 01**, with **Delete extra files** option enabled.
- v) Since doc 3 & doc 4 have never been backed up, therefore they will be deleted from **Document folder 01**, leaving only the two files that have been backed up.

<ul> <li>Docume</li> </ul>	Document folder 01		
^	Name	<b>^</b>	
	📄 doc 1	– Files remain after restore	
	📄 doc 2		

#### WARNING

Please exercise extra caution when enabling this feature. Consider what data in the restore source has not been backed up and what impact it would cause if those data is deleted.

Prior to the data restore and synchronization, a warning message shows as the one shown below. Only clicking **Yes** will the "extra file" be deleted. You can click **Apply to all** to confirm deleting all the "extra files" at a time.



## Follow Link (Enabled by default)

When this option is enabled, not only the symbolic link or junction point will be restored, the directories and files that the symbolic link or junction point links to will also be restored.

The table below summarizes the behaviors when a restore is performed with different settings.

Follow Link	Restore to	Behavior
Enabled	Original location	Symbolic link or junction point is restored to the original backup location. Target directories or files are also restored to the original backup location.
	Alternate location	Symbolic link or junction point is restored to the location specified. Target directories or files are also restored to the alternate location specified.
Disabled	Original location	Symbolic link or junction point is restored to the original backup location. Target directories or files are NOT restored to the original backup location.
	Alternate location	Symbolic link or junction point is restored to the location specified. Target directories or files are NOT restored to the alternate location specified.

## Resolve Link (Only for restoring to Alternate Location)

This option must be used in conjunction with the **Follow Link** option. When this option is enabled, the symbolic link or junction point, as well as the directories and files that the symbolic link or junction point links to will also be restored in the alternate location you have chosen. That means the symbolic link or junction will point to the alternate location instead of the original location.

The table below summarizes the behaviors when a restore is performed with this option turned on and off.

Resolve Link	Behavior
Enabled	Symbolic link or junction point is restored to the alternate location specified, with its target directories and files also restored to the same location in their relative path. Target of the link or junction is updated to the new relative path. In other word, the link or junction now points to the new alternate location.

Disabled	Symbolic link or junction point is restored to the alternate location specified, with its target directories and files also restored to the same location in their relative path.
	However, target of the link or junction is NOT updated to the new relative path. In other word, the link or junction still points to the original location.

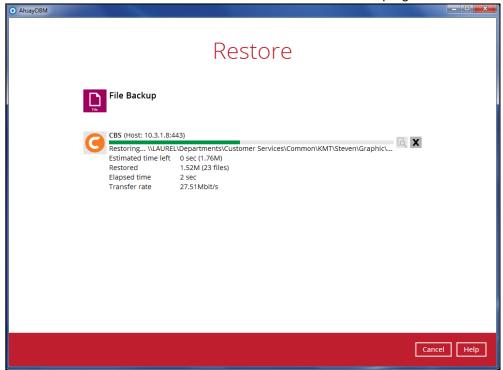
- 8. Click **Next** to proceed with you are done with the settings.
- 9. Select the temporary directory for storing temporary files, such as delta files when they are being merged.

By default, the temporary files are stored under the temp directory of the user profile directory. However, there is a chance that the same directory path does not exist in the computer you are running the AhsayOBR. In that case, you will have to click **Browse** to define a new location for storing the temporary files, otherwise you will not be able to perform a restore.

0	AhsayOBM	_ 🗆 X
	Temporary Directory	
	Temporary directory for storing restore files	
	C:\Users\steven.tse\temp Browse	
	Previous Restore Ca	ncel Help

10. Click **Restore** to start the restore.

11. You will see a screen like the one shown below with the restore progress bar.



12. The progress bar shows Restore Completed Successfully when the restore is done.

CBS (Host: 10.3.1.8:8		-
Restore Complete	ed Successfully	
Estimated time left	0 sec	
Restored	540 (2 files)	
Elapsed time	33 sec	
Transfer rate	128bit/s	

You can click the **Q** View icon on the right hand side to check the log. A window will pop up to show the log. Click **Close** to exit the pop-up window.

		Show All
уре	Log	Time
0	Start [ Windows Vista (wvi), AhsayOBM v7.9.0.0 ]	11/25/2016 14:27:41
0	Initializing decrypt action	11/25/2016 14:27:41
0	Initializing decrypt action Completed	11/25/2016 14:27:41
0	Downloading "C:\Users\ahsay\Desktop\Folder 01\File 1.txt" (Total 25k bytes)	11/25/2016 14:28:11
0	Downloading "C:\Users\ahsay\Desktop\Folder 01\Report 1.rtf" (Total 15k bytes)	11/25/2016 14:28:13
0	Restore Completed Successfully	11/25/2016 14:28:14

- 13. Click **Cancel** to close the Restore window.
- 14. To exit AhayOBR, click **Cancel** and then **Yes**, it will then be closed completely. If you wish to use the AhsayOBR again, you will then have to launch it again according to the instructons in Launch AhsayOBR.

## **OpenDirect Restore**

This restore method applies to backup sets created with OpenDirect restore enabled only.



- Microsoft Security Advisory 3033929 (for Windows 7 and Windows Server 2008 R2) <u>https://technet.microsoft.com/en-us/library/security/3033929.aspx</u>
- 1. After logging in to your backup account successfully, you should see a screen showing all the available backup sets for restore. Select the backup set that you would like to restore data from.

Please Se	elect The Backup Set To Restore
HYPER-V	<b>OpenDirect Restore</b> Owner: w16-hvcl-cl02 Newly created on Thursday, 11 May 2017 16:02
HYPER-V	<b>OpenDirect Restore 02</b> Owner: w16-hvcl-cl02 Newly created on Tuesday, 16 May 2017 16:11
File	<b>OpenDirect Restore 03</b> Owner: steven-tse Last Backup: Tuesday, 16 May 2017 17:44

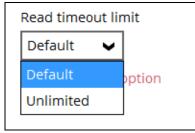
2. Select where you would like to restore your data from.

Select	The Destination From Which To Restor
	OpenDirect Restore 03
	G AhsayCBS Host: 10.120.0.12:80

3. Select Open backup data directly without restoration (OpenDirect).



You may select the Read timeout limit by clicking Show advanced option.



This selection defines the duration when the OpenDirect restore session will be disconnected if there is no response from the mounted compressed or image file.

- Default This setting should be suitable for compressed or image file located on a local, removable, or network drive. The time out value is15 seconds.
- Unlimited the connection will not be time out when this is selected. This selection is recommended under the following usage:
  - Backup destination is a cloud stroage.
  - AhsayCBS over the Internet.
  - A large compressed or image file with large incremental delta chain.

Note
If in doubt or unsure about the compressed or image file size or network stability, it is recommended to use <b>Unlimited</b> .

Click Next to proceed when you are done with the selection.

4. Select to restore files from a specific backup job, or from all files available, then select the files or folders that you would like to restore.

Select Yo	our Files To Be	e Re	stored
Select what to restore Choose from files as of job	<ul><li>✔ 18/05/2017 ✔ Latest ✔</li></ul>		
Folders	Name	Size	Date modified
🖃 😉 AhsayCBS	🗹 🥼 OpenDirect Restore 01.zip	60 KB	18/05/2017 11:16
🖕 🔲 🌉 C:/	🗹 🌗 OpenDirect Restore 02.zip	54 KB	18/05/2017 11:22
ia □ ]} Users ia □ ]} steven.tse ia □ ] == Desktop	🗹 ] OpenDirect Restore 03.zip	106 KB	18/05/2017 11:22

5. Select a temporary directory for storing restore files, then click Restore to start the OpenDirect restore.

Tomporany Directory	
Temporary Directory	
Temporary directory for storing restore files	_

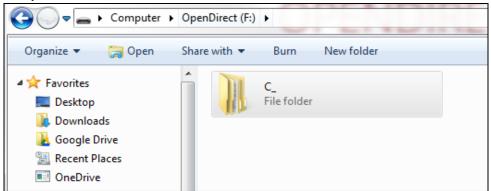
- 6. Click **Restore** to start the restore. The status will be shown.
- 7. You will be prompted to select drive letter where you wish the mounted files to be mapped on your machine, click **OK** when you have finished selection.

OpenDirect	
OpenDirect Restore 03	
Please choose a drive letter	
R	
	ОК

 The following screen shows when you perform OpenDirect restore for this backup set on this machine for the first time only. Make sure you click **Yes** to confirm mounting the file(s) on this machine. Clicking **No** will exit the restore process.



9. The selected drive letter will be mapped and prompted in the Windows Files Explorer with the files you wish to restore shown.



10. You can now click on the files to view them directly from here, which will be in read-only mode.

enDirect (F:) ► C_ ► Users ► steven.tse	e ► Desktop ►	<b>- </b> ↓	Search Desktop
Burn New folder			
Name	Date modified	Туре	Size
🌗 OpenDirect Restore 01	5/18/2017 11:16 AM	Compressed (zipp	60 KB
🌗 OpenDirect Restore 02	5/18/2017 11:22 AM	Compressed (zipp	54 KB
🜗 OpenDirect Restore 03	5/18/2017 11:22 AM	Compressed (zipp	106 KB

#### If it is a zipped file, you can directly click on it to see all the individual files inside.

C_ I Users I steven.tse I Desk	top 🕨 OpenDirect Restore 01	✓ 4y Sea	rch OpenDirect
Name	Туре	Compressed size	Password
📭 ACB icon	PNG image	3 KB	No
💽 AhsayCBS icon	PNG image	4 KB	No
騷 mounting in progress	PNG image	15 KB	No
💽 mounting in progress 2	PNG image	15 KB	No
騷 mounting in progress 3	PNG image	14 KB	No
📭 mounting in progress 4	PNG image	11 KB	No

### You may also copy individual file(s) you wish to restore toyour local machine.

C_ ► Users ► steven.tse ► Deskto	p ► OpenDirect Restor	e 01 🗸 🗸	Sea	rch OpenDirect
Name	Туре	Compress	ed size	Password
NCB icon	PNG image		3 KB	No
尾 AhsayCBS icon	PNG image		4 KB	No
尾 mounting in progress	PNG image		15 KB	No
📭 mounting in progress 2	PNG image	0	15 KB	No
📭 mounting in progress 3	PNG image	Open	14 KB	No
💽 mounting in progress 4	PNG image	Сору	11 KB	No
		Properties		

11. The mounted drive letter cannot be ejected from the Windows File Explorer, it will only be closed when you exit AhsayOBR.



12. When you have finished restoring the necessary files, you can go back to AhsayOBR and Cancel to exit the OpenDirect Restore.

OpenDirect	
OpenDirect Restore 03	
AhsayCBS (Host: 10.120.10.12:443) Mounting virtual file systemCompleted Elapsed time 7 sec Transfer rate 0bit/s	
C OpenDirect	1
OpenDirect	
OpenDirect Restore 03	
AbsavCBS (Host: 127 0.0 1:80) Are you sure to stop the OpenDirect?	
Stop the OpenDirect	Cancel

## Important

- 1. As a result of the limitation of the virtual file system library, the mapped drive will only be unmounted from your machine when you exit AhsayOBR. In other words, each OpenDirect restore session on AhsayOBR can only mount and unmount once.
- 2. OpenDirect restore of file backup sets:
  - Will not show up on the Restore Status tab in Live Activities of the backup service provider AhsayCBS. Restore Status tab in Live Activities only applies to the restore performed directly through AhsayOBR.
  - > Will not generate restore reports or report email on backup service provider AhsayCBS.
  - Will not generate restore log on AhsayOBR.

# 9 Microsoft Hyper-V Guest VM Granular Restore

### Important

Before you proceed with the Granular Restore, make sure the following dependencies are fulfilled on the restore machine. Failure to do so may cause the granular restore to fail.

- Microsoft Visual C++ 2015 Redistributable (x86) / (x64) <u>https://www.microsoft.com/en-us/download/details.aspx?id=48145</u>
- Update for Universal C Runtime in Windows <u>https://support.microsoft.com/en-us/help/2999226/update-for-universal-c-runtime-in-windows</u>
- Microsoft Security Advisory 3033929 (for Windows Server 2008 R2) <u>https://technet.microsoft.com/en-us/library/security/3033929.aspx</u>

## **Requirements and Limitations**

- 1. Granular restore does not support the mounting of virtual disks, if the disk itself is encrypted, for example using Windows Bitlocker or other third party security features.
- 2. If any folders or files on a virtual disk are encrypted these files/folder cannot be restored. For example, if the "Encrypt contents to secure data" is selected in Advanced attributes.
- 3. The mounting of Linux/Unix file systems from virtual disk file is currently not available due to limitations of the file system drivers.
- 4. Granular restore can only be performed on one guest VM at a time.

## **Start Granular Restore**

1. After logging in to your backup account successfully, you should see a screen showing all the available backup sets for restore. Select the backup set that you would like to restore data from.



2. Select the backup destination that contains the guest VM that you would like to restore.



3. Select to the Restore individual files in virtual machine (Granular Restore) option.

Please Choose A Restore Mode
Restore mode Restore virtual machines Restore individual files inside virtual machine (Granular Restore)
Mount virtual disks automatically     Show advanced option

### Note

The **Mount virtual disks automatically option** is selected by default. If the guest VM contains a multiple virtual disks and you only require the restore of files from a single or certain virtual disk(s), then unselect this option to speed up the virtual disk mounting. Otherwise, granular restore will connect and mount all available virtual disks and this process could take longer.

You may select the Read timeout limit by clicking Show advanced option.

Read timeou	t limit
Default	~
Default	ption
Unlimited	

This selection defines the duration when the granular restore session will be disconnected if there is no response from the mounted virtual machine.

- Default This setting should be suitable for guest VMs located on a local, removable, or network drive. The time out value is 15 seconds.
- Unlimited the connection will not be time out when this is selected. This selection is recommended under the following usage:
  - i. Backup destination is a cloud stroage.
  - ii. AhsayCBS over the Internet.
  - iii. A large guest VM or guest VM with large incremental delta chain.



If in doubt or unsure about the guest VM size or network stability, it is recommended to use **Unlimited**.

Click Next to proceed when you are done with the selection.

4. The following screens show when you perform granular restore for a backup set on a machine for the first time only. Make sure you click **Yes** to confirm mounting t of the virtual disk on this machine. Clicking **No** will exit the restore process.



5. Select the virtual machine that you would like to perform Granular Restore for, then click **Next** to proceed.

	ual Machines	То	Be Res
Select what to restore Choose from files as of job	♥ 05/16/2017 ♥ Latest ♥		
Folders	Name	Size	Date modified
	🚯 Snapshots 🚔 Virtual Hard Disks 📔 Virtual Machines		
🕀 🗌 🚪 FreeDos	🔮 components.xml	9 KB	05/16/2017 14:55
🗄 🔠 Host Component	👜 writers.xml	7 KB	05/16/2017 14:55

6. Select a temporary directory for storing restore files, then click Restore to start the granular restore.

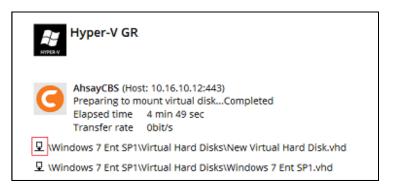
Temporary Directory	
Temporary directory for storing restore files	_

7. When the virtual disk(s) are in the process of being prepared for mounting on the AhsayOBR machine, you will see the following screen.



Please wait as the process could take some time depending on the size of the virtual disk, network bandwidth, and storage location.

8. If the **Mount virtual disks automatically** option is unselected then click on the disk icon to mount the virtual disk you wish to restore files from.



Otherwise, the virtual disks will be automatically mounted without manual selection.

Hyper-V GR	
AhsayCBS (Host: 10.16.10.12:443) Mounting virtual disk "E:\Windows 7 Ent SP1\Virtual Hard Disks\Windows 7 Ent SP1 Elapsed time 13 min 42 sec Transfer rate 59.56Mbit/s	.vhd"C
묘 \Windows 7 Ent SP1\Virtual Hard Disks\New Virtual Hard Disk.vhd	<b>^</b>
Volume-1	직 또
묘 \Windows 7 Ent SP1\Virtual Hard Disks\Windows 7 Ent SP1.vhd	୍ଦ
급 Volume-1	ସ ମ
급 Volume-2	ସ

There are two options to restore individual files from here.

## Option 1: Restore Using AhsayOBR File Explorer

This method allows you to use the file explorer in AhsayOBR to browse through the files from the backup up image mounted and select those you wish to restore.

i. Click to browse the files in the mounted backup image. If there are multiple volumes in the guest VM, you can only select one volume to restore indidual files at a time.

You will then see a file explorer menu as shown below. Select the file(s) you wish to restore, then click **Next** to proceed.

Select Yo	ur Files To	Be Re	stored
Folders	Name	Size	Date modified
E Win2003.vmdk (Volume-1)	✓ S filterpipelineprintproc.dll	144 KB	06/07/2008 20:06
🖶 🔲 🎴 477c0b3c92104cd3a		11 KB	06/07/2008 20:06
	msxpsdrv.inf	3 KB	19/06/2008 13:33
i386	msxpsinc.gpd	1 KB	19/06/2008 11:03
🕀 🗌 🕌 Config.Msi	msxpsinc.ppd	1 KB	19/06/2008 13:33
Documents and Setting		731 KB	06/07/2008 20:06
🖶 🗌 🚺 Inetpub	xpssvcs.dll	2,868 KB	06/07/2008 17:36
🖶 🗌 🚺 Program Files			
🖶 🗌 🚂 System Volume Inform	r		
🗄 🗆 🚺 wmpub			

## Note

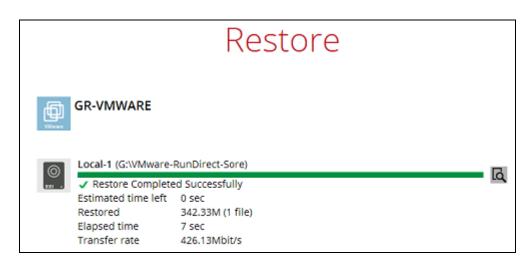
Some system folder(s) / file(s) (e.g. System Volume Information) are only shown in the AhsayOBR File Explorer and will be not restored, therefore, those folder(s) / file(s) will not be shown in the mapped drive shown in step iv below.

ii. Select a path where you wish the files to be restored to, then click **Restore**.

Choose Where The Files To Be Re	estored
Restore files to	
	Browse

iii. The following screen shows when the selected files have been restored to the defined destination.

		Restore	
U.S.	GR-VMWARE		
$\odot$	Local-1 (G:\VMware-	RunDirect-Sore)	
	Copying 72% of "G Estimated time left Restored Elapsed time Transfer rate	<pre>:\restore\Win2003.vmdk (Volume-1)\ISO\CentOS-6.4-x86_64-mini 0 sec 0 (0 file) 4 sec 0 bit/s</pre>	



iv. Open the defined restore path and you should be able to see the files being restored there.

😋 🕞 🗸 🕨 Win2003.vmdk	(Volume-1) • 477c0b3c92104cd3a1226aeb06e7f610	▶ amd64	• 4 <sub>7</sub>	Search amd64
Organize 🔻 Include in librar	y ▼ Share with ▼ Burn New folder			
🔆 Favorites	Name	Date modified	Туре	Size
🧮 Desktop	ilterpipelineprintproc.dll	5/10/2017 12:08 PM	Application extens	64 KB
🐌 Downloads	and msxpsdrv	5/10/2017 12:08 PM	Security Catalog	11 KB
📕 Google Drive	i msxpsdrv	5/10/2017 12:08 PM	Setup Information	3 KB
Recent Places	msxpsinc.gpd	5/10/2017 12:08 PM	GPD File	1 KB
OneDrive	msxpsinc.ppd	5/10/2017 12:08 PM	PPD File	1 KB
	🚳 mxdwdrv.dll	5/10/2017 12:08 PM	Application extens	64 KB
🧊 Libraries	🚳 xpssvcs.dll	5/10/2017 12:09 PM	Application extens	64 KB
Documents				

## **Option 2: Restore Using Windows File Explorer**

This method allows you to browse through the files from the mounted virtual disk through the Windows File Explorer on the machine where you have AhsayOBR installed on.

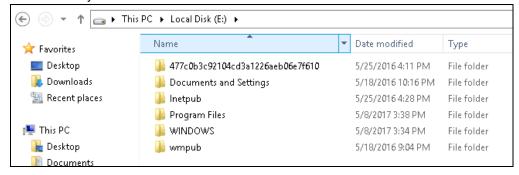
#### Note

Granular restore of Hyper-V backup sets performed using Windows File Explorer :

- 1. Will not show up on the [**Restore Status**] tab in **Live Activities** of the backup service provider AhsayCBS.
- 2. Will not generate restore reports on backup service provider AhsayCBS.
- 3. Will not generate restore log on AhsayOBR.
- i. Click and then you will be prompted to select a driver letter where you wish the mounted image to be mapped on your machine, click **OK** when you have finished selection.

	Hyper-V GR	
?	Please choose a drive letter	
G:	~	Гок

ii. The selected drive letter will be mapped and prompted in the Windows Files Explorer with the files you wish to restore shown.



iii. You can now click on the files to view them directly from here, which will be in readonly mode, or copy them to your local machine.

Name	Date modified	Тур	2	Size
🚳 filterpipelineprintproc.dll	7/6/2008 8:06 PM	· ·	7 7:-	
🍚 msxpsdrv.cat	7/6/2008 8:06 PM		7-Zip	
📄 msxpsdrv.inf	6/19/2008 1:33 PM	Edit with Notepad++		)tepad++
msxpsinc.gpd	6/19/2008 11:03 AM		Send to	•
msxpsinc.ppd	6/19/2008 1:33 PM		Cut	
🚳 mxdwdrv.dll	7/6/2008 8:06 PM		Сору	
🚳 xpssvcs.dll	7/6/2008 5:36 PM		Create short	cut
			Delete	
			Rename	
			Properties	

iv. The mounted drive letter cannot be ejected from the Windows File Explorer, it will only be closed when you exit AhsayOBR.



When you have finished restoring the necessary files, you can go back to AhsayOBR and click on **Cancel**.



Then click on **Stop the granular restore** to unmount the virtual disk(s).

	Local-1 (G:\VMware-RunDirect-Sore) Restore reference iob ID: 2017-07-06-16-56-16
?	Are you sure to stop the granular restore?
	Stop the granular restore Cancel

## Important

Due to the limitation of the virtual file system library, the mounted virtual disks will only be unmounted from your machine when you exit AhsayOBR.

# 10 VMware vCenter/ESXi Guest VM Granular Restore

### Important

Before you proceed with the Granular Restore, make sure the following dependencies are fulfilled on the restore machine. Failure to do so may cause the granular restore to fail.

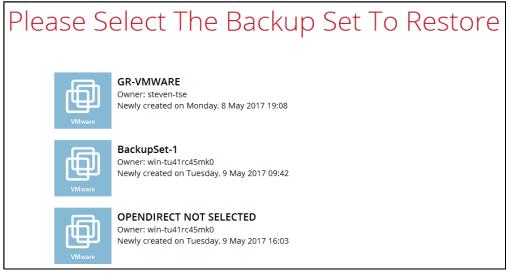
- Microsoft Visual C++ 2015 Redistributable (x86) / (x64) <u>https://www.microsoft.com/en-us/download/details.aspx?id=48145</u>
- Update for Universal C Runtime in Windows https://support.microsoft.com/en-us/help/2999226/update-for-universal-c-runtime-in-windows
- Microsoft Security Advisory 3033929 (for Windows 7 and Windows Server 2008 R2) <u>https://technet.microsoft.com/en-us/library/security/3033929.aspx</u>

## **Requirements and Limitations**

- 1. Granular restore does not support the mounting of virtual disks, if the disk itself is encrypted, for example using Windows Bitlocker or other third party security features.
- Granular restore does not support the restore of folders or files on a virtual disk, if the files/folders are encrypted. For example, if the "Encrypt contents to secure data" is selected in Advanced attributes.
- 3. The mounting of Linux/Unix file systems from virtual disk file is currently not available due to limitations of the file system drivers.
- 4. Granular restore can only be performed on one guest VM at a time.

## **Start Granular Restore**

1. After logging in to your backup account successfully, you should see a screen showing all the available backup sets for restore. Select the backup set that you would like to restore data from.



2. Select the backup destination that contains the VM that you would like to restore.



3. Select the **Restore individual files in virtual machine (Granular Restore)** option.



### Note

The **Mount virtual disks automatically option** is selected by default. If the guest VM contains a multiple virtual disks and you only require the restore of files from a single or certain virtual disk(s), then unselect this option to speed up the virtual disk mounting. Otherwise, granular restore will connect and mount all available virtual disks and this process could take longer.

You may select the Read timeout limit by clicking Show advanced option.

Read timeout li	mit
Default 🗸	]
Default	option
Unlimited	

This selection defines the duration when the granular restore session will be disconnected if there is no response from the mounted virtual machine.

- Default This setting should be suitable for guest VMs located on a local, removable, or network drive. The time out value is 15 seconds.
- Unlimited the connection will not be time out when this is selected. This selection is recommended under the following usage:
- a. Backup destination is a cloud storage.
- b. AhsayCBS over the Internet.
- c. A large guest VM or guest VM with large incremental delta chain.

Note

If in doubt or unsure about the guest VM size or network stability, it is recommended to use **Unlimited**.

Click Next to proceed when you are done with the selection.

4. The following screen will show up when you perform granular restore on this machine for the first time only. Make sure you click **Install** to confirm the start the installation of the drivers on this machine. Clicking **No** will exit the restore process.



5. Select the virtual machine that you would like to perform granular restore for, then click **Next** to proceed.

Your Vir	tual Machine	es To	Be Res
Select what to restore			
Choose from files as of job	♥ 05/16/2017 ♥ Latest ♥		
Folders	Name	Size	Date modified
⊟- ☐ Local-1 ⊡- ☐ 10.1.0.6	🟝 Hard disk 1 🚔 Hard disk 2		
🗄 🗹 🚰 Windows 2003 S	2 👜 Win2003.nvram	9 KB	05/16/2017 14:30
- 🕮 Hard disk 1	Win2003.vmsd	0 KB	05/09/2017 16:18
Hard disk 2	Win2003.vmx	4 KB	05/16/2017 14:30

6. Select a temporary directory for storing restore files, then click Restore to start the granular restore.

Temporary Directory	
Temporary directory for storing restore files	

7. When the virtual disk(s) are in the process of being prepared for mounting on the AhsayOBR machine, you will see the following screen.



Please wait as the process could take some time depending on the size of the virtual disk, network bandwidth, and storage location.

8. If the **Mount virtual disks automatically** option is unselected then click on the disk icon to mount the virtual disk you wish to restore files from.

	Granular Restore
G VVvvv	R-VMWARE
	Local-1 (G:\VMware-RunDirect-Sore) Preparing to mount virtual diskCompleted Elapsed time 2 min 1 sec Fransfer rate 0bit/s
모 Wind	ows 2003 SP2 Ent [10.1.0.208]\Hard disk 1\Win2003.vmdk
모 \Wind	ows 2003 SP2 Ent [10.1.0.208]\Hard disk 2\Win2003_1.vmdk

Otherwise, the virtual disks will be automatically mounted without manual selection.

9. When the virtual disk are mounted, you will see the following screen showing the information of the mounted virtual disk with the available volume shown.

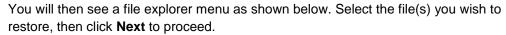
Granular Restore	
GR-VMWARE	
Local-1 (G:\VMware-RunDirect-Sore) Mounting virtual disk "H:\Windows 2003 SP2 Ent [10.1.0.208]\Hard disk 1\Win204 Elapsed time 6 min 18 sec Transfer rate 9.22kbit/s	03.vmdk"
요 \Windows 2003 SP2 Ent [10.1.0.208]\Hard disk 1\Win2003.vmdk Volume-1	<b>^</b> ৎ দ্র
모 \Windows 2003 SP2 Ent [10.1.0.208]\Hard disk 2\Win2003_1.vmdk	

There are two options to restore individual files from here.

## Option 1: Restore Using AhsayOBR File Explorer

This method allows you to use the file explorer in AhsayOBR to browse through the files from the backup up image mounted and select those you wish to restore.

i. Click to browse the files in the mounted backup image. If there are multiple volumes in the guest VM, you can only select one volume to restore indidual files at a time.



Select Yo	ur Files To	Be Re	stored
Folders	Name	Size	Date modified
🖃 👝 Win2003.vmdk (Volume-1)	🗹 🚳 filterpipelineprintproc.dll	144 KB	06/07/2008 20:06
🖶 🔲 퉲 477c0b3c92104cd3a1	🗹 🥑 msxpsdrv.cat	11 KB	06/07/2008 20:06
🗹 퉲 amd64	🗹 🗿 msxpsdrv.inf	3 KB	19/06/2008 13:33
i386	msxpsinc.gpd	1 KB	19/06/2008 11:03
🕀 🗌 📗 Config.Msi	msxpsinc.ppd	1 KB	19/06/2008 13:33
🗄 🗌 📗 Documents and Settin	🗹 🚳 mxdwdrv.dll	731 KB	06/07/2008 20:06
🖶 🗌 🛄 Inetpub	🗹 🚳 xpssvcs.dll	2,868 KB	06/07/2008 17:36
🗄 🗆 🛄 Program Files			
🗄 🗌 📗 System Volume Inform			
🖶 🗆 📗 WINDOWS			
🗄 🗆 🛄 wmpub			

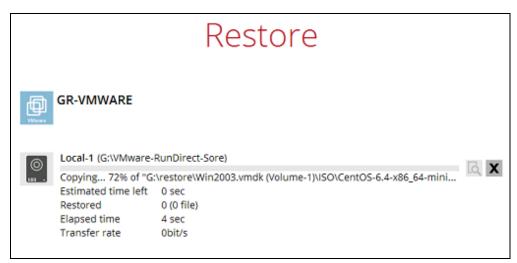
#### Note

Some system folder(s) / file(s) (e.g. System Volume Information) are only shown in the AhsayOBR File Explorer and will be not restored, therefore, those folder(s) / file(s) will not be shown in the mapped drive shown in step iv below.

ii. Select a path where you wish the files to be restored to, then click **Restore**.

Chc	ose Where The Files To Be R	estored
[	Restore files to	Browse

iii. The following screen shows when the selected files have been restored to the defined destination.



		Restore	
	GR-VMWARE		
() m .	Local-1 (G:\VMware- Restore Complete Estimated time left Restored Elapsed time Transfer rate	ed Successfully	۵

iv. Open the defined restore path and you should be able to see the files being restored there.

	lume-1) • 477c0b3c92104cd3a1226aeb06e7f610	▶ amd64	<b>▼</b> <sup>4</sup> ŷ	Search amd64
Organize 👻 Include in library 👻	Share with 🔻 🛛 Burn 🛛 New folder			
☆ Favorites	Name	Date modified	Туре	Size
🧮 Desktop	🚳 filterpipelineprintproc.dll	5/10/2017 12:08 PM	Application extens	64 KB
〕 Downloads	msxpsdrv	5/10/2017 12:08 PM	Security Catalog	11 KB
💫 Google Drive	msxpsdrv	5/10/2017 12:08 PM	Setup Information	3 KB
🕮 Recent Places	msxpsinc.gpd	5/10/2017 12:08 PM	GPD File	1 KB
OneDrive	msxpsinc.ppd	5/10/2017 12:08 PM	PPD File	1 KB
	Mxdwdrv.dll	5/10/2017 12:08 PM	Application extens	64 KB
Elibraries     E     Documents	🚳 xpssvcs.dll	5/10/2017 12:09 PM	Application extens	64 KB

## **Option 2: Restore Using Windows File Explorer**

This method allows you to browse through the files from the mounted virtual disk through the Windows File Explorer on the machine where you have AhsayOBR installed on.

#### Note

Granular restore of Hyper-V backup sets performed using Windows File Explorer :

- 1. Will not show up on the [**Restore Status**] tab in **Live Activities** of the backup service provider AhsayCBS.
- 2. Will not generate restore reports on backup service provider AhsayCBS.
- 3. Will not generate restore log on backup service provider AhsayCBS.
- i. Click and then you will be prompted to select a driver letter where you wish the mounted image to be mapped on your machine, click **OK** when you have finished selection.



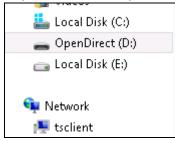
ii. The selected drive letter will be mapped and prompted in the Windows Files Explorer with the files you wish to restore shown.

(€) ▼ ↑ □ ► This PC ► Local Disk (E:) ►					
🔆 Favorites	Name	-	Date modified	Туре	
🛄 Desktop	鷆 477c0b3c92104cd3a1226aeb06e7f610		5/25/2016 4:11 PM	File folder	
〕 Downloads	퉬 Documents and Settings		5/18/2016 10:16 PM	File folder	
🔚 Recent places	퉬 Inetpub		5/25/2016 4:28 PM	File folder	
	퉬 Program Files		5/8/2017 3:38 PM	File folder	
🌉 This PC	퉬 WINDOWS		5/8/2017 3:34 PM	File folder	
隆 Desktop	鷆 wmpub		5/18/2016 9:04 PM	File folder	
Documents					

iii. You can now click on the files to view them directly from here, which will be in readonly mode, or copy them to your local machine.

C → Local Disk (E:) → 477c0b3c92104cd3a1226aeb06e7f610 → amd64 v C				
Name	Date modified	Туре	e	Size
🚳 filterpipelineprintproc.dll	7/6/2008 8:06 PM	· · ·	7.7%	
msxpsdrv.cat	7/6/2008 8:06 PM	7-Zip       Edit with Notepad++       Send to		
msxpsdrv.inf	6/19/2008 1:33 PM			epau++
📄 msxpsinc.gpd	6/19/2008 11:03 AM			•
📄 msxpsinc.ppd	6/19/2008 1:33 PM	1	Cut	
🚳 mxdwdrv.dll	7/6/2008 8:06 PM		Сору	
🚳 xpssvcs.dll	7/6/2008 5:36 PM		Create shortc	ut
		1	Delete	
			Rename	
			Properties	

iv. The mounted drive letter cannot be ejected from the Windows File Explorer, it will only be closed when you exit AhsayOBR.



When you have finished restoring the necessary files, you can go back to AhsayOBR and click on **Cancel**.

Granular Restore
GR-VMWARE
Local-1 (G:WMware-RunDirect-Sore) Mounting virtual disk "H:Windows 2003 SP2 Ent [10.1.0.208]\Hard disk 1\Win2003.vmdk" Elapsed time 3 min 30 sec Transfer rate 9.22kbit/s
Q Windows 2003 SP2 Ent [10.1.0.208]/Hard disk 1/Win2003.vmdk
🗅 Volume-1 🔍 🖳
Q Windows 2003 SP2 Ent [10.1.0.208]/Hard disk 2/Win2003_1.vmdk
Powered by OpenDirect
Cancel Help

Then click on **Stop the granular restore** to unmount the virtual disk(s).

	Eocal-1 (G:\VMware-RunDirect-Sore) Restore reference iob ID: 2017-07-06-16-56-16	
?	Are you sure to stop the granular restore?	
		Stop the granular restore Cancel

## Important

Due to the limitation of the virtual file system library, the mounted virtual disks will only be unmounted from your machine when you exit AhsayOBR.

# **11 Contact Ahsay**

## **Technical Assistance**

To contact Ahsay support representatives for technical assistance, visit the following website: <u>https://www.ahsay.com/jsp/en/contact/kbQuestion.jsp</u>

Also use the Ahsay Knowledge Base for resource such as Hardware Compatibility List, Software Compatibility List, and other product information: http://wiki.ahsay.com/doku.php?id=public:home

## **Documentation**

Documentations for all Ahsay products are available at: <u>https://www.ahsay.com/jsp/en/home/index.jsp?pageContentKey=ahsay\_downloads\_documentation\_guides</u>

You can send us suggestions for improvements or report on issues in the documentation, by contacting us at: <a href="https://www.ahsay.com/jsp/en/contact/kbQuestion.jsp">https://www.ahsay.com/jsp/en/contact/kbQuestion.jsp</a>

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