Ahsay Backup

Ahsay Online Backup Restorer v7

User Guide for Windows

Ahsay Systems Corporation Limited

3 November 2017

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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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1 Overview

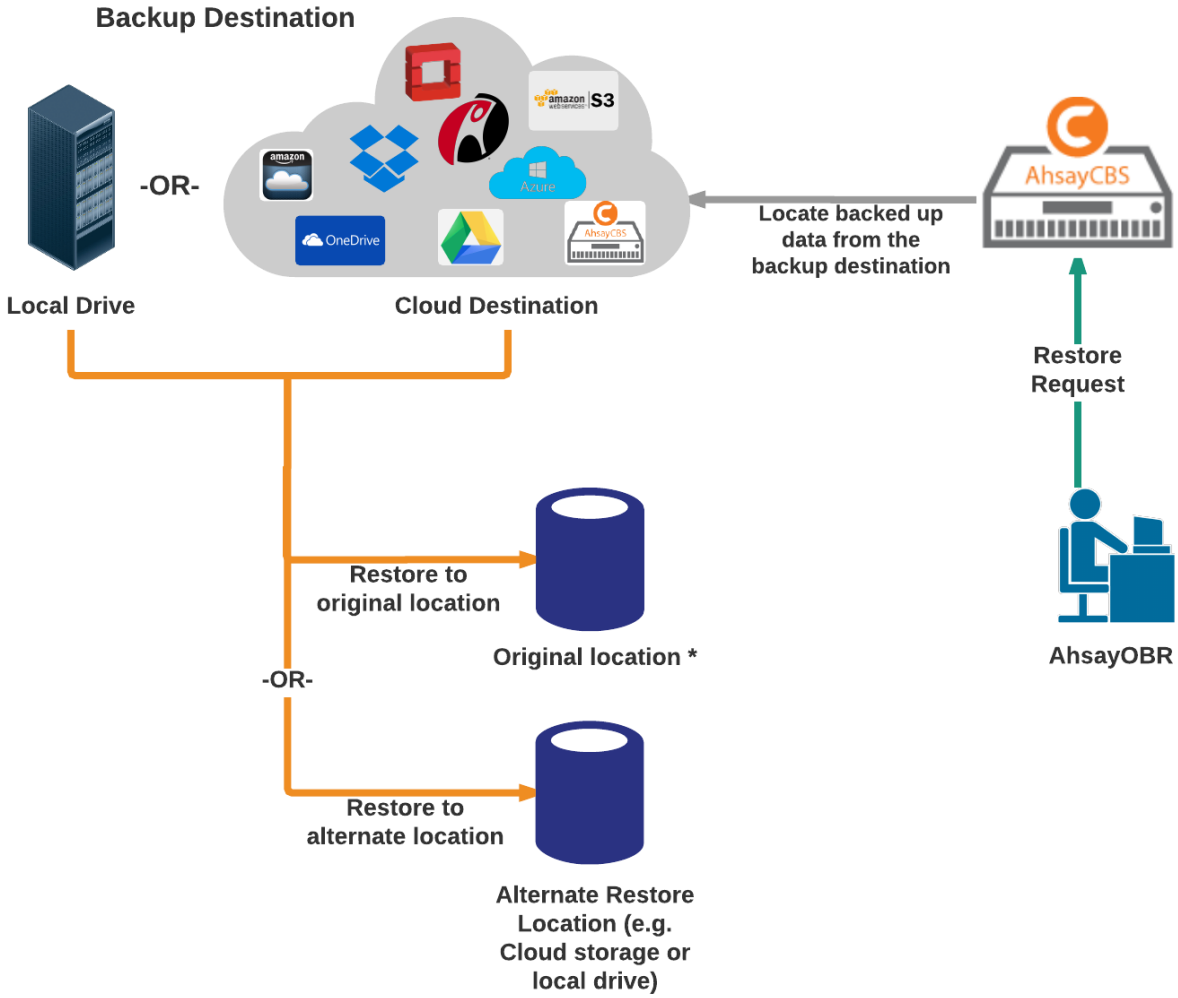
What is this software?

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

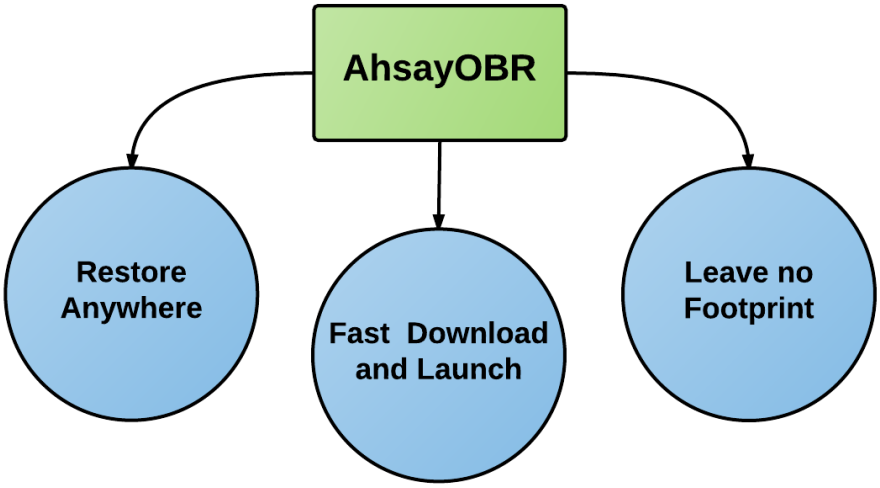
Below is the system architecture diagram illustrating the major elements involved in the process when you are using the AhsayOBR to restore data.

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?



Restore Anywhere

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**	◉ No installation required ◉ Faster to launch	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 **NOT** 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 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.	To ensure optimal restore performance, the backup of the files in an OpenDirect file backup set will **NOT** be encrypted and compressed, therefore, you may have to take these factors in consideration when selecting this restore option.
	Client Backup Agent		
Granular Restore	**AhsayOBR**	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.	To make ensure optimal restore performance, the backup of the guest VM will **NOT** be encrypted and compressed, therefore, you may have to take this factor in consideration when using this restore method.
	Client Backup Agent		

Cross platform usage	**AhsayOBR**	Although both tools are available for use on various platforms, e.g. Windows, Mac, Linux, etc., cross platform restore is **NOT** recommended. For example, files backed up on Windows are not recommended to restore on a Mac/Linux machine.	
	Client Backup Agent		
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?

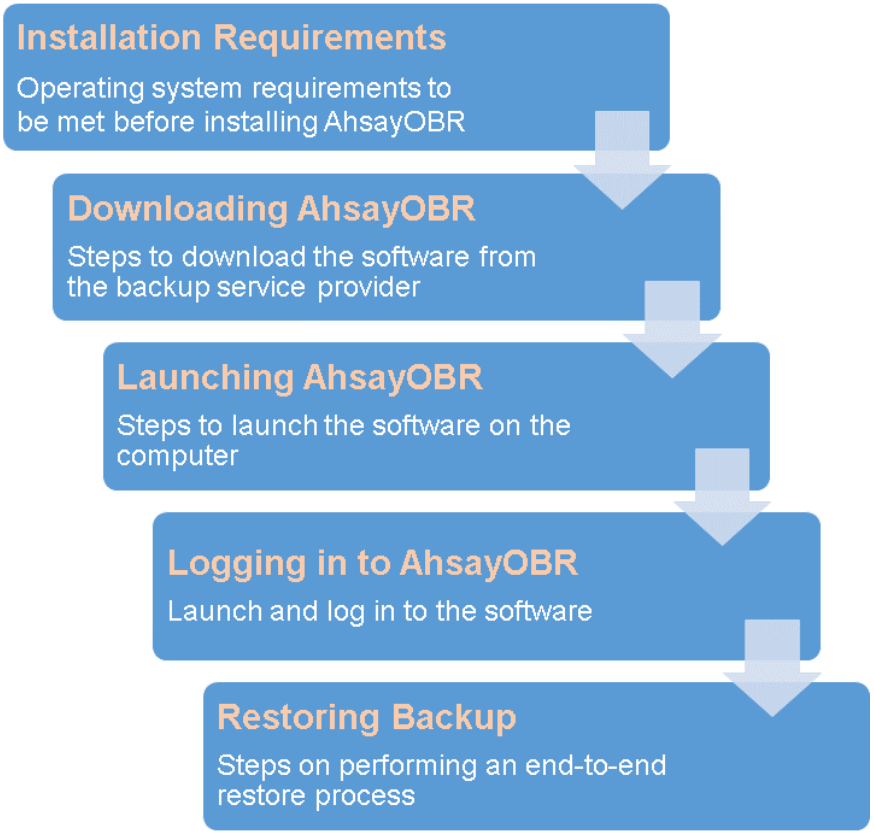
After reading through this documentation, you can expect to have sufficient knowledge to download and launch the AhsayOBR software, as well as to perform a restore.

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?

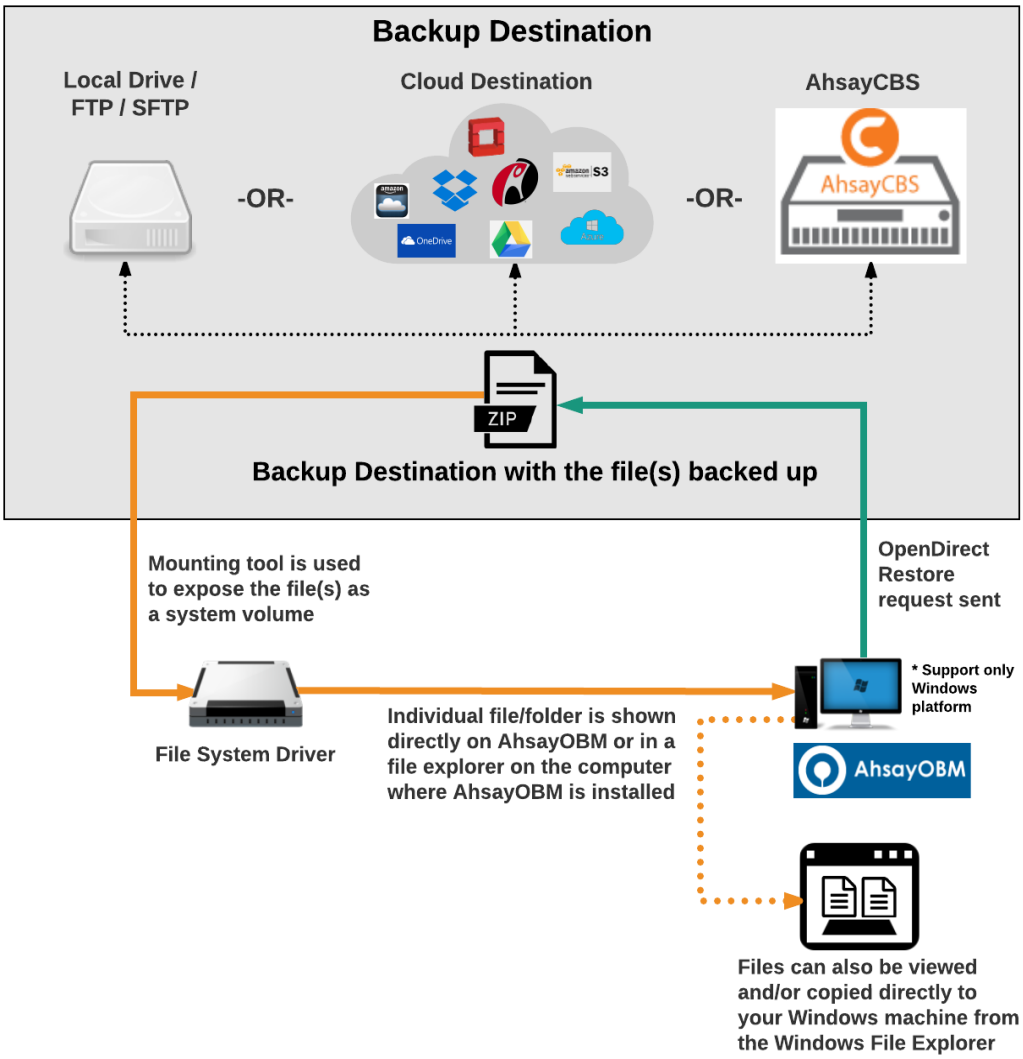
OpenDirect restore is an additional restore options for restoring files from a Windows File backup set available from AhsayOBR v7.13.0.0 or above. The OpenDirect restore method makes use of the granular restore technology to make selective restore of individual files from a large compressed or image 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

Comparison between OpenDirect File Restore and Normal File Restore

OpenDirect Restore	
Introduction	
OpenDirect restore allows you to quickly access individual files from a large compressed or image file by viewing and/or copying files from the file explorer on the Windows you are performing the restore, without having 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 **NOT** be encrypted and compressed, therefore, you may have to take these factors in consideration when selecting this restore option.

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. www.speedtest.net) 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
  https://support.microsoft.com/en-us/help/2999226/update-for-universal-c-runtime-in-windows
- **For Windows 7 and Windows Server 2008 R2 only**

  Microsoft Security Advisory 3033929
  https://technet.microsoft.com/en-us/library/security/3033929.aspx

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.

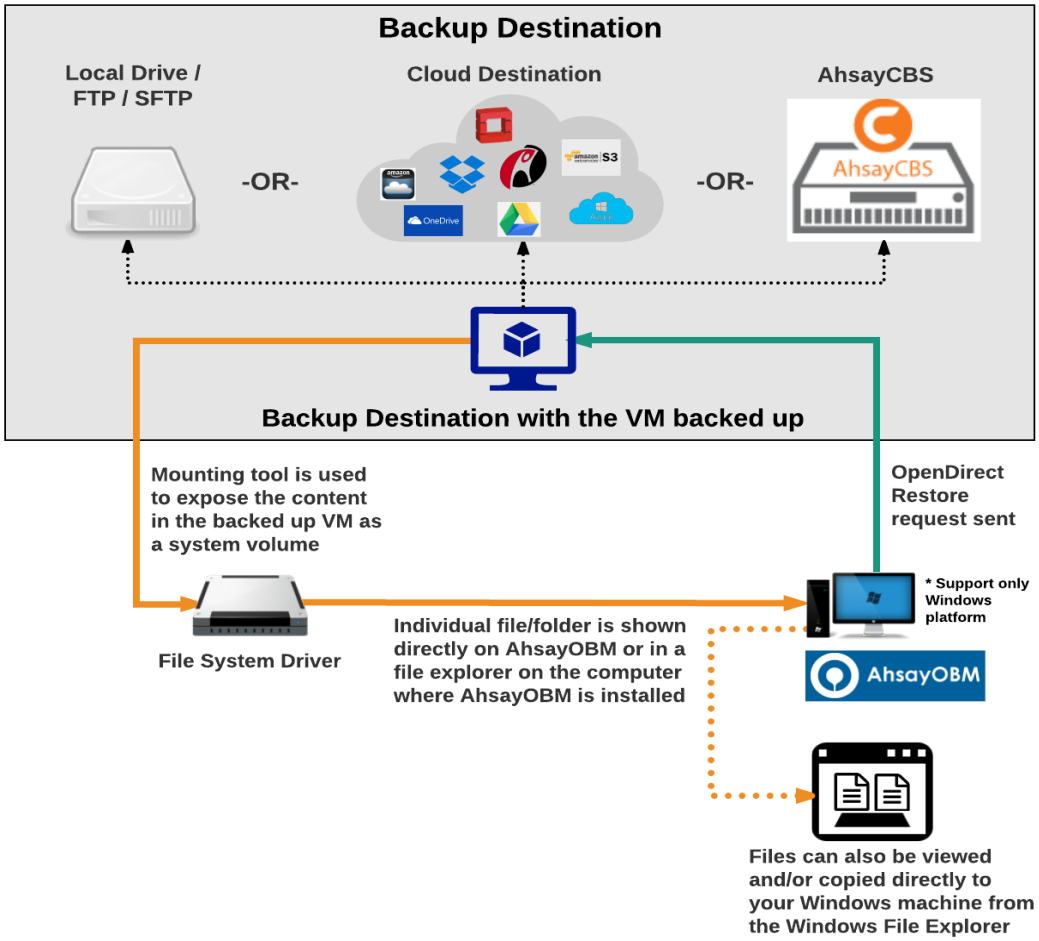
Granular restore is one of the available restore options for VMware ESXi/vCenter backup sets from AhsayOBR v7.13.0.0 or above. AhsayOBR makes use of granular restore technology to enable a file level restore from a virtual disk file (VDDK) of guest VM backup possible. It is particularly useful if you 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.
Only One Backup Set Required	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. ➢ **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 **NOT** 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.

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.

AhsayOBR must be installed on the following Windows Operating Systems:

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

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. www.speedtest.net) 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)
  https://www.microsoft.com/en-us/download/details.aspx?id=48145
- Update for Universal C Runtime in Windows
  https://support.microsoft.com/en-us/help/2999226/update-for-universal-c-runtime-in-windows
- **For Windows 7 and Windows Server 2008 R2 only**

  Microsoft Security Advisory 3033929
  https://technet.microsoft.com/en-us/library/security/3033929.aspx

Permissions

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

6 Download and Launch AhsayOBR

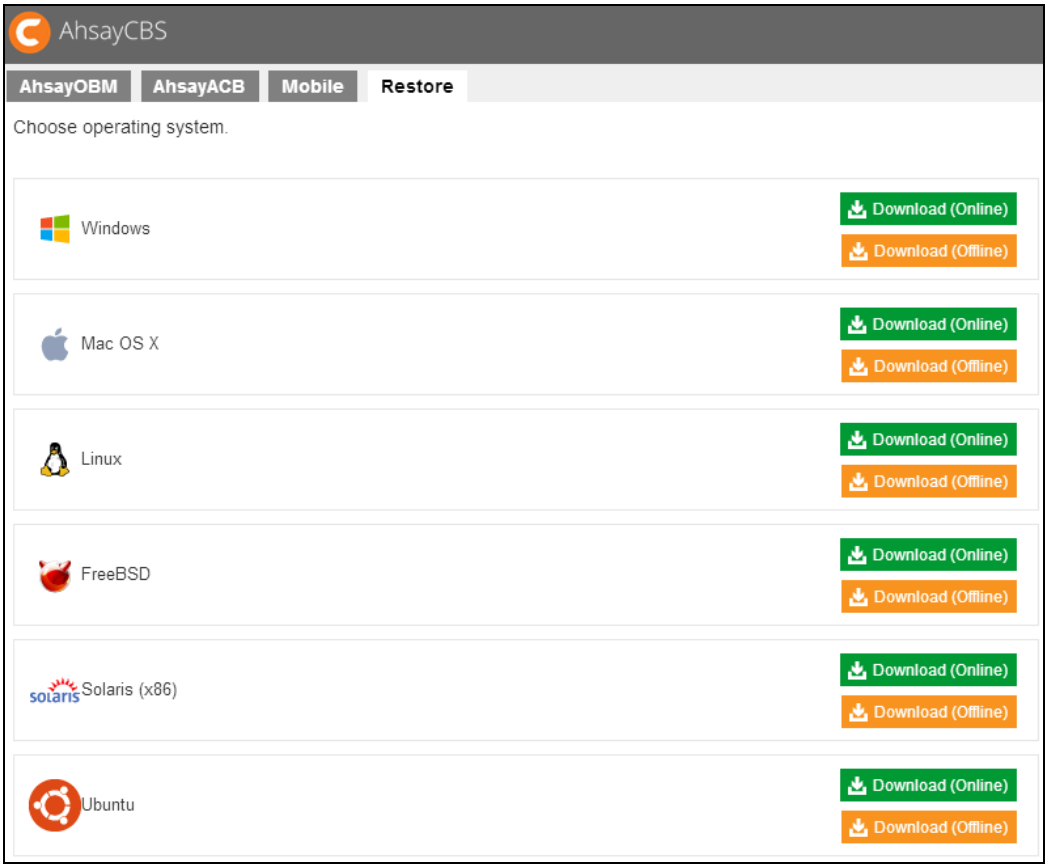
From version 7.15.0.0 onwards, there are two installation modes of AhsayOBR, online installation and offline installation. Below is the table of comparison between online installation and offline installation.

	Online Installation	Offline Installation
Version Supported	➢ From v7.3.2.0 onwards.	➢ From v7.15.0.0 onwards.
Installation Time	➢ 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. ➢ Online installer size is 9KB to 3.5MB depending on operating system as it contains only the initial installation package files.	➢ 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 140MB depending on operating system as it contains all the necessary binary and component files.
Deployments	➢ 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.	➢ 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 not be the latest version.

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.

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



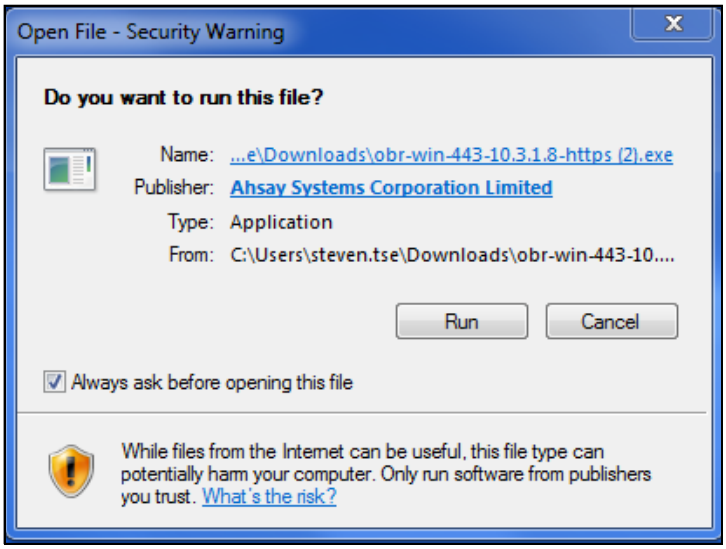
3. In the **Windows** section, click on the **Download (Online)** or **Download (Offline)** button to download the AhsayOBR installation package.

Launch AhsayOBR

Option 1: Online Installation Option

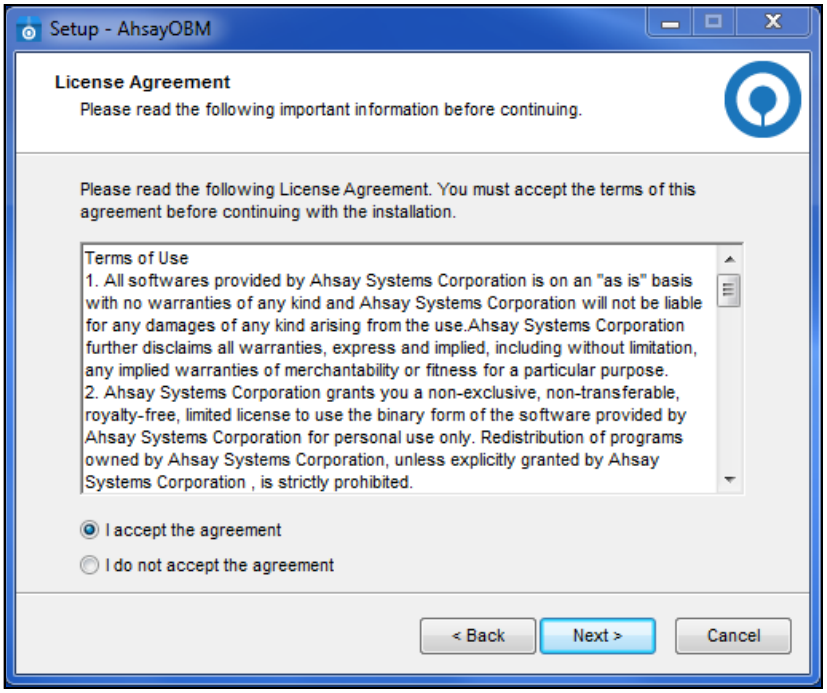
1. Launch the file you have downloaded from the previous above.

2. You may see this security warning prompt. Click **Run** to proceed.

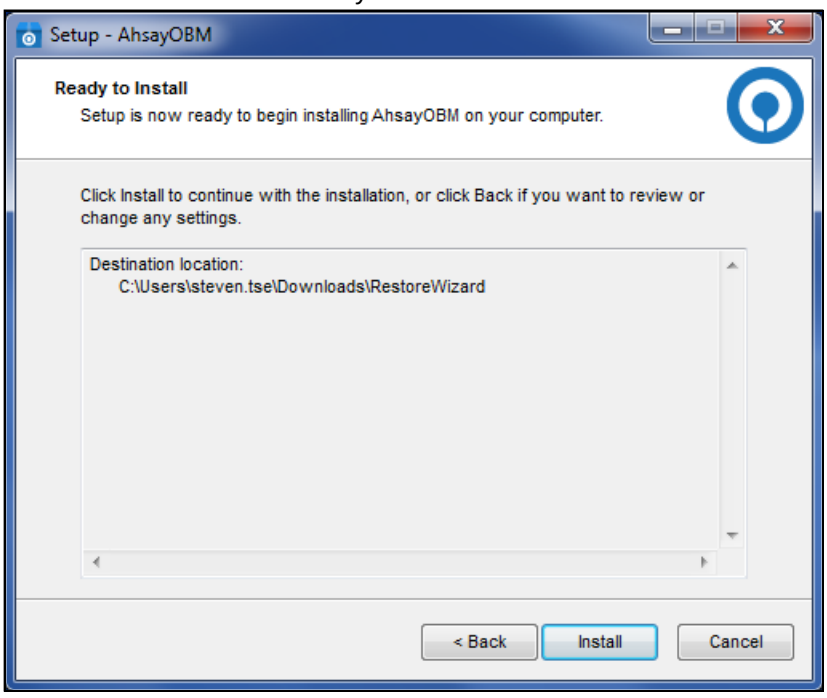


3. Click **Next** to proceed.

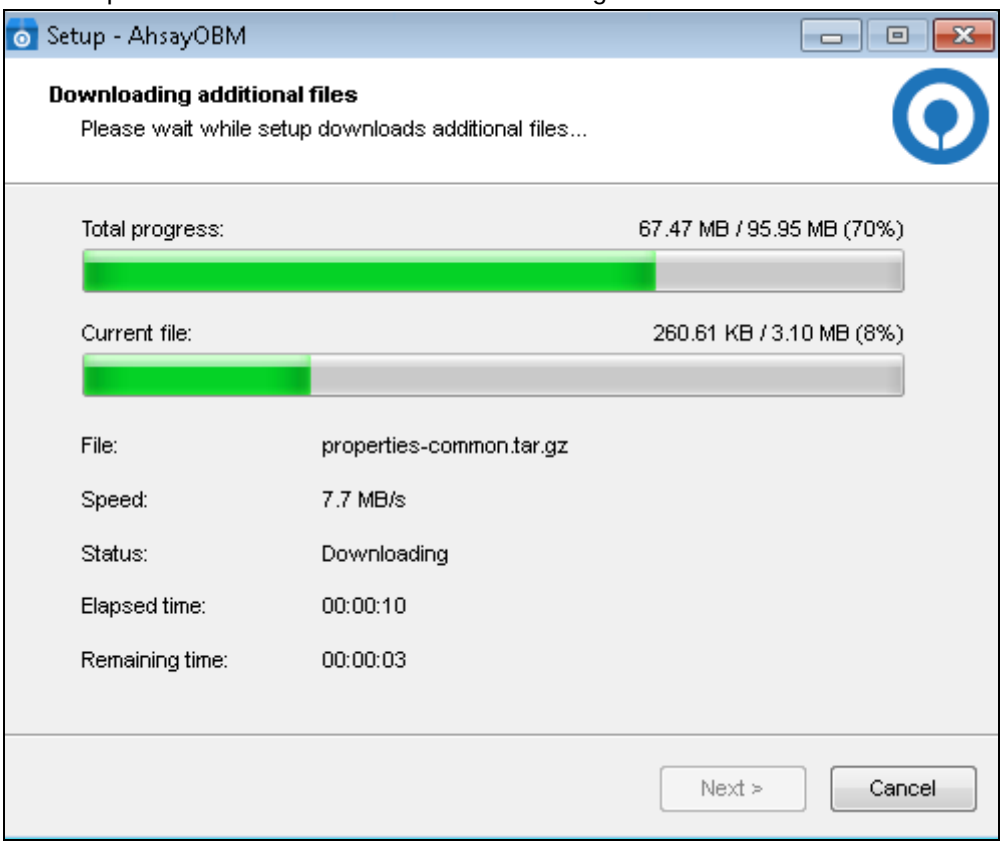
4. Select **I accept the agreement** after reading the license agreement. Then, click **Next** to proceed.



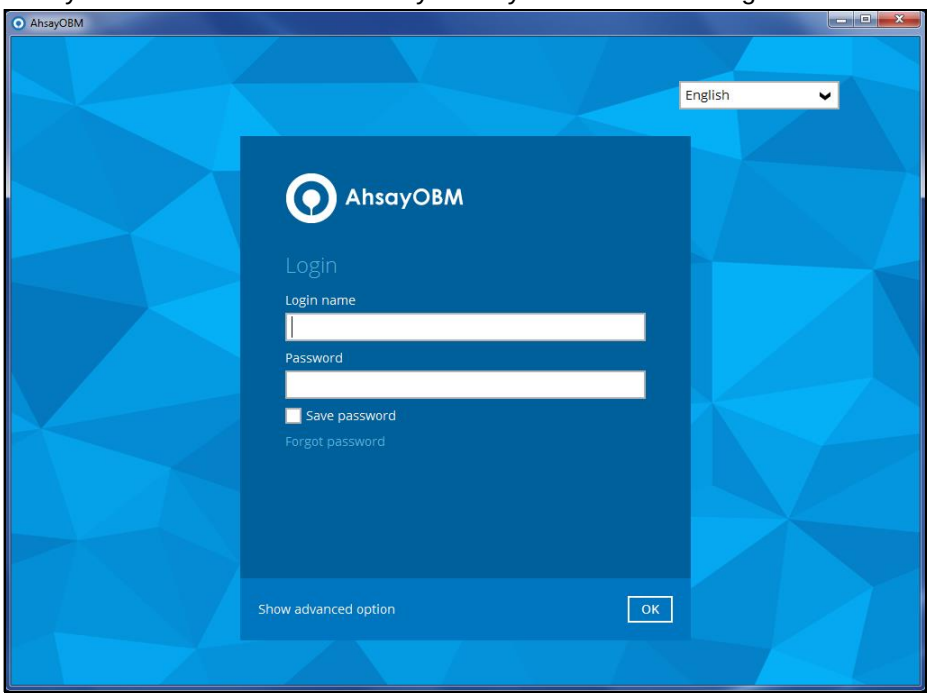
5. The installation will start after you click **Install**.



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

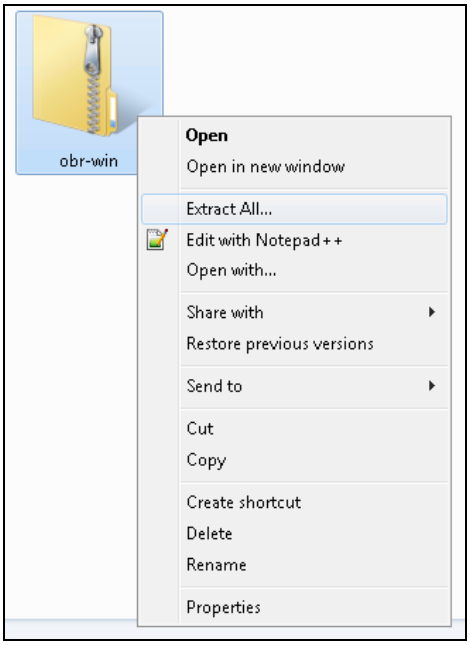


7. AhsayOBR is launched successfully when you see the following screen.

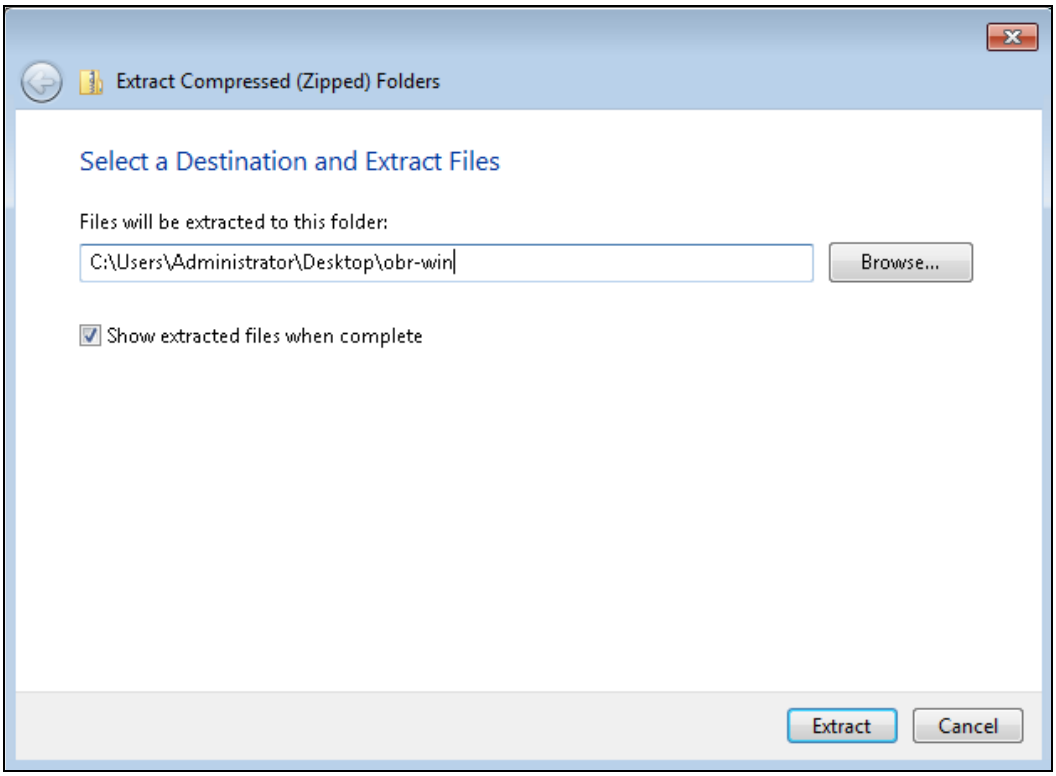


Option 2: Offline Installation Option

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

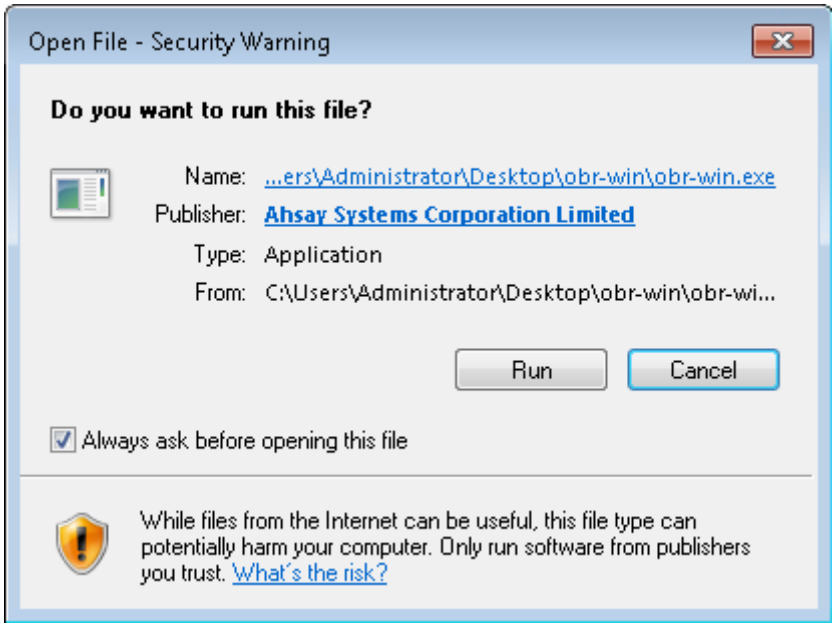


2. Select a destination and extract files.

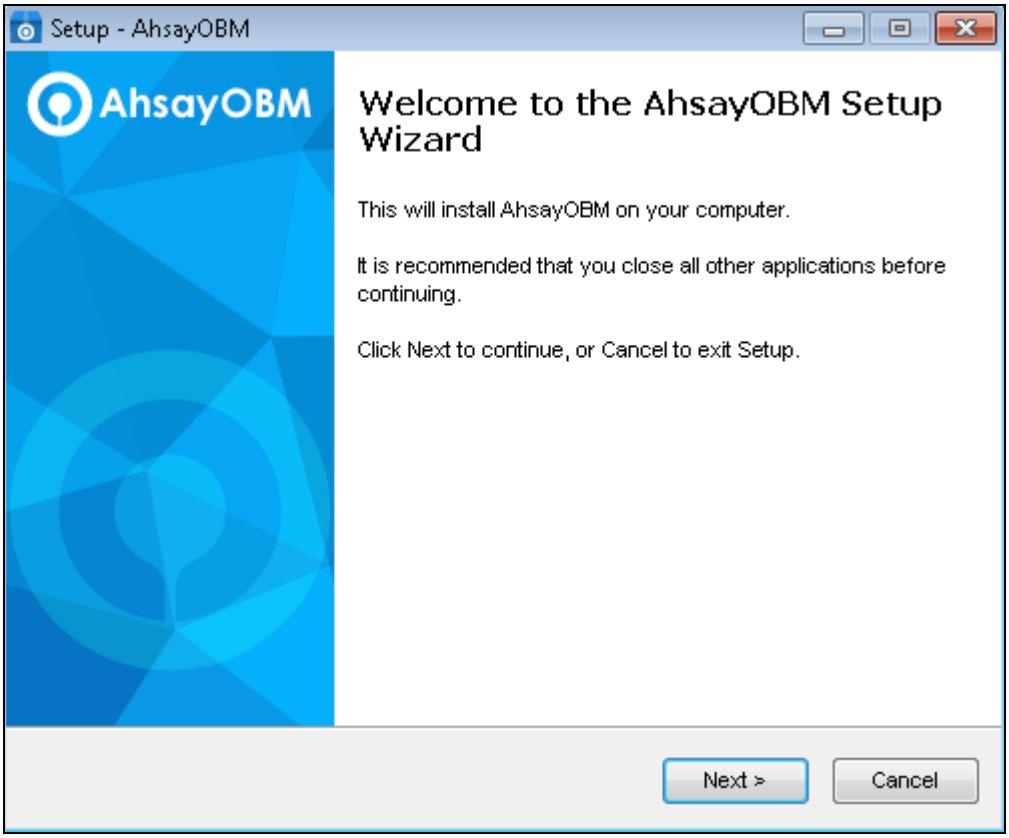


3. Launch the installer you have extracted from the zip format file.

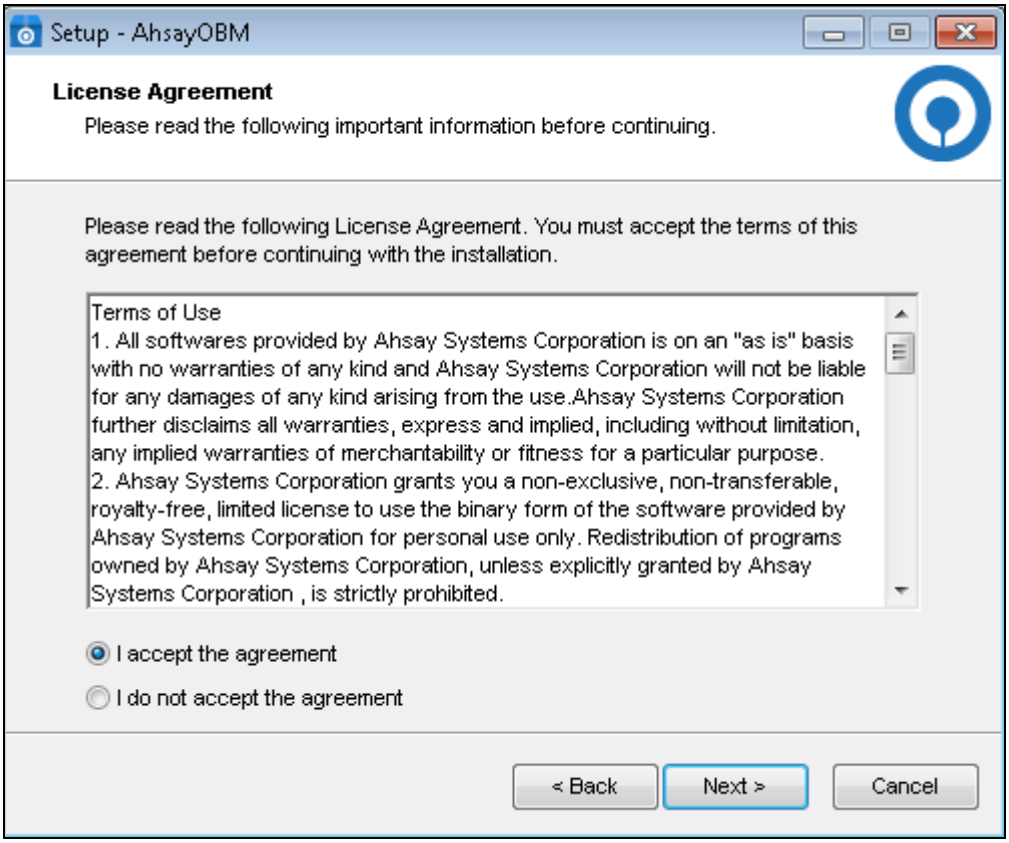
4. Click **Run** when you see this message.



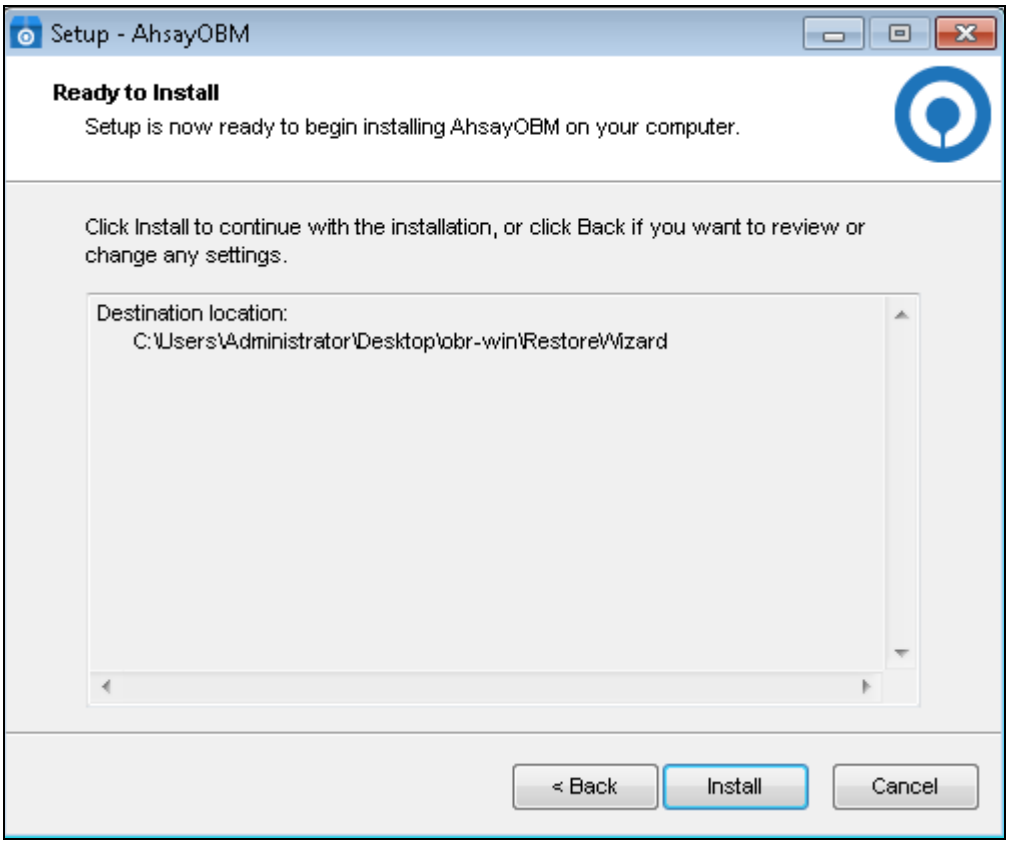
5. Click **Next** to proceed.



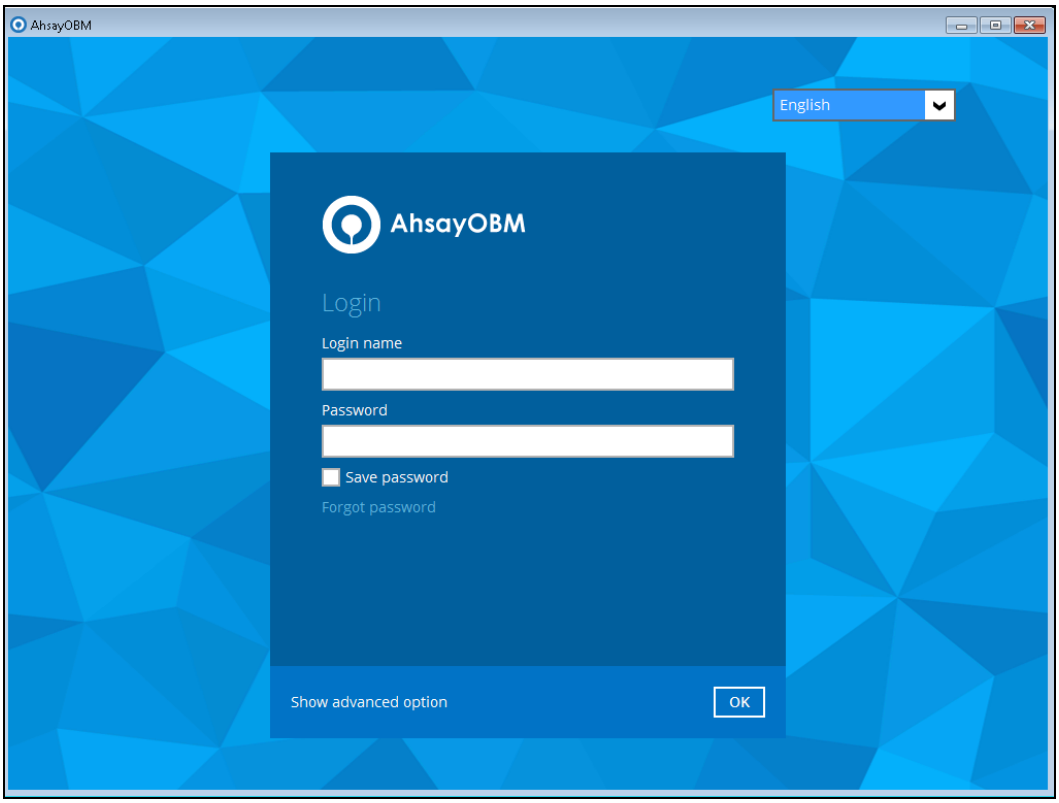
6. Select **I accept the agreement** after reading the license agreement. Then, click **Next** to proceed.



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



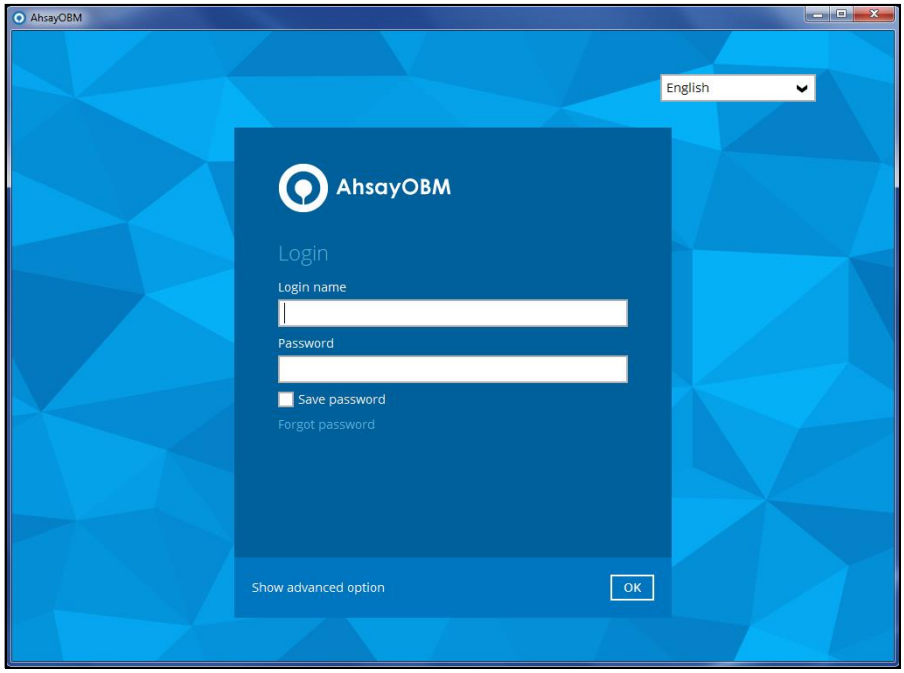
8. AhsayOBR is launched successfully when you see the following screen.



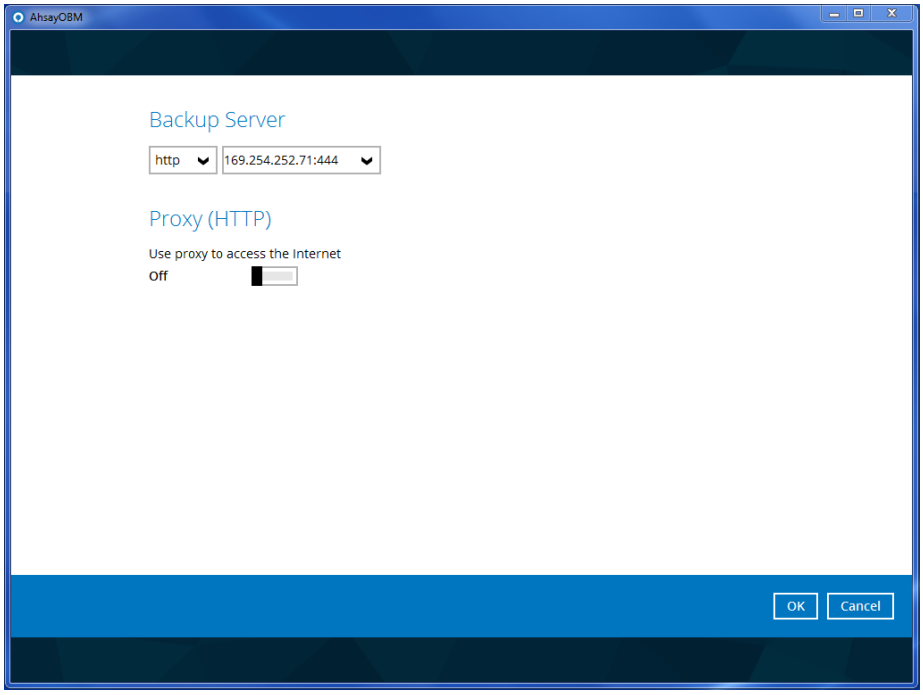
7 Start AhsayOBR

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

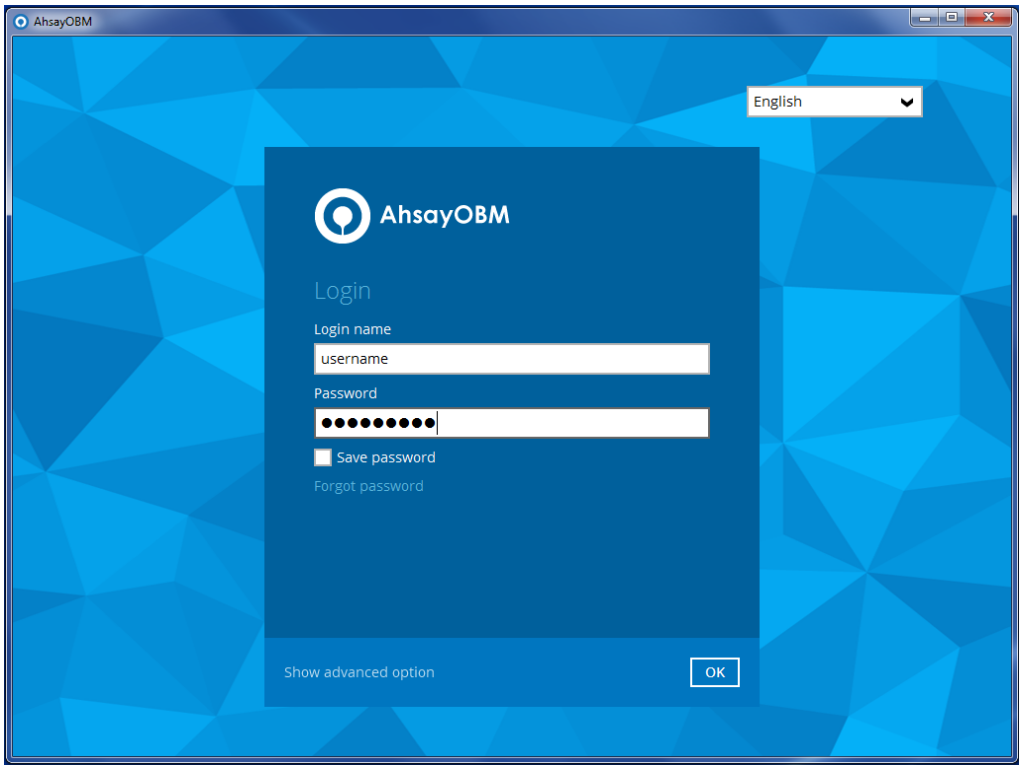
1. The AhsayOBR launches automatically and you will see the following screen. Click **Show advanced option** to enter the network settings.



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.



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.

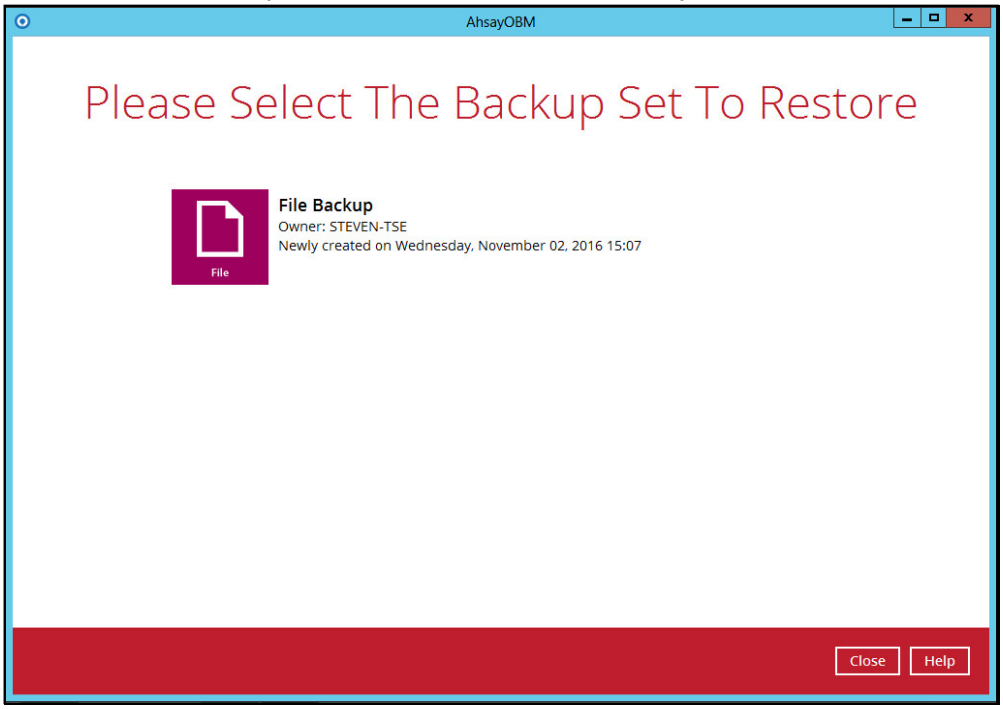
Normal Restore

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.

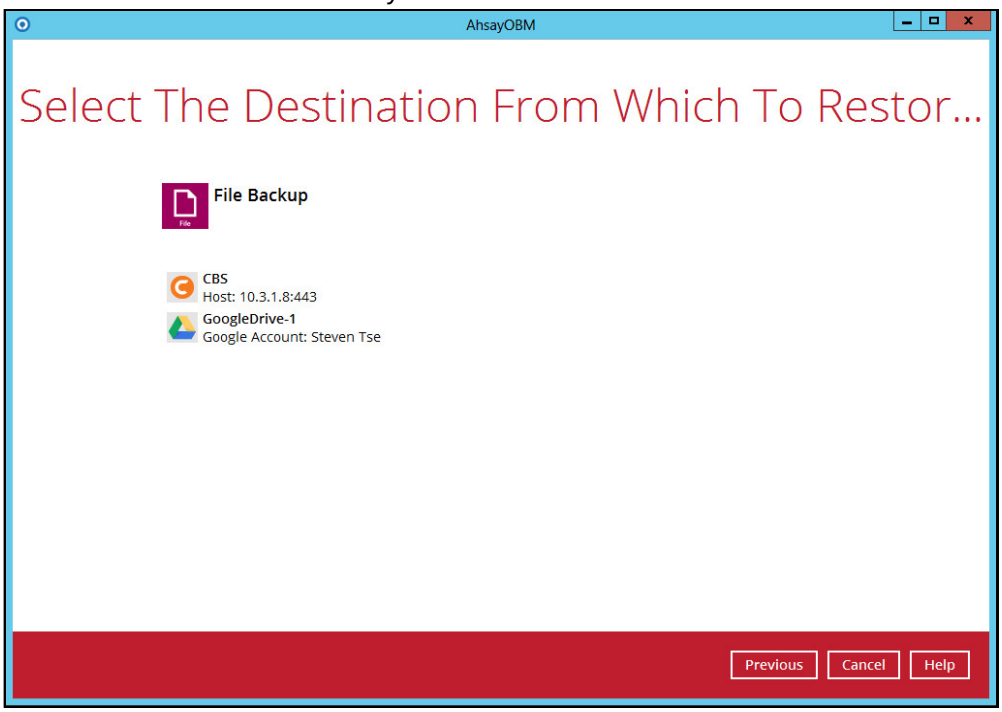
Important

- 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.

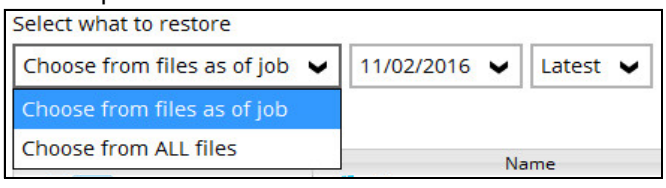


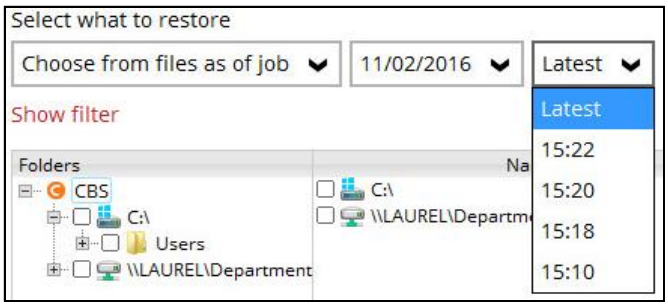
3. Select **Normal restore**.

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.

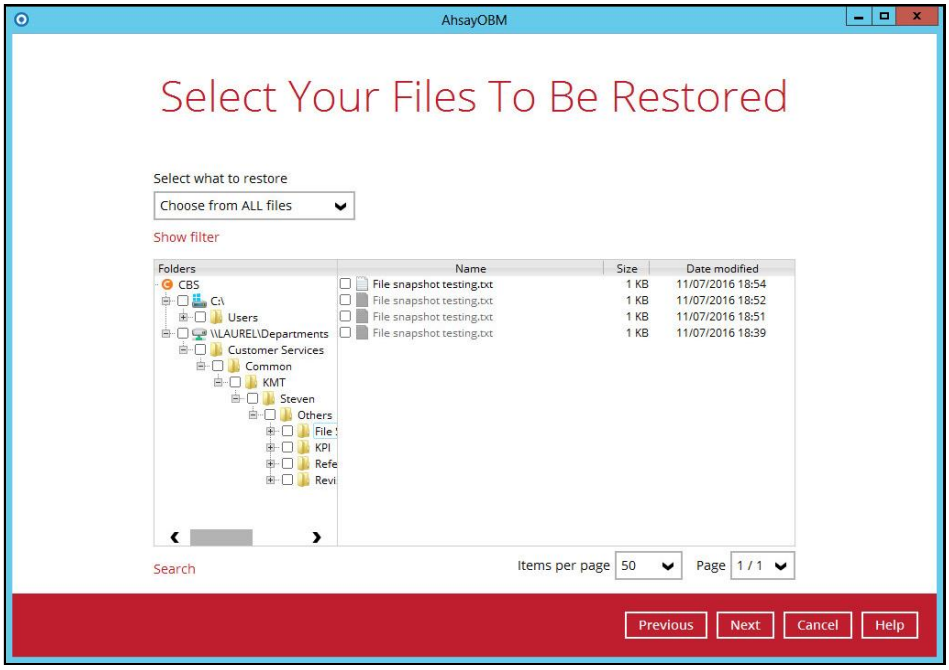
There are two options from the **Select what to restore** drop-down menu:

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

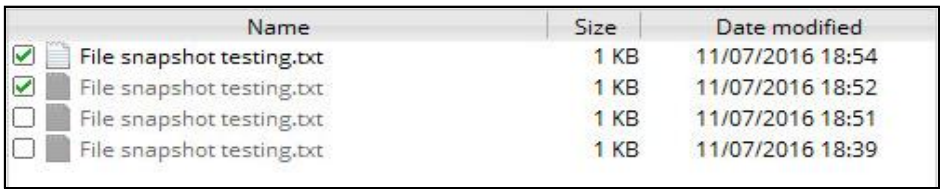




- **Choose from ALL files** – this option allows you to restore all the available backup versions for this backup set. Among all the available backup versions, you can even select only some of the backup versions of a file to restore.

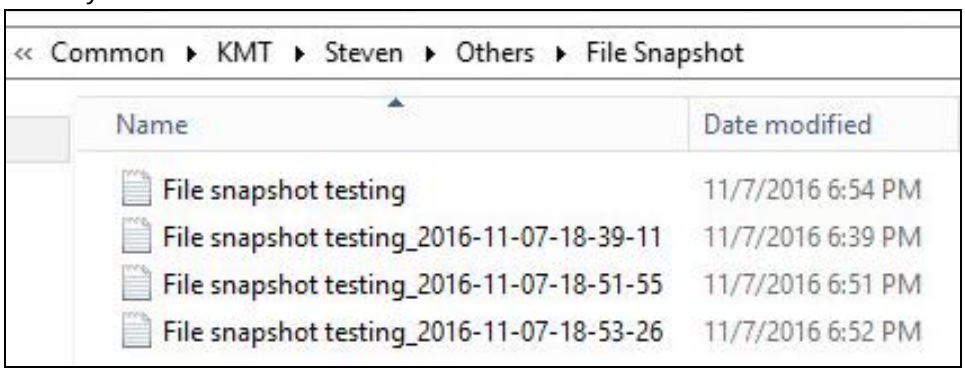


Below is an example showing all the available backup versions of the file **File snapshot testing.txt**. The latest version is shown in solid black color and all the previous versions are shown in grey color. You can identify the file version from the **Date modified** column.



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

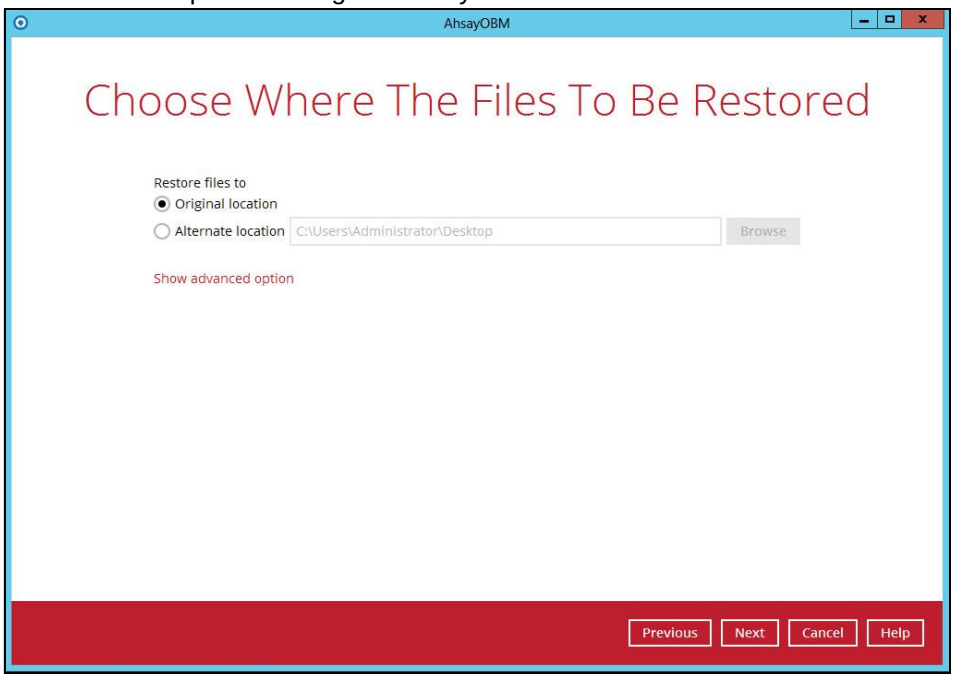
for easy identification.



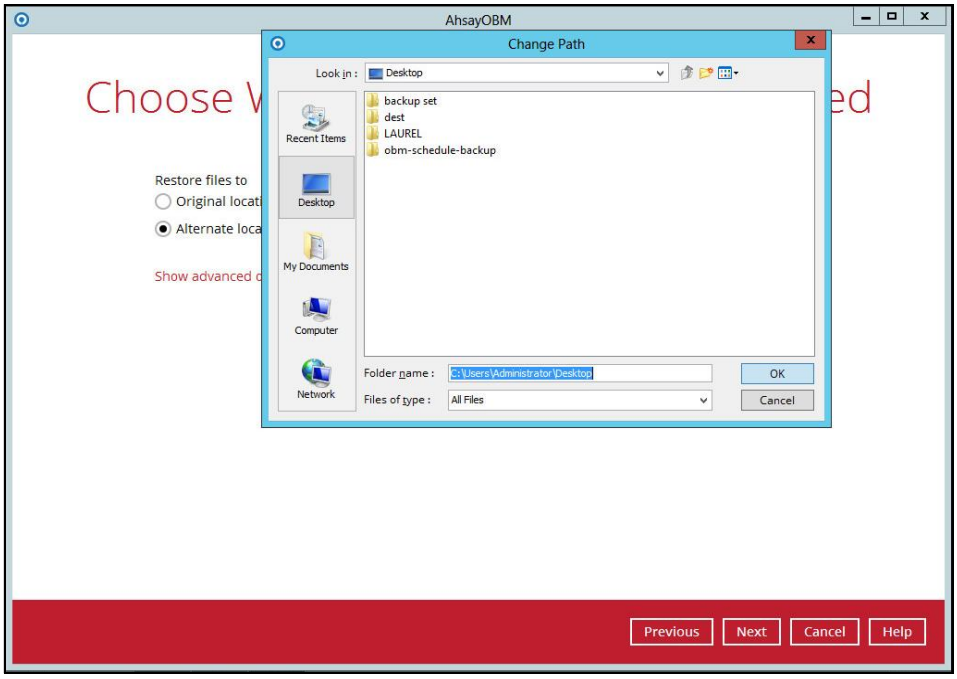
5. Click **Next** to proceed when you are done with the selections.

6. Select to restore the files to their **Original location**, or to an **Alternate location**, then click **Next** to proceed.

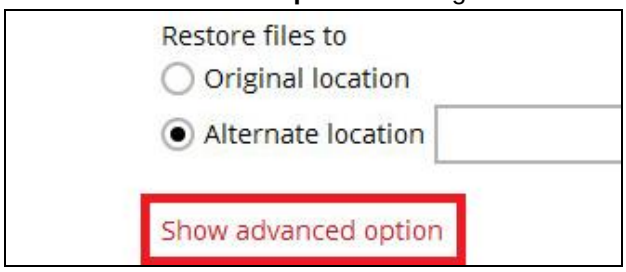
   - **Original location** – the backed up data will be restored to the computer running the AhsayOBR under the same directory path as on the machine storing the backup source. For example, if the backup source files are stored under **C:/User/Downloads** folder, the data will be restored to **C:/User/Downloads**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

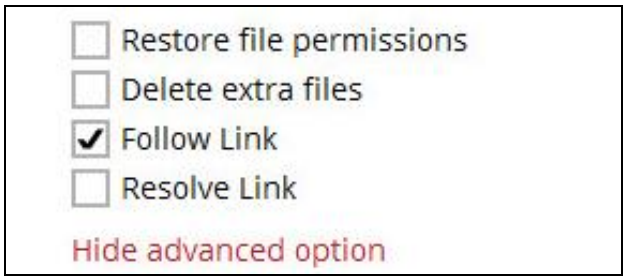


- **Alternate location** – you can choose to restore the data to a location of your choice on the computer where AhsayOBR is running.



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.

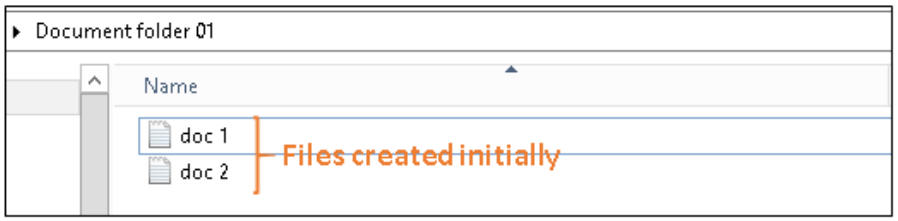
- **Delete extra files**

  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.

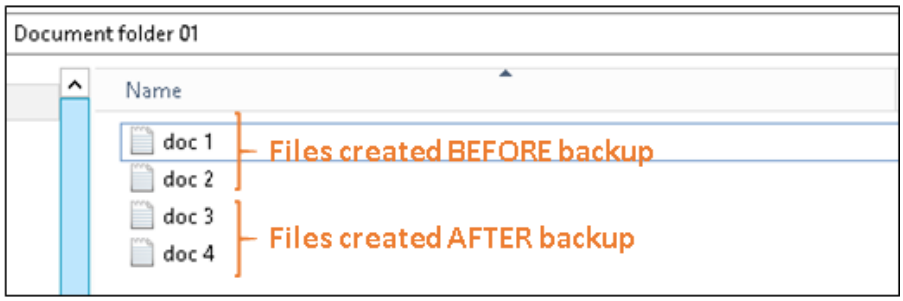
Example:

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



ii) A backup is performed for folder **Document folder 01**.

iii) Two new files are created, namely doc 3 & doc 4.



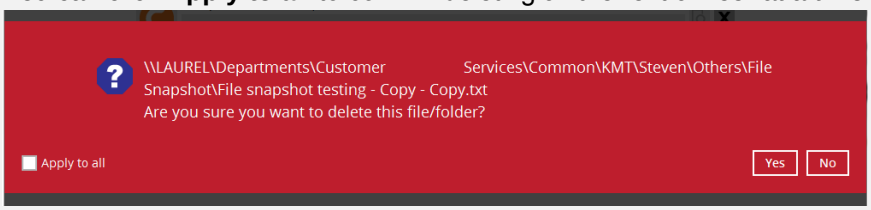
iv) A restore is performed for the **Document folder 01**, with **Delete extra files** option enabled.

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.

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.

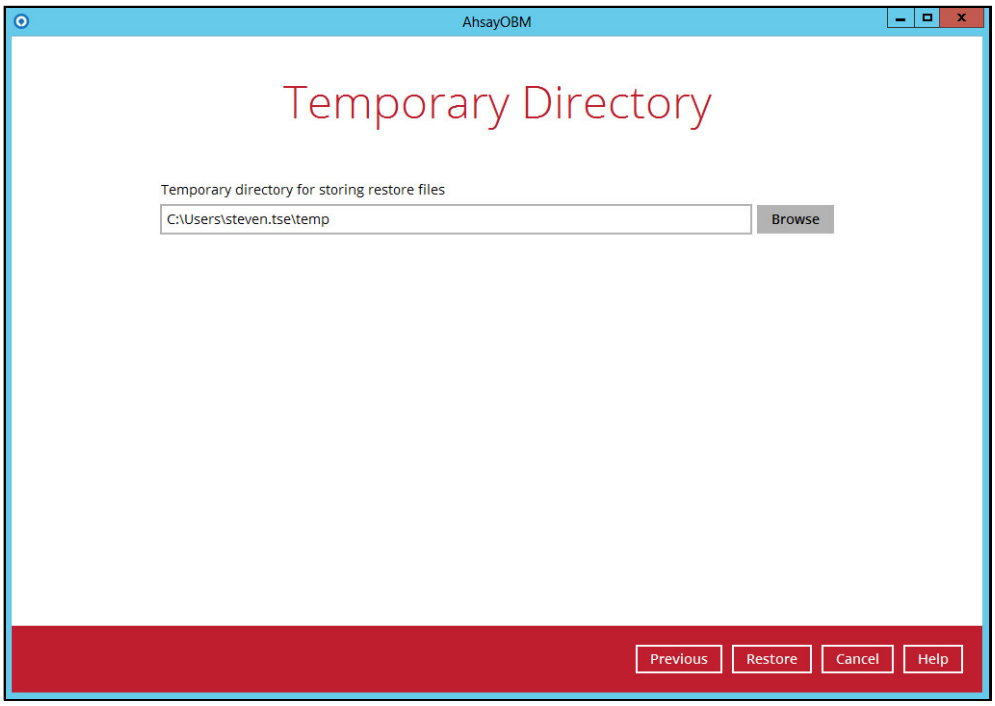
Resolve Link	Behavior
Enabled	Symbolic link or junction point is restored to the alternate location specified, with its target directories and files also restored to the same location in their relative path. Target of the link or junction is updated to the new relative path. In other word, the link or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

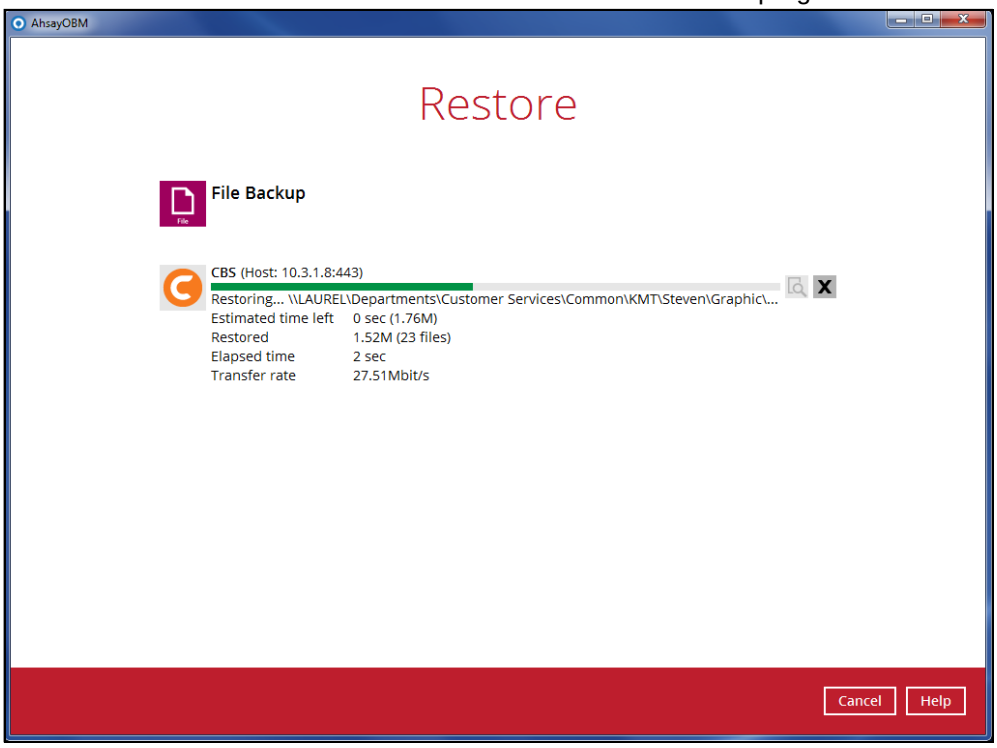
9. Select the temporary directory for storing temporary files, such as delta files when they are being merged.

   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.

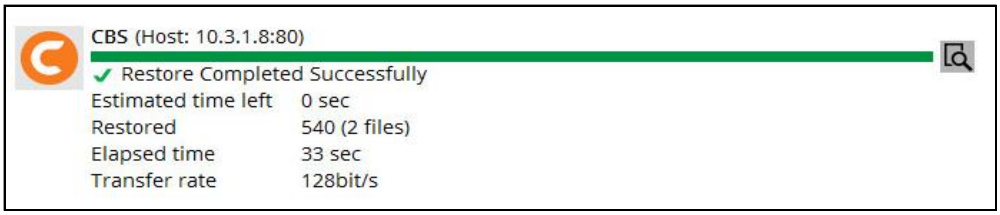


10. Click **Restore** to start the restore.

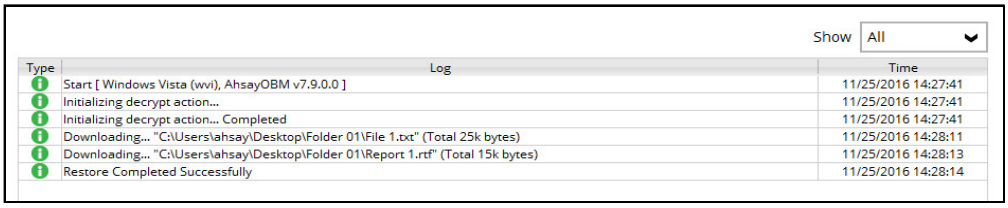
11. You will see a screen like the one shown below with the restore progress bar.



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



You can click the **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.



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 instrcutons in Launch AhsayOBR.

OpenDirect Restore

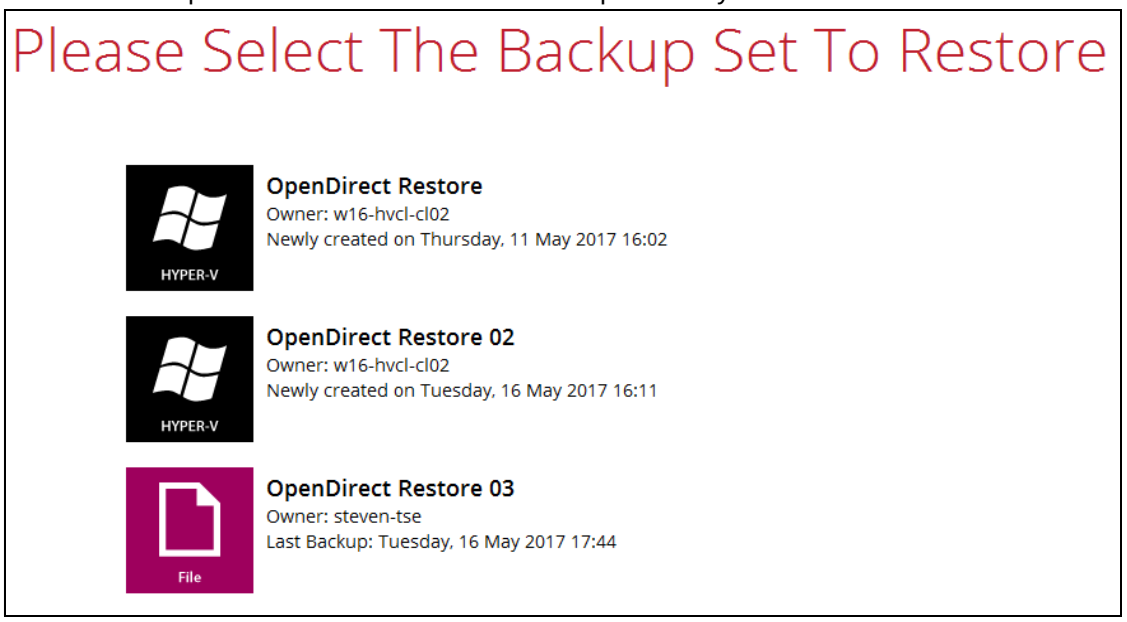
This restore method applies to backup sets created with OpenDirect restore enabled only.

Important

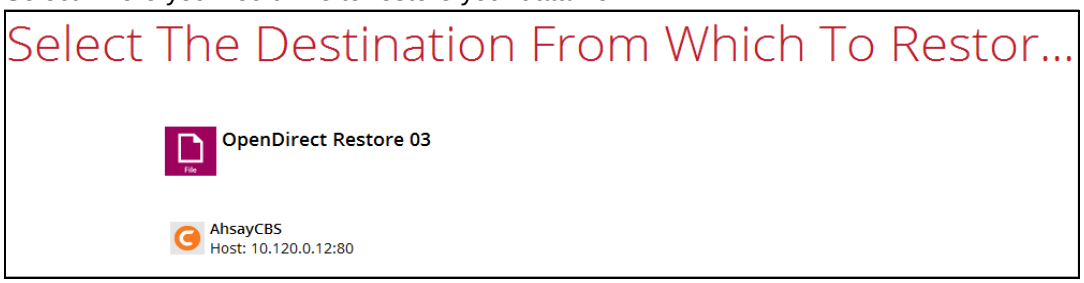
Before you proceed with the OpenDirect Restore, make sure the following dependencies are fulfilled. Failure to do so may cause the restore to fail.

- 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
  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)
  https://technet.microsoft.com/en-us/library/security/3033929.aspx

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.

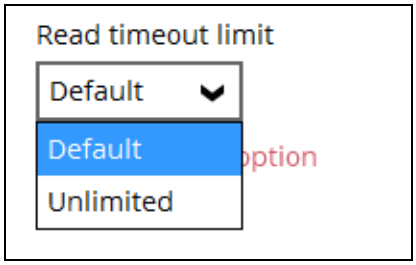


2. Select where you would like to restore your data from.



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:

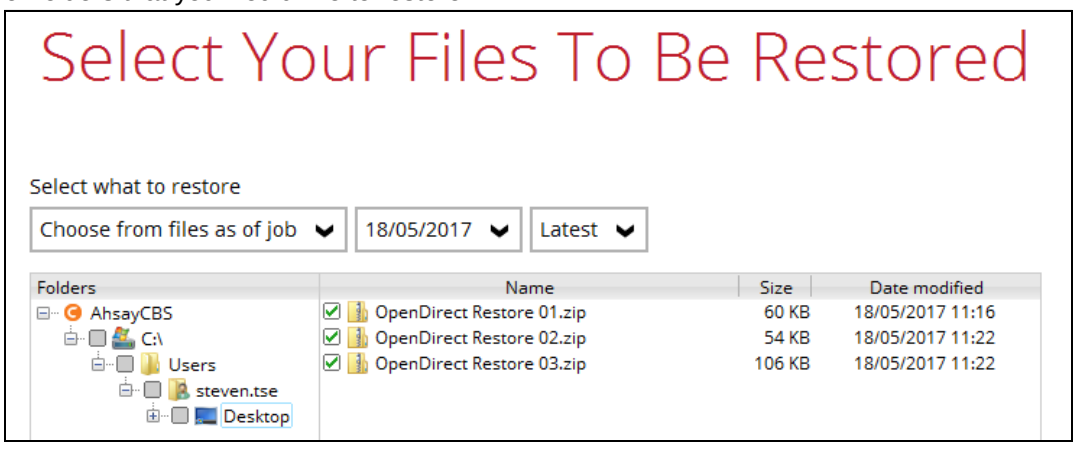
  - Backup destination is a cloud stroage.
  - AhsayCBS over the Internet.
  - A large compressed or image file with large incremental delta chain.

Note

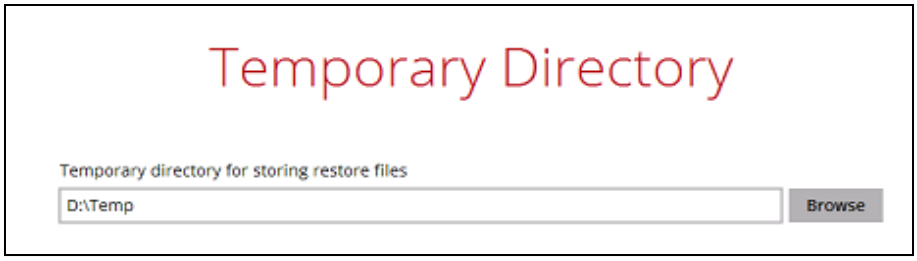
If in doubt or unsure about the compressed or image file size or network stability, it is recommended to use **Unlimited**.

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.

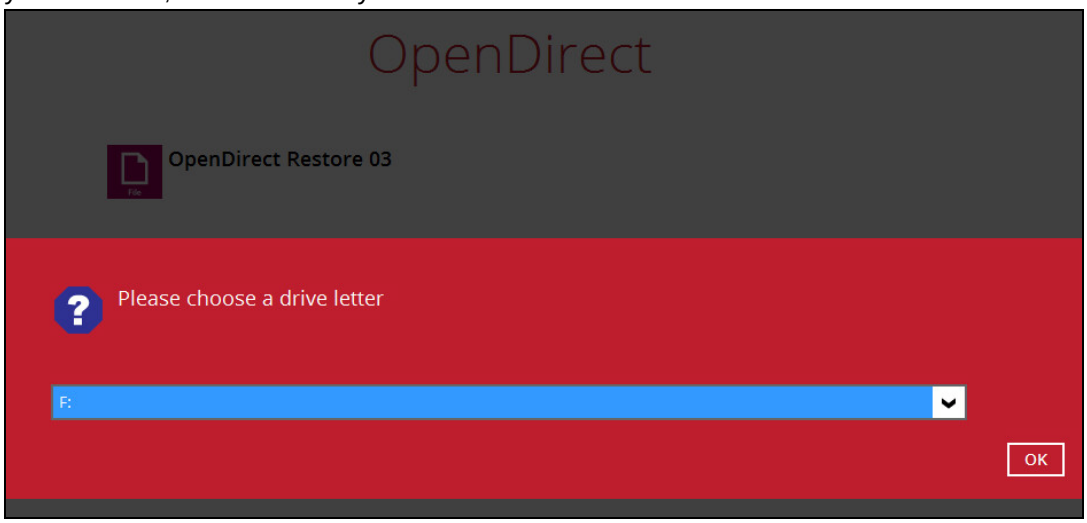


5. Select a temporary directory for storing restore files, then click Restore to start the OpenDirect restore.



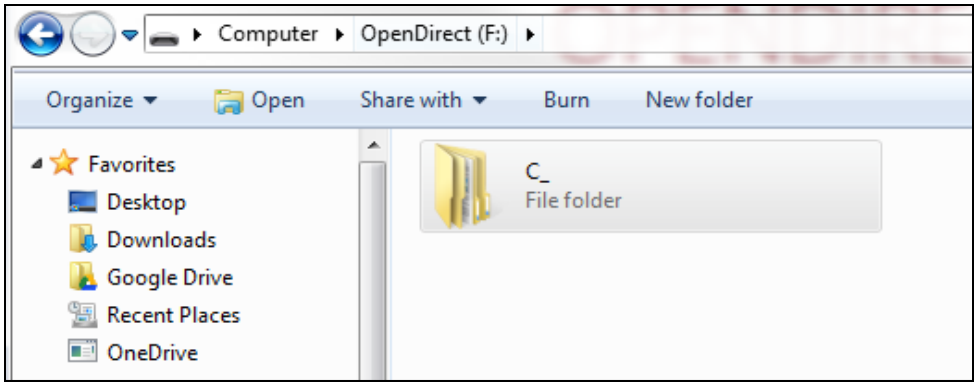
6. Click **Restore** to start the restore. The status will be shown.

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.

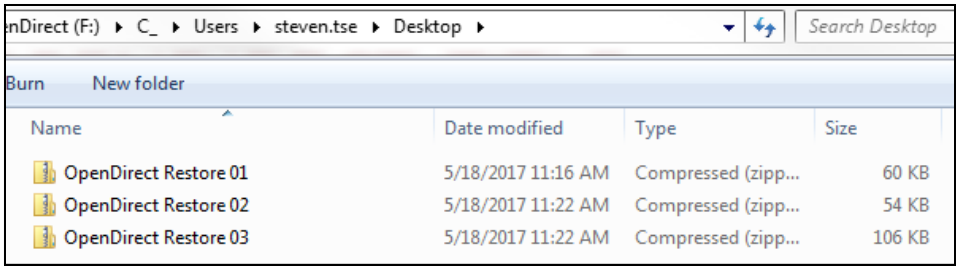


8. The following screen shows when you perform OpenDirect restore for this backup set on this machine for the first time only. Make sure you click **Yes** to confirm mounting the file(s) on this machine. Clicking **No** will exit the restore process.

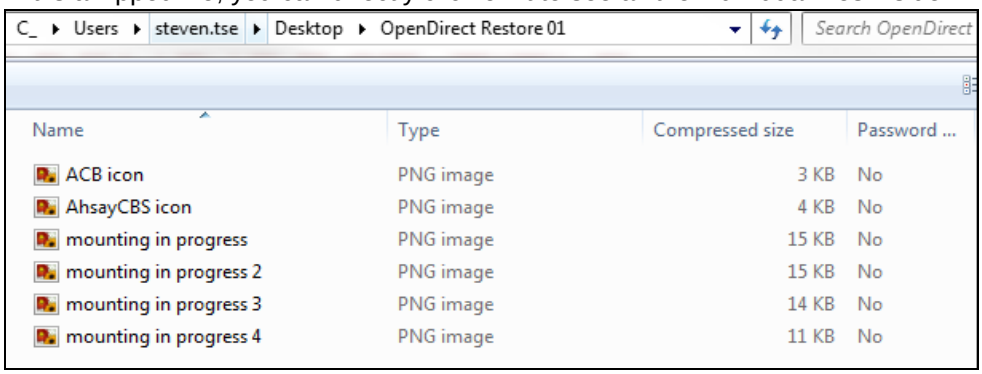
9. The selected drive letter will be mapped and prompted in the Windows Files Explorer with the files you wish to restore shown.



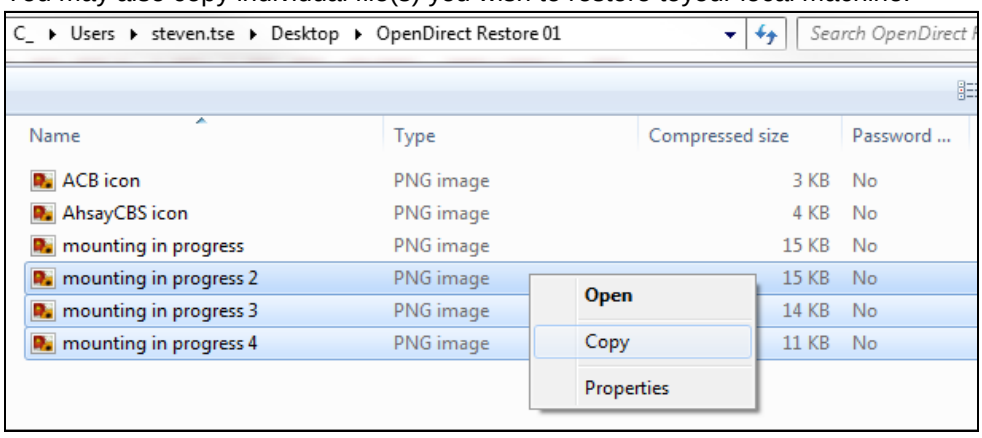
10. You can now click on the files to view them directly from here, which will be in read-only mode.



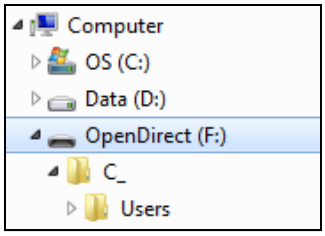
If it is a zipped file, you can directly click on it to see all the individual files inside.



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



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.

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)
  https://www.microsoft.com/en-us/download/details.aspx?id=48145
- 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 Server 2008 R2)
  https://technet.microsoft.com/en-us/library/security/3033929.aspx

Requirements and Limitations

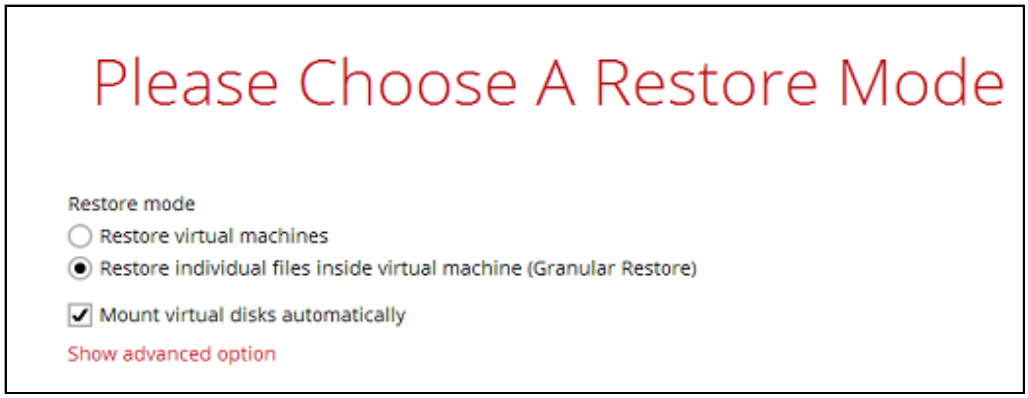
1. Granular restore does not support the mounting of virtual disks, if the disk itself is encrypted, for example using Windows Bitlocker or other third party security features.
2. If any folders or files on a virtual disk are encrypted these files/folder cannot be restored. For example, if the “Encrypt 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.

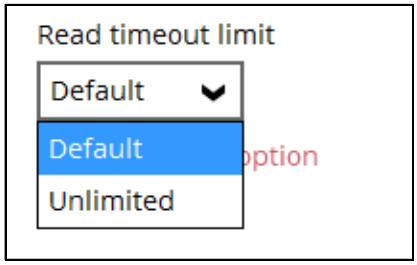
3. **Select to the Restore individual files in virtual machine (Granular Restore) option.**



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.



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

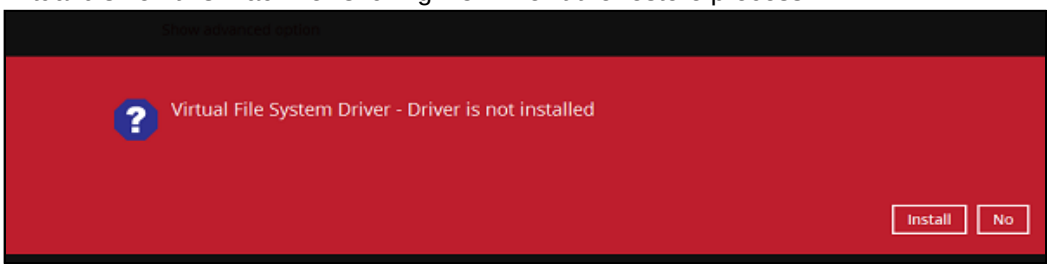
- **Default** – This setting should be suitable for guest VMs located on a local, removable, or network drive. The time out value is 15 seconds.
- **Unlimited** – the connection will not be time out when this is selected. This selection is recommended under the following usage:
  i. Backup destination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

Note

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

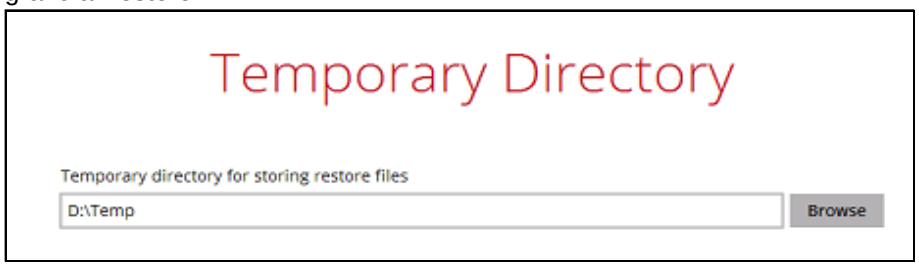
Click **Next** to proceed when you are done with the selection.

4. The following 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.

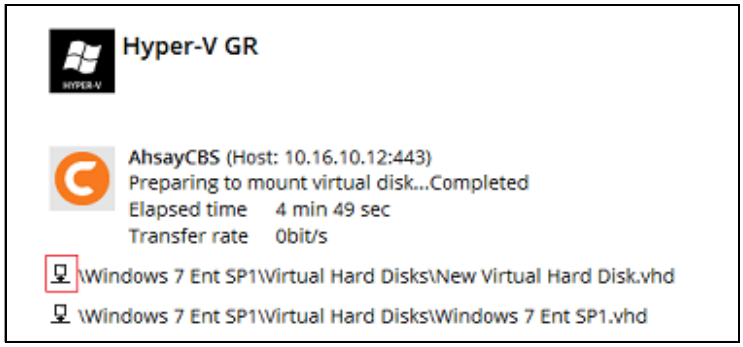
6. Select a temporary directory for storing restore files, then click Restore to start the granular restore.



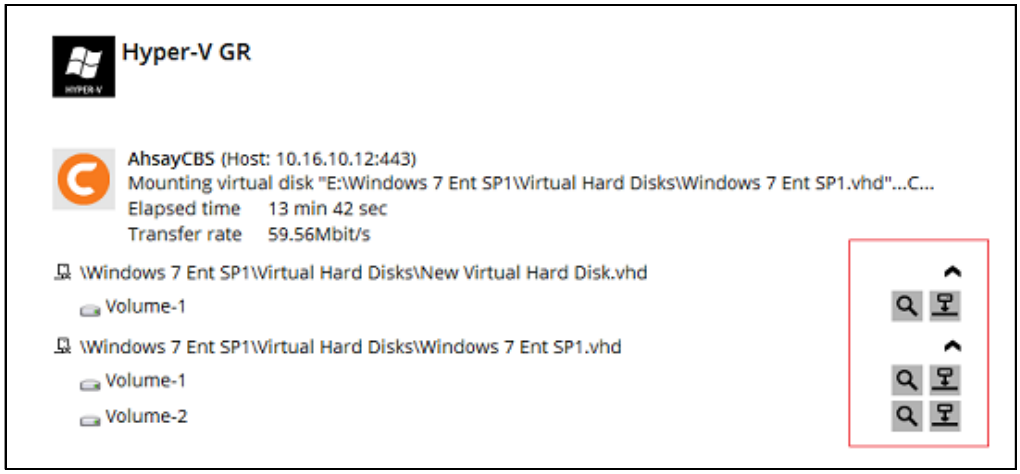
7. When the virtual disk(s) are in the process of being prepared for mounting on the AhsayOBR machine, you will see the following screen.

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.



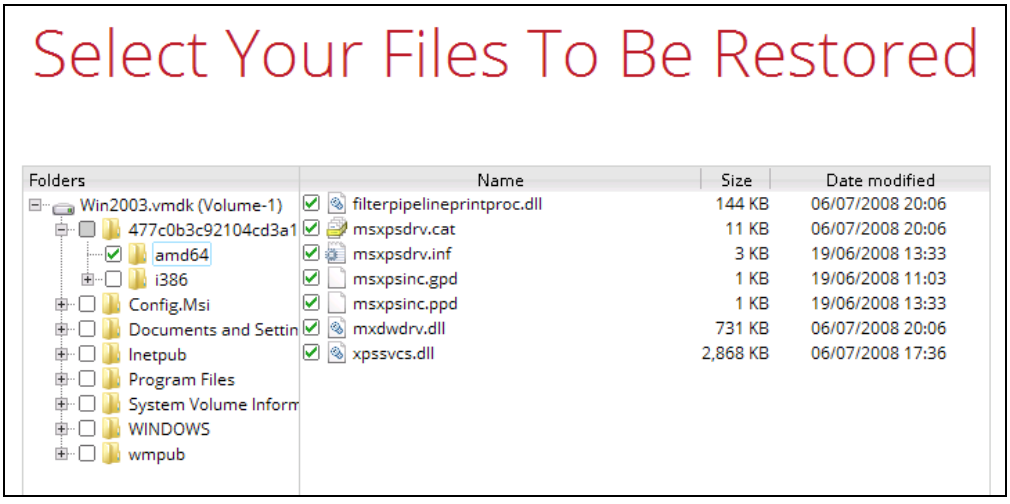
There are two options to restore individual files from here.

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.

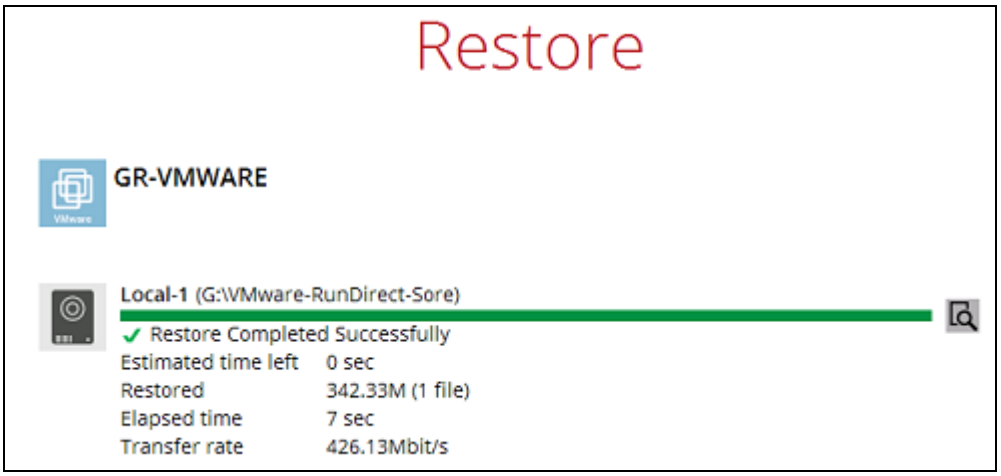


Note

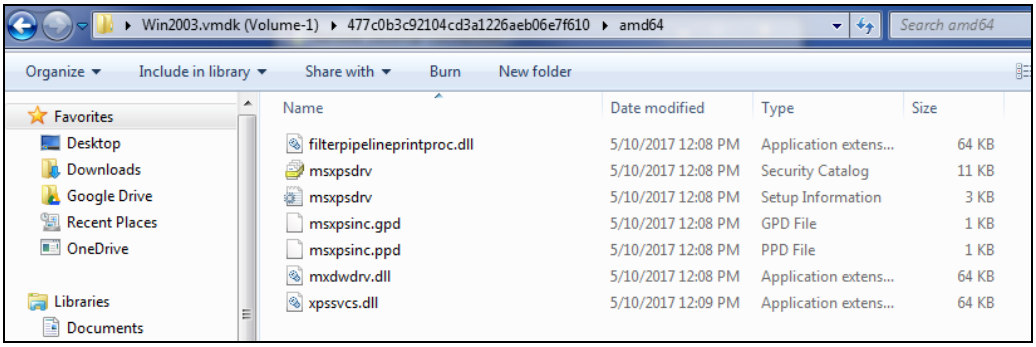
Some system folder(s) / file(s) (e.g. System Volume Information) are only shown in the AhsayOBR File Explorer and will be not restored, therefore, those folder(s) / file(s) will not be shown in the mapped drive shown in step iv below.

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

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



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



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.

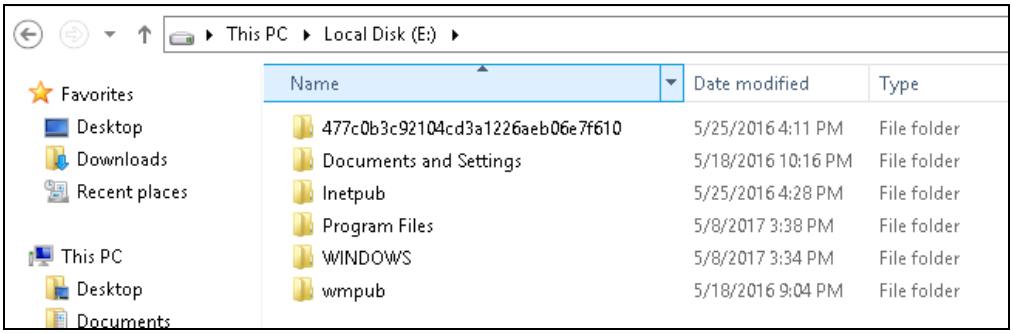
Note

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

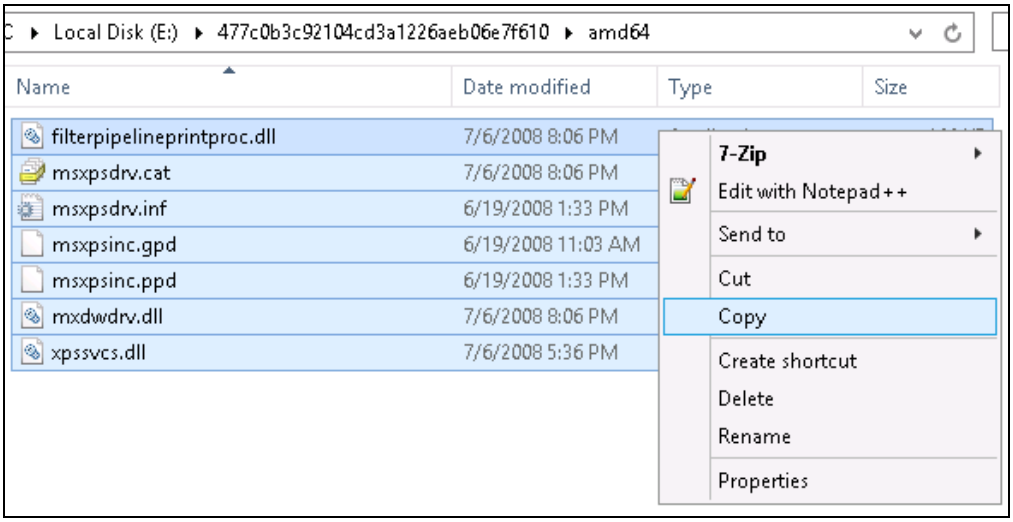
1. Will not show up on the [**Restore Status**] tab in **Live Activities** of the backup service provider AhsayCBS.
2. Will not generate restore reports on backup service provider AhsayCBS.
3. Will not generate restore log on AhsayOBR.

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.

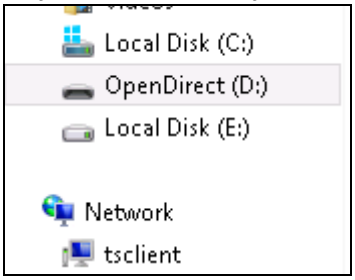
ii. The selected drive letter will be mapped and prompted in the Windows Files Explorer with the files you wish to restore shown.



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



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).

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.

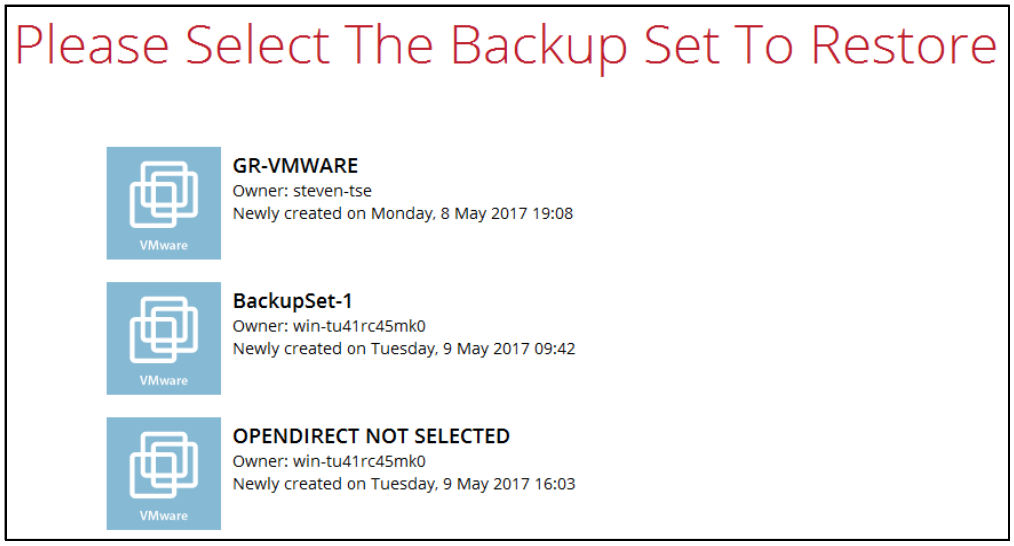
- Microsoft Visual C++ 2015 Redistributable (x86) / (x64)
  https://www.microsoft.com/en-us/download/details.aspx?id=48145
- Update for Universal C Runtime in Windows
  https://support.microsoft.com/en-us/help/2999226/update-for-universal-c-runtime-in-windows
- Microsoft Security Advisory 3033929 (for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

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. 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.

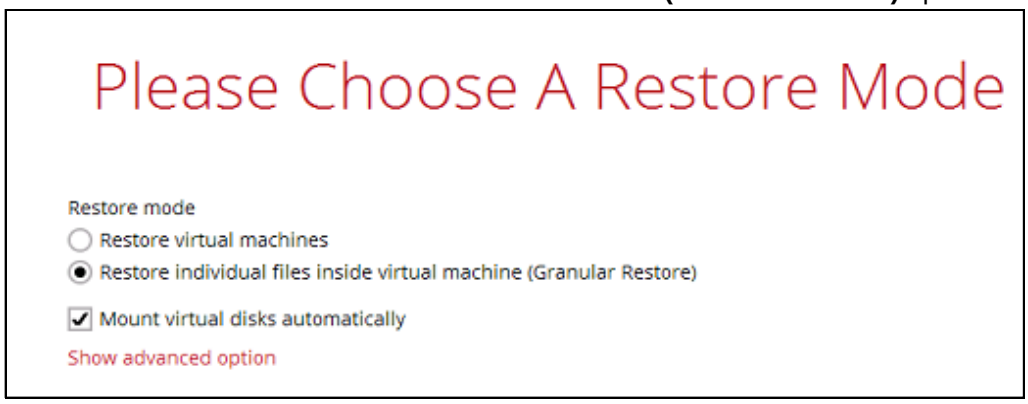
Start Granular Restore

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.

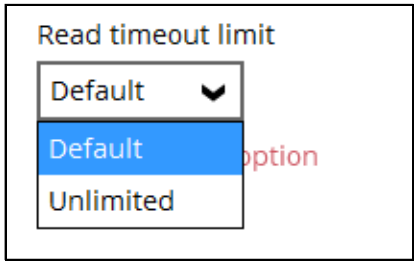
3. Select the **Restore individual files in virtual machine (Granular Restore)** option**.**



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.



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.

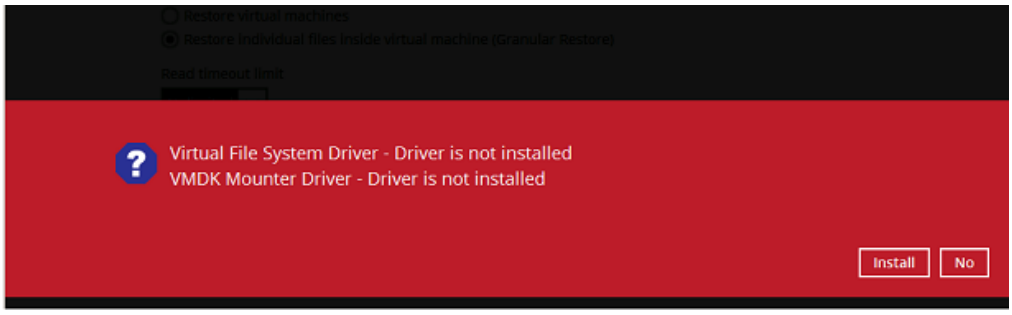
c. A large guest VM or guest VM with large incremental delta chain.

Note

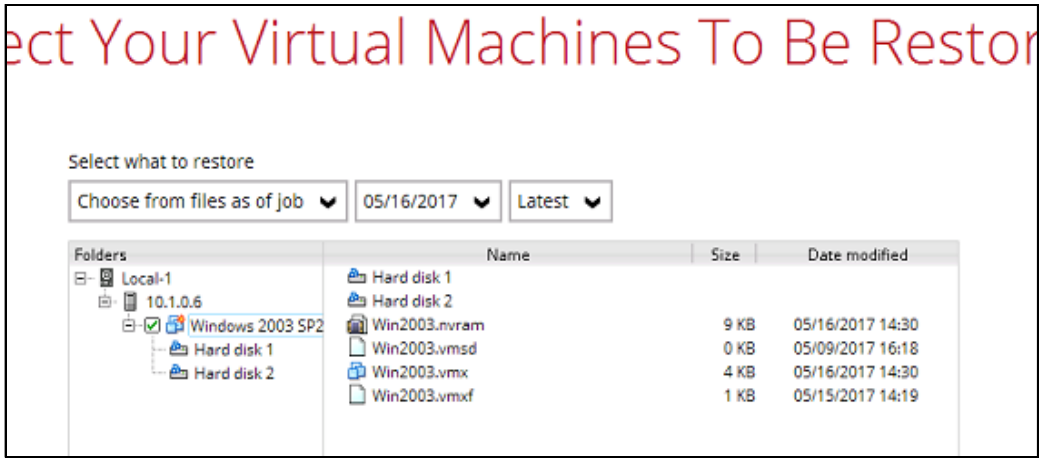
If in doubt or unsure about the guest VM size or network stability, it is recommended to use **Unlimited**.

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

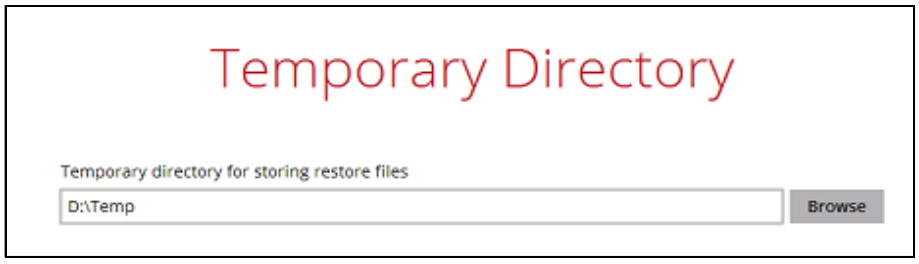
4. The following screen will show up when you perform granular restore on this machine for the first time only. Make sure you click **Install** to confirm the start the installation of the drivers on this machine. Clicking **No** will exit the restore process.



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



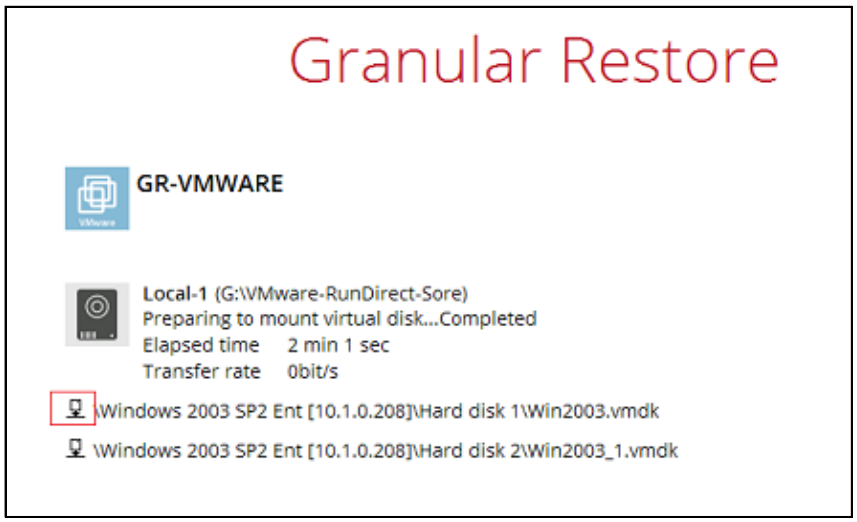
6. Select a temporary directory for storing restore files, then click Restore to start the granular restore.



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.

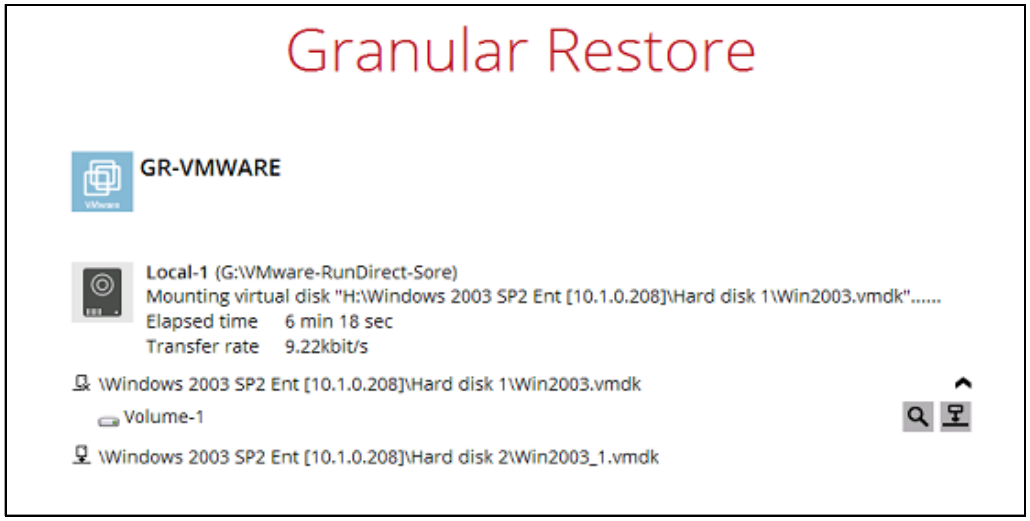
Please wait as the process could take some time depending on the size of the virtual disk, network bandwidth, and storage location.

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.

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.



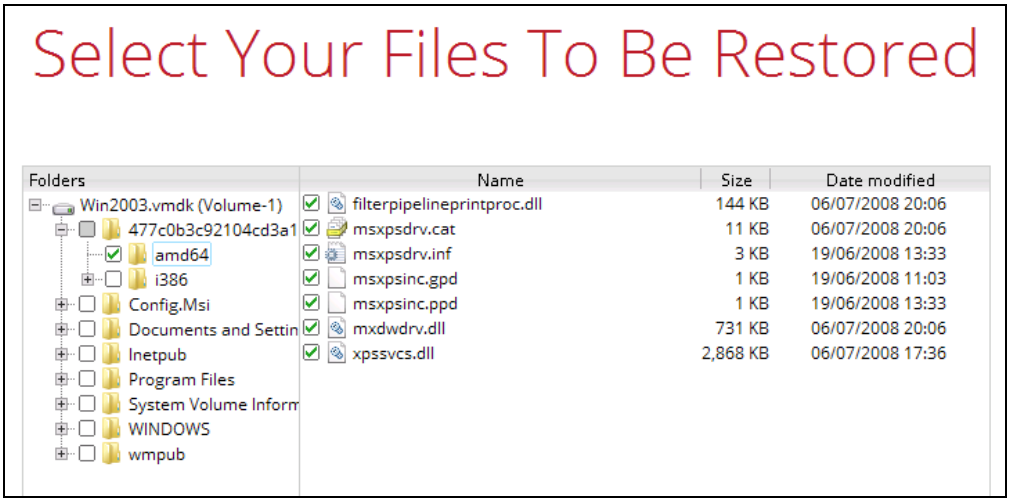
There are two options to restore individual files from here.

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.

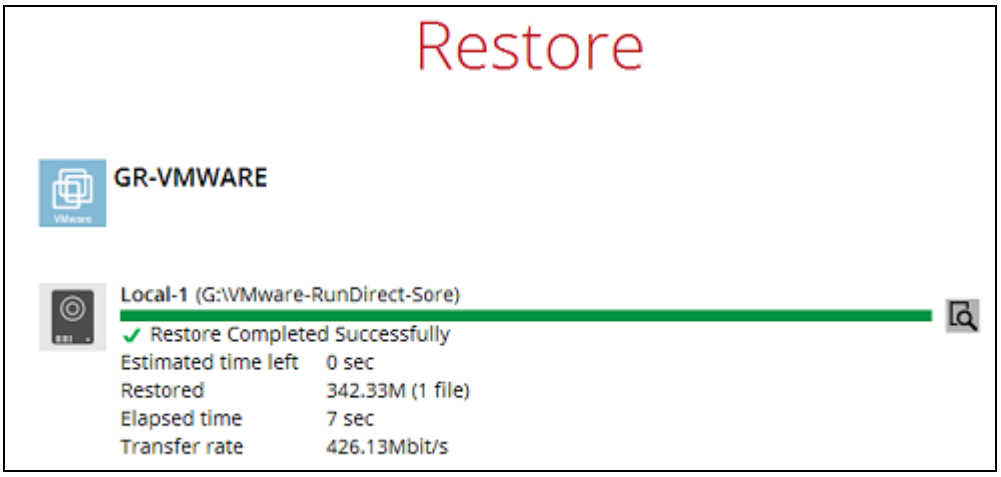


Note

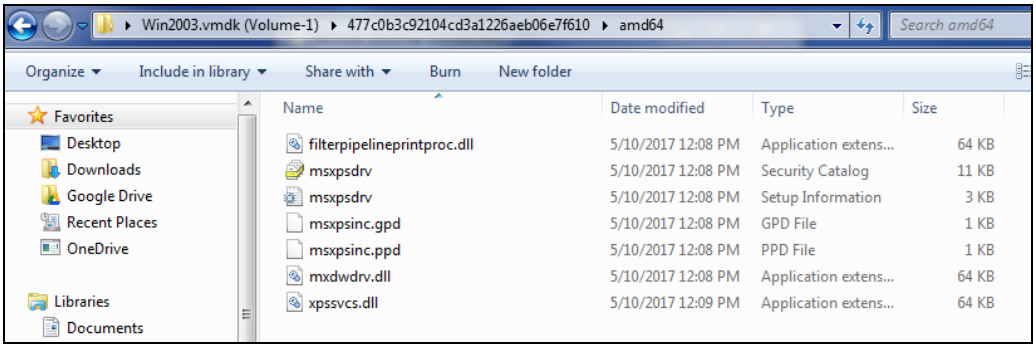
Some system folder(s) / file(s) (e.g. System Volume Information) are only shown in the AhsayOBR File Explorer and will be not restored, therefore, those folder(s) / file(s) will not be shown in the mapped drive shown in step iv below.

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

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



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



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.

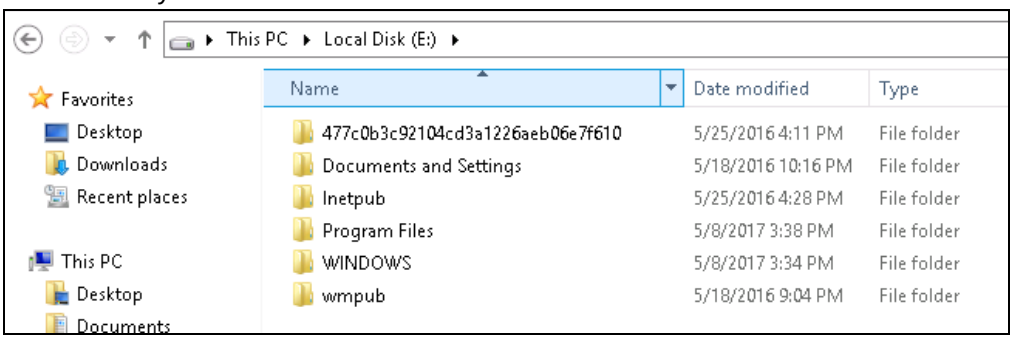
Note

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

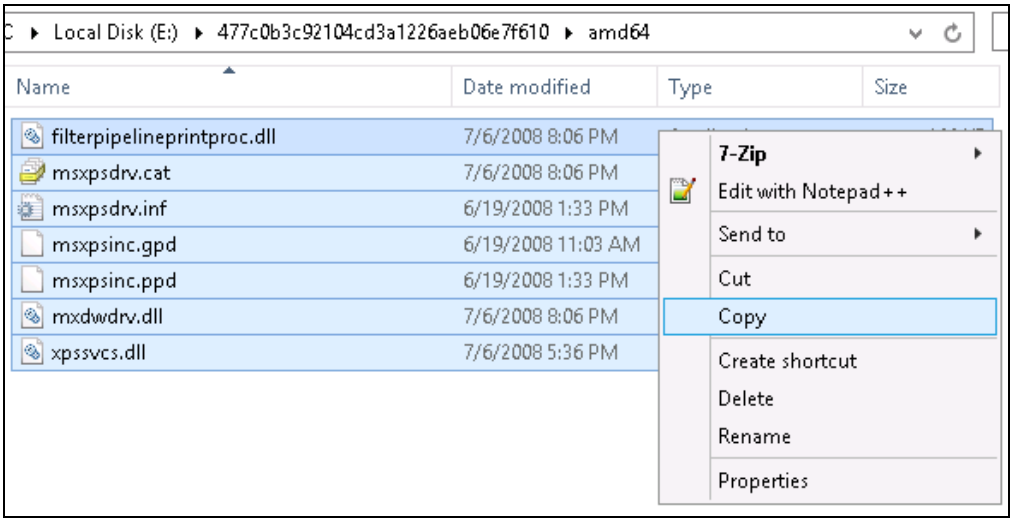
1. Will not show up on the [**Restore Status**] tab in **Live Activities** of the backup service provider AhsayCBS.
2. Will not generate restore reports on backup service provider AhsayCBS.
3. Will not generate restore log on backup service provider AhsayCBS.

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.

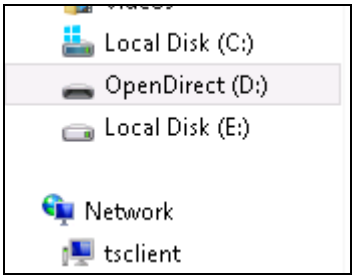
ii. The selected drive letter will be mapped and prompted in the Windows Files Explorer with the files you wish to restore shown.



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



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).

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:
https://www.ahsay.com/jsp/en/contact/kbQuestion.jsp

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:
https://www.ahsay.com/jsp/en/home/index.jsp?pageContentKey=ahsay_downloads_documentation_guides

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

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