Granular Restore for VMware / Hyper-V

What is Granular Restore Technology

AhsayOBM 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 AhsayOBM v8.1.0.0 or above. AhsayOBM 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 take a long time to restore and then startup before you can gain access to 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 AhsayOBM or from the Windows File Explorer on the Windows machine you are performing the restore on, 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.

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

Benefits of using Granular Restore

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 AhsayOBM, or to be copied from the file explorer on to a 64 bit Windows machine you are performing the restore.

Granular Restore

Pro	Con
Restore of Entire Guest VM Not Required Compared to a traditional 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 traditional restore methods, if you wish to restore individual file(s) from a guest VM, you will have to create two different backup sets; a VMware guest VM backup set and a separate file backup set for the file(s) you wish to restore. You will require an additional AhsayOBM 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 AhsayOBM 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.	**No Encryption and Compression** To 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.

Traditional Restore

The traditional restore method for guest VMs, restores the entire backup files to either the original VM location or another 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.

Pro	Con
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.	**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 VMware backup sets created and backed up using AhsayOBM v8.1.0.0 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

AhsayOBM must be installed on a 64 bit Windows machine as libraries for Granular only supports 64 bit Windows operating system for VMware ESXi/VCenter. AhsayOBM must be installed on the following Windows Operating Systems:

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

Temporary Directory Requirement

Temporary Directory Folder should have at least the same available size as the guest VM 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 VDDK virtual disk is mounted on Windows as a logical drive. AhsayOBM will automatically take the next available drive letter in alphabetical order for the mounted virtual disk.

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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 AhsayOBM UI.
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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 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. http://www.speedtest.net) to get an idea of the actual bandwidth of the

machine.

Permissions

- The Windows login account used for installation and operation of the AhsayOBM client machine requires Administrator privileges.
- For Granular Restore, Windows User Account Control (UAC) must be disabled.

Other Dependencies

The following dependencies are restore related and therefore they will be checked by AhsayOBM only when 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)
- Update for Universal C Runtime in Windows
- Microsoft Security Advisory 3033929 (For Windows 7 and Windows Server 2008 R2 only)

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