

Ahsay Online Backup Manager v8 Microsoft System Backup and Restore Guide

Ahsay Systems Corporation Limited

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A wholly owned subsidiary of Ahsay Backup Software Development Company Limited HKEx Stock Code: 8290

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Revision History

Date	Descriptions	Type of modification
3 January 2020	Modified the diagram for the Overview on the Backup Process and added a diagram for the Detailed Process of Periodic Data Integrity Check in Ch. 6	New / Modification
30 July 2020	Added Periodic Backup Schedule in Ch. 3; Modified Periodic Data Integrity Check (PDIC) diagram in Ch. 7; Added Ch. 8.2 Configure Backup Schedule for Automated Backup	New / Modifications
23 September 2020	Updated Overview Backup Process and PDIC in Ch. 7	Modifications
25 January 2021	Updated screenshot in Ch. 2.5; Updated login steps in Ch. 5; Updated PDIC diagram in Ch. 7	Modifications
7 April 2021	Updated Ch. 7; Added sub-chapters for the detailed process diagrams in Ch. 7.1, 7.2, 7.2.1, 7.2.2 and 7.3	New / Modifications
11 October 2021	Updated login instructions in Ch. 5	Modifications

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1 Overview

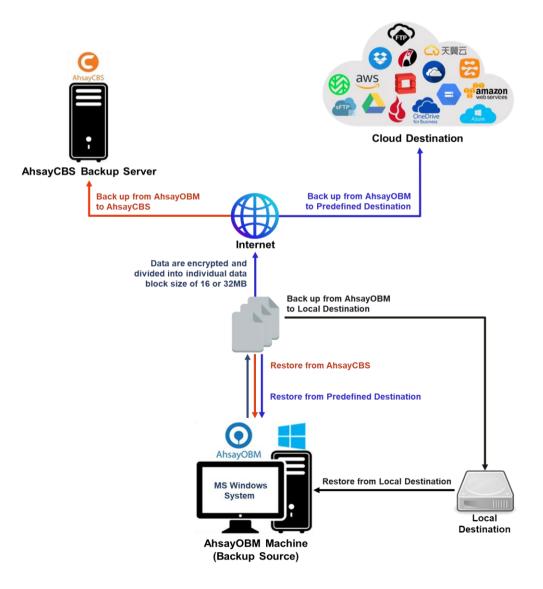
1.1 What is this software?

Ahsay brings you specialized client backup software, namely AhsayOBM, to provide a comprehensive backup solution for your MS Windows System backup. The MS Windows System Backup module of AhsayOBM provides you with a set of tools to protect your mission critical systems / personal computers on Windows operating system platforms. This includes an image-based / bare-metal backup feature, that leverages Microsoft's native Wbadmin command-line tool (http://go.microsoft.com/fwlink/?LinkId=140216), and recovery feature, to ensure that your servers and computers are protected even if they are lost or destroyed entirely. The image can be recovered onto a new device if necessary.

1.2 System Architecture

The following high-level system architecture diagram illustrates the major elements involved in the backup process of a MS Windows System backup with AhsayOBM and AhsayCBS.

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



2 Requirements

2.1 Hardware Requirement

Refer to the following article for the list of hardware requirements for AhsayOBM: FAQ: Ahsay Hardware Requirement List (HRL) for version 8.1 or above

2.2 Software Requirement

Refer to the following article for the list of compatible Windows operating systems platforms: FAQ: Ahsay Software Compatibility List (SCL) for version 8.1 or above

2.3 Antivirus Exclusion Requirement

To optimize performance of AhsayOBM on Windows, and to avoid conflict with your antivirus software, refer to the following link for the list of processes and directory paths that should be added to all antivirus software white-list / exclusion list:

FAQ: Suggestion on antivirus exclusions to improve performance of Ahsay software on Windows

2.4 AhsayOBM Installation

Make sure that the latest version of AhsayOBM is installed on the computer to be backed up.

2.5 AhsayOBM Add-on Module Configuration

Make sure that the **Windows System Backup** add-on module is enabled in your AhsayOBM user account. Please contact your service provider for more details

User Profile	General	Backup Client Settings	Contact	User Grou	p Authentication	Mobile Backup
Backup Set	Settings of	the client backup agent for thi	is user.			
Settings						
Report	Backup	Client				
Statistics	 Ahsay 	OBM User 🛛 AhsayACB U	lser			
Effective Policy		Modules				
	2	Microsoft Exchange Server		✓	Microsoft SQL Server	
	E.	MySQL Database Server		0	Oracle Database Server	
	Lotus.	Lotus Domino		Lotus.	Lotus Notes	
	 O 	Windows System Backup		0	Windows System State E	Backup
	Ð	VMware Guest VM 🗸 0		£9	Hyper-V Guest VM 🗸	0
	23	Microsoft Exchange Mailbox)	F	ShadowProtect System I	Backup
		NAS - QNAP		Syn	NAS - Synology	
	Image: A start of the start	Mobile (max. 10)		C	Continuous Data Protect	ion
	✓ E	Volume Shadow Copy		✓ ▲	In-File Delta	
	6	OpenDirect / Granular Restore	0	1	Office 365 Backup 0	
		MariaDB Database Server				

2.6 Backup Quota Requirement

Make sure that your AhsayOBM user account has sufficient quota assigned to accommodate the storage for the system backup. Please contact your backup service provider for details.

2.7 Java Heap Size

The default maximum Java heap size on a 64bit Windows machine is 2048M. For better performance especially for in-file delta generation of large image files, it may be advantageous to increase the maximum Java heap size.

For best performance, consider increasing the memory allocation setting for AhsayOBM (Java heap space).

Refer to this link for more details about the modification of the java heap size setting for AhsayOBM:

FAQ: How to modify the Java heap size setting of AhsayOBM / AhsayACB?

2.8 License Requirement

AhsayOBM licenses are calculated on a per device basis:

- To back up users with 1 backup client computer (e.g. 1 AhsayOBM installed), 1 AhsayOBM license is required.
- To back up users with multiple backup client computers, the number of AhsayOBM licenses required is equal to the number of devices. For example, if there are 10 users to be backed up with 3 backup client computers, then 30 AhsayOBM licenses are required. Please contact your backup service provider for more details.

2.9 Windows Requirement

Windows Server Backup (WSB) Features

The following Windows Server Backup features must be installed on the computer to be backed up:

- Windows Server Backup
- Ommand line Tool
- Windows PowerShell

This can be confirmed in the Server Manager. These features can be added by selecting **Add Roles and Features**.

à	Add Roles and Features Wizard	_ D X
Select features Before You Begin Installation Type Server Selection	Select one or more features to install on the selected server. Features	DESTINATION SERVER w2k16R2-std Description Windows Server Backup allows you
Server Roles Features Confirmation Results	Windows Identity Foundation 3.5 Windows Internal Database Windows PowerShell (3 of 5 installed) Windows Process Activation Service Windows Search Service Windows Server Backup (Installed) Windows Server Migration Tools Windows Standards-Based Storage Management Windows TIFF IFilter Windows Server Wireless LAN Service Wow64 Support (Installed) XPS Viewer K	to back up and recover your operating system, applications and data. You can schedule backups, and protect the entire server or specific volumes.
	< Previous Next :	> Install Cancel

• Windows Account Permission

To perform recovery using Windows Server Backup, the operating system account you are using must be a member of the Backup Operators or Administrators group.

System Volume

The system volume must be formatted with NTFS.

Latest Service Packs from Microsoft

Ensure that you have the latest service packs installed. Updates to the Windows operating system improve its performance and resolve known issues with Windows Server Backup.

2.10 Temporary Volume

Make sure that the storage location configured for the system image is set to a supported location.

•	AhsayOBM	_ D X
	Create Backup Set	
	Name MS Windows System Backup	
	Backup set type	
	O MS Windows System Backup	
	Specify the temporary location for the system backup Local Disk (C:) Local Disk (C:) Temp1 (E:) Temp2 (F:)	
		Next Cancel Help

The temporary storage location is required by the WBADMIN utility to temporary store the image file during the backup job.

The machine requires an additional drive to accommodate the spooling of the System State image file. As you can on our sample screen shot above, we have three (3) drives in total, Local Disk C:, Temp1 E:, and Temp2 F:

If the machine has only one (1) drive, then one of the following options will need to be implemented to create the temporary volume.

- A USB drive needs to be connected
- The existing C: drive will need to be repartitioned to create an additional drive, i.e. D:
- An extra physical drive will need to be installed
- Set up a network drive (the least preferred option as it will affect the backup performance)

For more details about the restrictions, please refer to the following link:

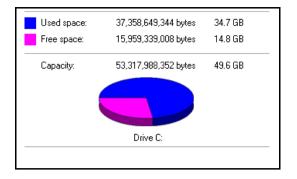
FAQ: Restrictions on the temporary storage location for the Windows System State and System backup image file

Disk Space Available in Temporary Storage Location

Make sure that there is sufficient disk space available in the storage location for the backup set.

For a system backup, it will typically require disk space of the total used size of all volumes selected for backup.

Note: Used space, not free space of all volumes selected for backup.



• Maximum Supported Disk Size

For Windows Vista, or 2008 / 2008 R2 Server, source volumes with size greater than 2 TB (e.g. 2040 GB - 2 MB = 2088958 MB) are not supported.

This limitation is related to the .vhd file size limit.

Note: This limitation does not apply to Windows 8 or newer releases of Windows platforms.

3 Best Practices and Recommendations

The following are some best practices or recommendations that we strongly recommend, before you start any Microsoft System backup and restore:

Temporary Directory Folder Location

For best performance, it is recommended that the temporary storage location of a MS Windows System backup set is set to a supported local volume, and not to a network volume (e.g. to improve I/O performance). The temporary storage location is highly recommended to be set on a directory with sufficient free disk space and located to another location other than Drive C: (e.g. Drive E:).

0	AhsayOBM	_ D X
MS Windows System	General	
General	Name MS Windows System Backup	
Source Backup Schedule Destination Show advanced settings	Owner w2k16R2-std Windows System Backup Specify the temporary location for the system backup Temp1 (E:) • Windows User Authentication Domain Name (e.g Ahsay.com) / Host Name w2k16R2-std User name Administrator Password	
Delete this backup set	Save	Cancel Help

NOTE

Kindly note that for Windows Server 2008 or newer releases, the restriction on temporary volume (Ch 2.10) must also be considered.

Backup Destination

To provide maximum data protection and flexible restore options, it is recommended to configure:

- At least one offsite or cloud destination
- At least one local destination for fast recovery

Backup Frequency

MS Windows System backup should be performed at least once per week.

• Performance Recommendations

Consider the following best practices for optimized performance of the backup operations:

- Enable schedule backup jobs when system activity is low to achieve the best possible performance.
- Perform test restores periodically to ensure your backup is set up and performed properly. Performing recovery test can also help identify potential issues or gaps in your recovery plan. It's important that you do not try to make the test easier, as the objective of a successful test is not to demonstrate that everything is flawless. There might be flaws identified in the plan throughout the test and it is important
- It is highly recommended to enable the Include all critical volumes option to select all critical volumes for backup automatically.

0	AhsayC	DBM	
	Backup	Source	
	Volume	Total Size U 0B 39,7GB 60GB 80GB	Jsed 08 28G8 46.7G8 29G8
	Include all critical volumes		
		Previous	Next Cancel Help

This will ensure that the backup image can be used for full-system / bare-metal recovery.

Not a Replacement for File Backup

An image-based / bare-metal backup should never be considered a replacement for a nightly data backup plan.

Firstly, image-based backups do not lend themselves easily to recovery of a single file. The nature of image-based backup requires a complete restore of the system image file, even if you only want to recover a single file.

System Recovery Plan

Consider performing routine system recovery test to ensure your system backup is setup and performed properly. Performing system recovery test can also help identify potential issues or gaps in your system recovery plan.

For best result, it is recommended that you should keep the test as close as possible to a real situation. Often when a recovery test is to take place, administrators will plan for the test (e.g. reconfiguring the test environments, restoring certain data in advance). For real recovery situation, you will not get a chance to do that.

It's important that you do not try to make the test easier, as the objective of a successful test is not to demonstrate that everything is flawless. There might be flaws identified in the plan throughout the test and it is important to identify those flaws.

Restore to Alternate Computer

You can restore a system backup to the same physical computer from which the system backup was created, or to a different computer that has the same make, model, and configuration (identical hardware). Microsoft does not support restoring a system backup from one computer to a second computer of a different make, model, or hardware configuration.

Please refer to the following article for more details:

http://support.microsoft.com/kb/249694

Periodic Backup Schedule

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

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

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

4 Restore Consideration

Please consider the following before performing a MS System restore:

Windows Account Permission

To perform recovery using Windows Server Backup, the operating system account that you use, must be a member of the Backup Operators or Administrators group.

Disk Size

For recovery of operating system to a new hard disk, ensure that the disk that you restore to is at least the size of the disk that contained the volumes that were backed up, regardless of the size of those volumes within.

For example, if there was only one volume of size 100 GB created on a 1 TB disk during backup, then you should use a disk that is at least 1 TB when recovering.

Windows Recovery Environment

For recovery of operating system, the processor architecture for a given instance of Windows Recovery Environment and the computer whose system you are trying to restore must match.

For example, Windows Recovery Environment for an x64 based version of the operating system will only work on an x64 based server.

Caution on Recovery to Dissimilar Hardware

This recovery method requires the restore target system to have similar hardware and the exact same boot type as the source system from which the backup was taken. Disk adapters are especially sensitive. If dissimilar hardware is used, the restored system might not be boot.

For example, if the system backup image was taken from a BIOS-based system, the recovery environment must be booted in BIOS mode.

BitLocker Drive

For server with BitLocker Drive Encryption enabled, make sure to re-apply BitLocker Drive Encryption to the server after a restore.

This will not happen automatically; it must be enabled explicitly.

For instructions, refers to the following: <u>http://go.microsoft.com/fwlink/?LinkID=143722</u>

5 Logging in to AhsayOBM

Starting with AhsayOBM v8.5.0.0, there are several login scenarios depending on the setting of the account you are using. The different scenarios will be discussed below:

- Login without 2FA
- Login with 2FA using authenticator app
- Login with 2FA using Twilio

5.1 Login to AhsayOBM without 2FA

1. Log in to the AhsayOBM application user interface. Double-click the AhsayOBM desktop icon to launch the application.



2. Enter the **Login name** and **Password** of your AhsayOBM account, then click **OK** to log in.

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

- Image: Section of the sec
- 3. After successful login, the following screen will appear.

5.2 Login to AhsayOBM with 2FA using authenticator app

1. Log in to the AhsayOBM application user interface. Double-click the AhsayOBM desktop icon to launch the application.



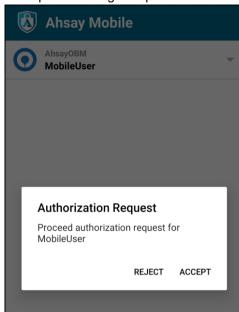
2. Enter the **Login name** and **Password** of your AhsayOBM account, then click **OK** to log in.

	English 🗸
Login	
Login name	
Password	
Save password	
Show advanced option	ОК

- 3. One of the two authentication methods will be displayed to continue with the login:
 - Push Notification and TOTP when using Ahsay Mobile app
 - TOTP only
 - If Ahsay Mobile app was configured to use Push Notification and TOTP, then there are two 2FA modes that can be used:
 - Push Notification (default)

Push notification is the default 2FA mode. Accept the login request on Ahsay Mobile to complete the login.

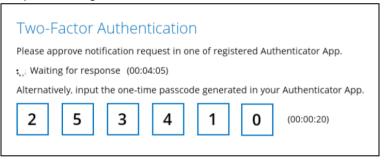
Two-Factor Authentication Please approve notification request in one of registered Authenticator App. Waiting for response (00:04:36) Authenticate with one-time password



Example of the login request sent to the Ahsay Mobile app.

TOTP

However, if push notification is not working or you prefer to use onetime passcode, click the Authenticate with one-time password link, then input the one-time passcode generated by Ahsay Mobile to complete the login.

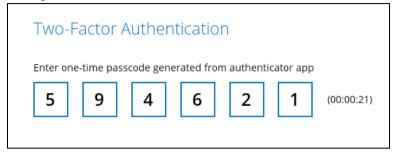


Example of the one-time passcode generated in the Ahsay Mobile app.



➤ TOTP only

Enter the one-time passcode generated by the authenticator app to complete the login.



Example of the one-time passcode generated in the third-party authenticator app Microsoft Authenticator.



4. After successful login, the following screen will appear.



NOTE

If you have trouble logging in using the authenticator app, please refer to Chapter 9 of the <u>AhsayOBM Quick Start Guide for Windows</u> for more information.



5.3 Login to AhsayOBM with 2FA using Twilio

1. Log in to the AhsayOBM application user interface. Double-click the AhsayOBM desktop icon to launch the application.



2. Enter the **Login name** and **Password** of your AhsayOBM account, then click **OK** to log in.

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

3. Select your phone number.

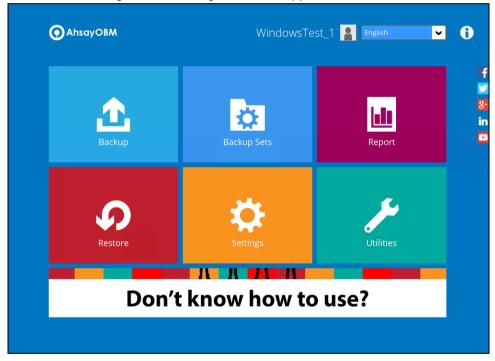
Two-Factor Authentication	
Please select phone number to receive passcode via SMS message to continue login.	
Philippines (+63) - *****6123	
Switzerland (+41) - *****4731	
	Cancel Help

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4. Enter the passcode and click **Verify** to login.

Please enter the passcode to	t to the phone number i	nilippines (+63) - ^^^	***6123
EUVS -	(00:03:59)		
Resend passcode			

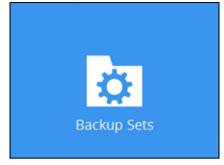
5. After successful login, the following screen will appear.



6 Configuring a MS Windows System Backup Set

Create a MS Windows System Backup Set

1. In the AhsayOBM main interface, click **Backup Sets**.



- 2. Create a MS Windows System backup set by clicking + next to Add new backup set.
- 3. Select **MS Windows System Backup** as the **Backup set type**; then enter a **Name** for your backup set.

0	• AhsayOBM	_ 🗆 X
	Create Backup Set	
	Name MS Windows System Backup Backup set type	
	MS Windows System Backup	
	Specify the temporary location for the system backup Local Disk (C:)	
	Nex	t Cancel Help

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4. Select the location where you would like to store the system image before generating the backup data.

0	AhsayOBM	_ D X
	Create Backup Set	
Name		
MS Windows System	Jackup	
Backup set type		
O MS Windows Sys	em Backup 🗸 🗸	
Specify the temporary	location for the system backup	
Local Disk (C:) 🗸 🗸		
Local Disk (C:)		
Temp1 (E:)		
Temp2 (F:)		
	Next	Cancel Help

Select a local volume from the dropdown menu.

Or

Enter the UNC path to a network volume that is accessible to the client computer.

0	AhsayOBM	- 🗆 X
	Create Backup Set	
	Name MS Windows System Backup MS Windows System Backup	
	Next	cel Help

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Note: Make sure that the storage location configured for the system image is set to a supported location.

Refer to the link to know the restrictions on the temporary storage location for Windows System State and System Backup Image File

FAQ: Restrictions on the temporary storage location for the Windows System State and System backup image file

Click Next to proceed.

0	AhsayOBM	-		x
	Croate Dackup Set			
	Create Backup Set			
	Name			
	MS Windows System Backup			
	Backup set type			
	O MS Windows System Backup 🗸			
	💦 💽 Insufficient disk space available for backup. Please select another backup storag			
	Insufficient disk space available for backup. Please select another backup storag location with larger disk space. Space required at least: 25.8 GB			
			ОК	

Note: If the disk you selected has insufficient space then this alert message will be displayed.

5. In the Backup Source menu, select the volume(s) which you would like to backup.

Enable the **Include all critical volumes** option to select all critical volumes for backup automatically. This will ensure that the backup image can be used for full-system / bare-metal recovery.

0		AhsayOBM		_ D X
	Ba	ickup Source		
	Volume System Reserved Temp1 (E:) Local Disk (C:) Temp2 (F:)	Total Size 0 byte 60 GB 39.7 GB 80 GB	Used 0 byte 385.8 MB 14.9 GB 101.2 MB	
	Include all critical volumes			
		[Previous Next Canc	el Help

Click Next to proceed.

6. In the Schedule menu, configure a backup schedule for backup job to run automatically at your specified time interval. Click **Add** to add a new schedule, then click **Next** to proceed afterward.

0	AhsayOBM	- 🗆 X
	Schedule	
	Run scheduled backup for this backup set On Existing schedules Backup Schedule Daily (Everyday at 20:00)	
	Previous Next Cance	el Heip



Ο	AhsayOBM	- 🗆 X
	New Backup Schedule	
	Name Daily-1	
	Type Daily Start backup at 10 : 01 Stop until full backup completed Run Retention Policy after backup	
	ОК Салс	el Help
	Previous Next Canc	el Help

7. In the Destination menu, select a backup destination where the backup data will be stored. Click the "+" icon next to Add new storage destination / destination pool.

0	AhsayOBM	_ 🗆 🗙
	Destination	
	Backup mode Sequential Existing storage destinations Add new storage destination / destination pool	
	Previous Next Car	ncel Help

Note: For more details on Backup Destination, refer to this link FAQ: Frequently Asked Questions on Backup Destination

For more details on configuration of cloud storage as backup destination, refer to the <u>Appendix A</u> section in this guide.

8. Select the Destination storage.

•	AhsayOBM	
	New Storage Destination / Destination Real	
	New Storage Destination / Destination Pool	
	Name	
	AhsayCBS	
	Destination storage	
	G AhsayCBS	
	OneDrive-1 Local / Mapped Drive / Removable Drive	
	OK Cancel	tiolo
		Help
	Previous Next Cancel	Help

You can choose a storage combination of the Local/Mapped drive/Removable Drive, Cloud storage or FTP. Click **OK** to proceed when you are done with the settings.

If you have chosen the Local/Mapped Drive/Removable Drive option, click Change to browse to a directory path where backup data will be stored, then click Test to validate the path. Test completed successfully shows when the validation is done.

AhsayOBM	_ _ ×
New Storage Destination For The Pool	
Name	
Local-1	
Destination storage	
■ Local / Mapped Drive / Removable Drive	
Local path	
Change	
Test	
	OK Cancel Help



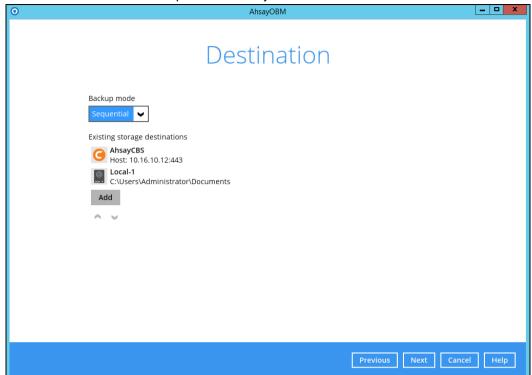
If you have chosen to store the backup files in another Cloud Storage, click
 Test to log in to the corresponding cloud storage service.

New Storage Destination For The Pool Name GoogleDrive-1 Destination storage Coogle Drive Test Sign up for Google Drive	0	AhsayOBM	_ _ ×
Name GoogleDrive-1 Destination storage Google Drive Test			
Name GoogleDrive-1 Destination storage Google Drive Test			
Name GoogleDrive-1 Destination storage Google Drive Test			
GoogleDrive-1 Destination storage Google Drive Test		New Storage Destination For The Pool	
Destination storage Image: Source of the storage Image: Test			
Coogle Drive		GoogleDrive-1	
Test		Destination storage	
		▲ Google Drive	
		Tact	
Sign up for Google brive			
		Sign up for Google Drive	
OK Cancel Help			OK Cancel Help
			The second states of the secon

If you have chosen the FTP as the destination, enter the Host, Username and Password details.

0	AhsayOBM	_ D X
		^
	Name FTP-1	
	Destination storage	
	FTP FTP	
	Host Port	
	Username	
	Password	
	(optional) FTP directory to store backup data (default to ~/Ahsay)	
	Connect with SSL/TLS (explicit only)	
	Access the Internet through proxy	
	Test	~
		OK Cancel Help
		Previous Next Candel Here

9. You can add multiple storage destinations. The backup data will be uploaded to all the destinations you have selected in the order you added them. Press the rest to be icon to



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

10. In the Encryption window, the default **Encrypt Backup Data** option is enabled with an encryption key preset by the system which provides the most secure protection.

	Encryption	
Encrypt Backup Data On		
Encryption Type		
Default		
User password Custom		

You can choose from one of the following three Encryption Type options:

- Default an encryption key with 44 alpha numeric characters will be randomly generated by the system
- User password the encryption key will be the same as the login password of your AhsayOBM at the time when this backup set is created. Please be reminded that if you change the AhsayOBM login password later, the encryption keys of the backup sets previously created with this encryption type will remain unchanged.

Custom – you can customize your encryption key, where you can set your own algorithm, encryption key, method and key length.

	Encrypt	ion	
Encrypt Backup Data On Encryption Type Custom V Algorithm AES V Encryption key			

Re-enter encryption key		1	
Method ECB CBC Key length 128-bit 256-bit		I	

Note: For best practice on managing your encryption key, refer to the following wiki article.

FAQ: Best practices for managing encryption key for AhsayOBM or AhsayACB

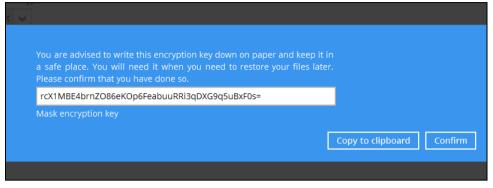
Click **Next** when you are done setting.

11. If you have enabled the Encryption Key feature in the previous step, the following popup window shows, no matter which encryption type you have selected.

Encryption	
Encrypt Backup Data On Encryption Type Default	
You are advised to write this encryption key down on paper and keep a safe place. You will need it when you need to restore your files la Please confirm that you have done so.	
Unmask encryption key	
	Copy to clipboard Confirm

The pop-up window has the following three options to choose from:

Unmask encryption key – The encryption key is masked by default. Click this option to show the encryption key.



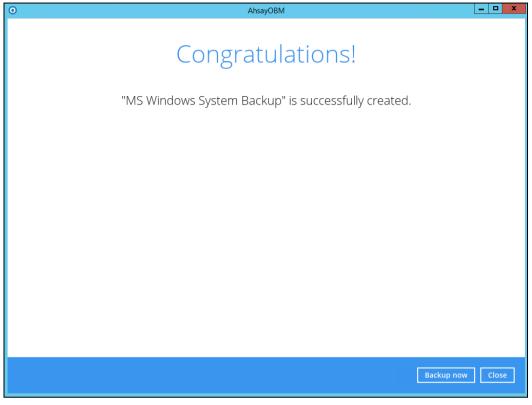
- Copy to clipboard Click to copy the encryption key, then you can paste it in another location of your choice.
- > Confirm Click to exit this pop-up window and proceed to the next step.
- 12. Enter the **Domain Name / Host Name** of the computer, **User Name** and **Password** of the Windows account that will be running the backup.

0	AhsayOBM	– – X
	Windows User Authentication	
	Windows ober / denendedelorr	
	Domain Name (e.g Ahsay.com) / Host Name	
	child.csv2012.local	
	User name	
	Administrator	
	Password	
	•••••	
	Previous Next	Cancel Help
	Previous Next	cancer Heip

Note: This menu will only be displayed if a backup schedule is configured in the previous step.

13. Click **Next** to create the backup set.

14. The following screen is displayed when the new MS Windows System backup set is created successfully.



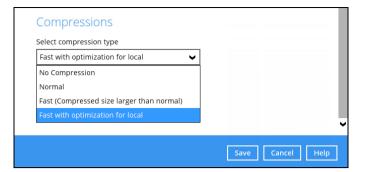
15. Based on <u>Best Practices and Recommendations</u>, it is highly recommended to set the temporary directory to another location other than Drive C: (e.g. Drive E:). To do this, go to **Backup Sets > Others > Temporary Directory** and click the **Change** button to browse for another location.



16. Optional: Select your preferred **Compression** type. By default, the compression type is Fast with optimization for local.

Go to **Others > Compressions**, then select from the following:

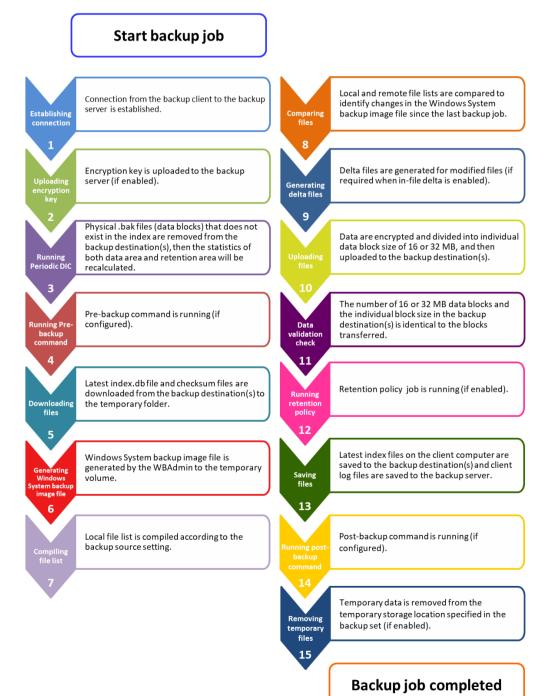
- No Compression
- Normal
- Fast (Compressed size larger than normal)
- Fast with optimization for local



7 Overview on the Backup Process

The following steps are performed during a backup job. For an overview of the detailed process for Steps **3**, **5**, **11**, and **13**, refer to the following chapters:

- Periodic Data Integrity Check (PDIC) Process (Step 3)
- Backup Set Index Handling Process
 - Start Backup Job (Step 5)
 - Completed Backup Job (Step 13)
- Data Validation Check (Step 11)



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7.1 Periodic Data Integrity Check (PDIC) Process

For AhsayOBM v8.3.6.0 (or above), the PDIC will run on the first backup job that falls on the corresponding day of the week from **Monday to Friday**.

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

PDIC schedule = %BackupSetID% modulo 5 or %BackupSetID% mod 5

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

0	Monday
1	Tuesday
2	Wednesday
3	Thursday
4	Friday

NOTE: The PDIC schedule cannot be changed.

Example:

Backup set ID: 1594627447932

Calculation: 1594627447932 mod 5 = 2

2 Wednesday

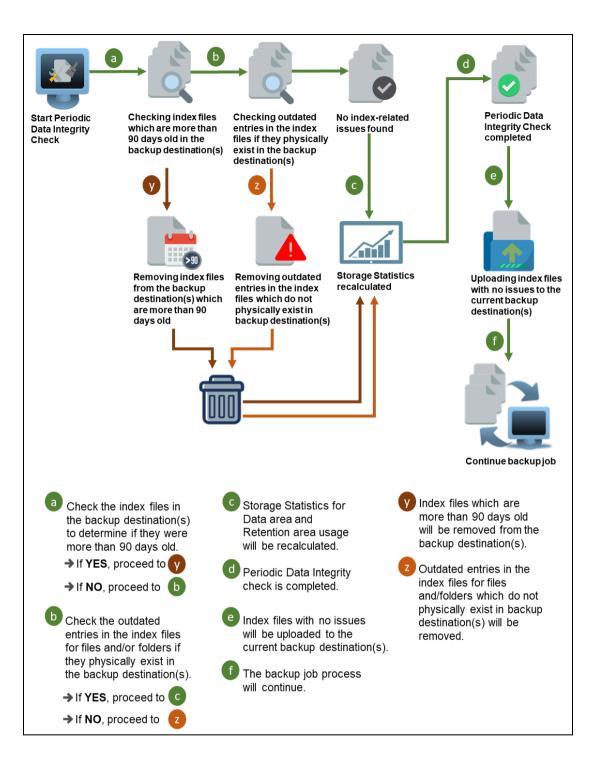
In this example:

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

NOTE

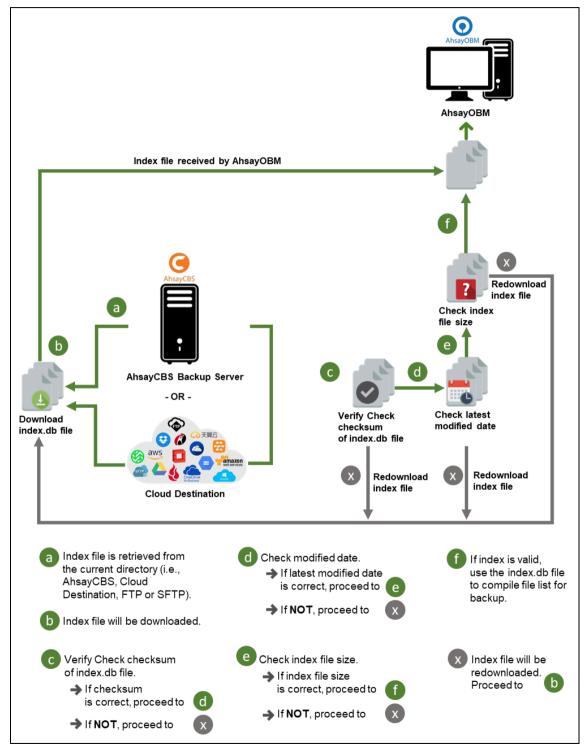
Although according to the PDIC formula for determining the schedule is **%BackupSetID% mod 5**, this schedule only applies if the previous PDIC job was actually run more than 7 days prior. Under certain conditions, the PDIC may not run strictly according to this formula. For example:

- 1. If AhsayOBM was upgraded to v8.5 (or above) from an older version v6, v7, or pre-8.3.6.0 version. In this case, the PDIC job will run on the first backup job after upgrade.
- 2. If backup jobs for a backup set are not run on a regular daily backup schedule (for example: on a weekly or monthly schedule), then the PDIC job will run if it detects that the previous PDIC job was run more than 7 days ago.



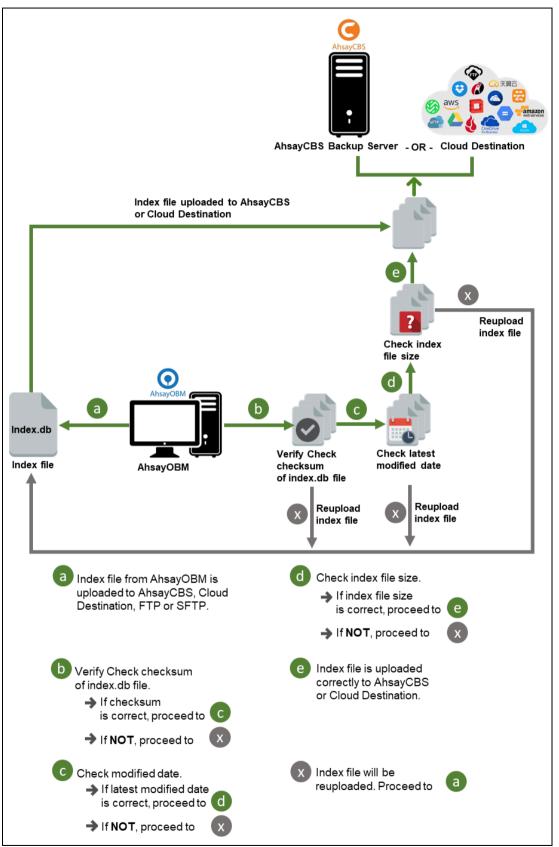
7.2 Backup Set Index Handling Process

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



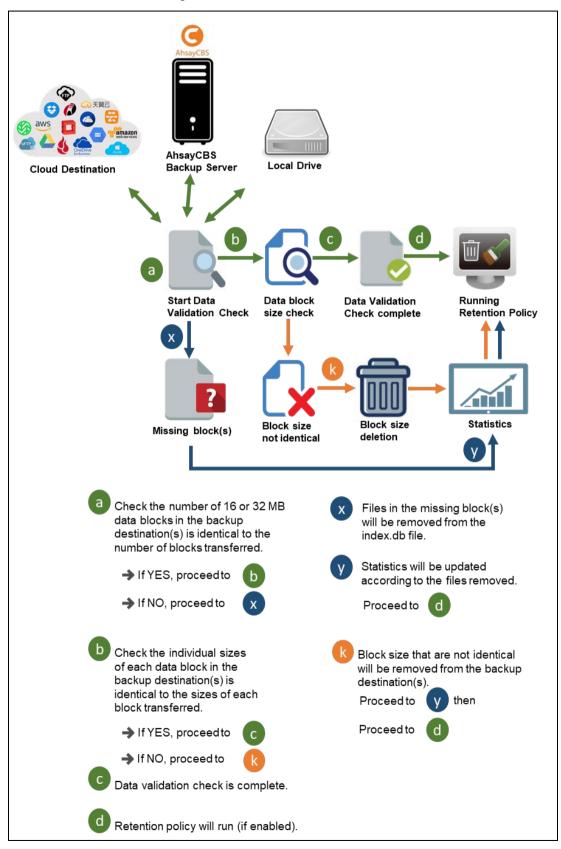
7.2.1 Start Backup Job

7.2.2 Completed Backup Job



7.3 Data Validation Check Process

As an additional measure to ensure that all files transferred to the backup destination(s) are received and saved correctly, both the number of 16 or 32 MB data block files and the size of each block file are checked again after the files are transferred.



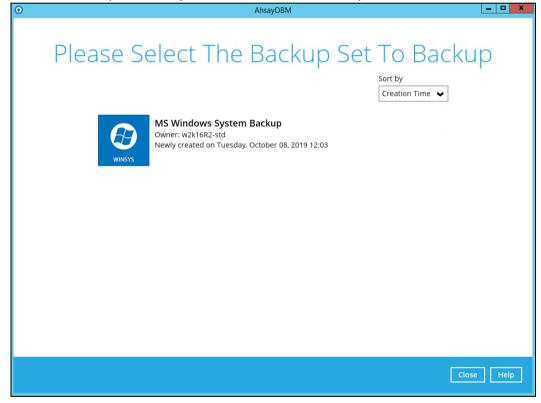
8 Running a Backup

8.1 Start a Manual Backup

1. Click the **Backup** icon on the main interface of AhsayOBM.



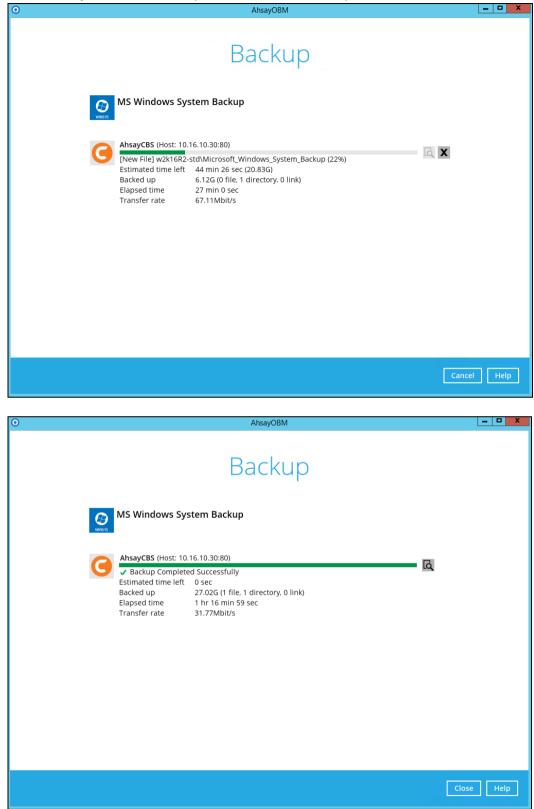
2. Select the backup set which you would like to start a backup for.



3. If you would like to modify the In-File Delta type, Destinations and Retention Policy Settings, click **Show advance option**.

0	AhsayOBM	_
	Choose Your Backup Options	
	MS Windows System Backup	
	Backup set type Volume Show advanced option	
	Previous Backup	Cancel Help
0	AhsayOBM	- - X
0	AhsayoBM Choose Your Backup Options	_ □ X
0		_ - X
	Choose Your Backup Options	

4. Click **Backup** to start the backup and wait until the backup is done.



5. Check the log of your backup by clicking this icon backup with corresponding date and time.

AhsayOBM			
	Show	All	~
Type		Time	
Start [AhsayOBM v8.3.0.0]	10/08	/2019 15:30:26	
Saving encrypted backup set encryption keys to server	10/08	/2019 15:30:26	^
1 Start Backup [In-File Delta: Incremental]	10/08	/2019 15:30:29	
Using Temporary Directory C:\Users\Administrator\temp\1570507407639\Local@1570519812194	10/08	/2019 15:30:29	
1 Start running pre-commands	10/08	/2019 15:30:33	
I Finished running pre-commands	10/08	/2019 15:30:33	
Backup MS Windows System to "E:WindowsImageBackup"	10/08	/2019 15:30:33	
[MS Windows System Backup] wbadmin 1.0 - Backup command-line tool	10/08	/2019 15:30:34	
[MS Windows System Backup] (C) Copyright 2013 Microsoft Corporation. All rights reserved.		/2019 15:30:34	
[MS Windows System Backup] Retrieving volume information	10/08	/2019 15:30:36	
[MS Windows System Backup] This will back up System Reserved (350.00 MB),(C:),Temp2(F:) to E:.	10/08	/2019 15:31:08	
[MS Windows System Backup] The backup operation to E: is starting.	10/08	/2019 15:31:30	
[MS Windows System Backup] Creating a shadow copy of the volumes specified for backup	10/08	/2019 15:31:30	
[MS Windows System Backup] Creating a backup of volume System Reserved (350.00 MB), copied (0%).	10/08	/2019 15:32:40	
[MS Windows System Backup] Creating a backup of volume System Reserved (350.00 MB), copied (68%).	10/08	/2019 15:32:50	
[] [MS Windows System Backup] Creating a backup of volume System Reserved (350.00 MB), copied (100%).		/2019 15:33:00	
[MS Windows System Backup] The backup of volume System Reserved (350.00 MB) completed successfully.	10/08	/2019 15:33:10	
[MS Windows System Backup] Creating a backup of volume (C:), copied (0%).	10/08	/2019 15:33:10	
[MS Windows System Backup] Creating a backup of volume (C:), copied (1%).	10/08	/2019 15:33:30	
[MS Windows System Backup] Creating a backup of volume (C:), copied (2%).	10/08	/2019 15:33:50	
[MS Windows System Backup] Creating a backup of volume (C:), copied (3%).	10/08	/2019 15:34:10	
[MS Windows System Backup] Creating a backup of volume (C:), copied (4%).		/2019 15:34:30	~
[MS Windows System Backup] Creating a backup of volume (C:), copied (5%).	10/08	/2019 15:34:50	
ogs per page 50 🖌		Page 1 / 17	~
			Clo
		Close	He

To view the report, go to the **Report > Backup**



In this Backup Report screen, you can see the backup set with corresponding destination, completion date and time, and status.

0	AhsayOBM	×
Report	Backup Report From To	
Backup	01 V Oct V 2019 V 08 V Oct V 2019 V Go	
Restore	Backup set 🗸 Destination 🗸 Completion Status	~
Usage	O MS Windows S O AhsayCBS Today 16:47 Completed	
	No. of records per page 50 V Page	/1 🗸
	Close	e Help

Click the backup report and the summary of the backup will be displayed. You can also click the **View Log**, this will redirect you to the log summary of your backup.

0	AhsayOBM
Report	Backup Report
Backup	From To 01 V Oct V 2019 V 08 V Oct V 2019 V Go
Restore	Backup set 🗸 Destination 🖌 Completion Status 🗸
Usage	Backup set O MS Windows System Backup Destination Image: AbsayCBS Job 10/08/2019 15:30 Time Today 15:30 - 16:47 (CST) Status Image: Completed successfully New files * 1 [17.1G/27G (36%)] Updated files * 0 Attributes Changed Files * 0 Deleted files * 0 Vunit = No of files [Total zipped size / Total unzipped size (compression ratio)] View log
	No. of records per page 50 V Page 1/1 V
	Close Help

acki	ip set MS Windows System Backup 👻	Destinatior	AhsayCBS	~
.og [10/08/2019 15:30 🖌	Show	All	¥
Туре	Log		Time	
0	Start [AhsayOBM v8.3.0.0]	10/08/	2019 15:30:26	
0	Saving encrypted backup set encryption keys to server	10/08/	2019 15:30:26	
0	Start Backup [In-File Delta: Incremental]	10/08/	2019 15:30:29	
0	Using Temporary Directory C:\Users\Administrator\temp\1570507407639\Local@1570519812194	10/08/	2019 15:30:29	
0	Start running pre-commands		2019 15:30:33	
0	Finished running pre-commands		2019 15:30:33	
0	Backup MS Windows System to "E:\WindowsImageBackup"		2019 15:30:33	-1
0	[MS Windows System Backup] wbadmin 1.0 - Backup command-line tool		2019 15:30:34	- 1
0	[MS Windows System Backup] (C) Copyright 2013 Microsoft Corporation. All rights reserved.		2019 15:30:34	
0	[MS Windows System Backup] Retrieving volume information		2019 15:30:36	
Q	[MS Windows System Backup] This will back up System Reserved (350.00 MB),(C:),Temp2(F:) to E:.		2019 15:31:08	
0	[MS Windows System Backup] The backup operation to E: is starting.		2019 15:31:30	
Q	[MS Windows System Backup] Creating a shadow copy of the volumes specified for backup		2019 15:31:30	
Q	[MS Windows System Backup] Creating a backup of volume System Reserved (350.00 MB), copied (0%).		2019 15:32:40	
0	[MS Windows System Backup] Creating a backup of volume System Reserved (350.00 MB), copied (68%).		2019 15:32:50	
0	[MS Windows System Backup] Creating a backup of volume System Reserved (350.00 MB), copied (100%).		2019 15:33:00	
Q	[MS Windows System Backup] The backup of volume System Reserved (350.00 MB) completed successfully.		2019 15:33:10	
0	[MS Windows System Backup] Creating a backup of volume (C:), copied (0%).		2019 15:33:10	
0	[MS Windows System Backup] Creating a backup of volume (C:), copied (1%).		2019 15:33:30 2019 15:33:50	
	[MS Windows System Backup] Creating a backup of volume (C:), copied (2%). [MS Windows System Backup] Creating a backup of volume (C:), copied (3%).			-
	INS Windows system Backubi Creating a backub of volume (C:), cobled (3%),	10/08/	2019 15:34:10	
	per page 50 🗸	D	age 1/17	-

You can also search for backup reports from a specific period of date. For example, we have the **From** date which is, **01 Oct 2019** and the To date which is, **8 Oct 2019**. Then click the Go button to generate the available reports.



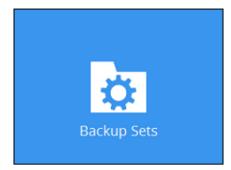
If this is a valid range of dates then backup reports will be displayed unless there were no backup running on the specified dates. A message of **No records found** will also be displayed.



0	AhsayOBM	- D X
Report	Backup Report	
Backup	From To 01 Oct 2019 05 Oct 2019 Go	
Restore	Backup set V Destination V Completion Status	~
Usage	No records found	
	No. of records per page 50 V Page	- 🗸
	Close	Help

8.2 Configure Backup Schedule for Automated Backup

1. Click the **Backup Sets** icon on the main interface of AhsayOBM.



2. All backup sets will be listed. Select the backup set that you would like to create a backup schedule for.

0	AhsayOBM	_ _ X
	Backup Sets	
		Sort by Creation Time
	Last Backup: Tuesday, October 08, 2019 20:00	
Add		
		Close Help

3. Go to the **Backup Schedule** tab. If the **Run scheduled backup for this backup set** option is off, switch it **On**. Existing schedules will be listed if there is any. Click the **Add** button to add a new backup schedule.

Sched	
Run sched	luled backup for this backup set
On	
Existing so	hedules
Bac	kup Schedule
Dail	y (Everyday at 20:00)



4. The New Backup Schedule window will appear.

Daily-1						
Туре						
Daily	~]				
Start ba	ackup					
at		3 🗸	: 00			
				•		
Stop						

- 5. In the New Backup Schedule window, configure the following backup schedule settings.
 - Name the name of the backup schedule.
 - **Type** the type of backup schedule. There are four (4) different types of backup schedule: Daily, Weekly, Monthly and Custom.
 - **Daily** the time of the day or interval in minutes/hours which the backup job will run.

New Backup Schedule
Name
Daily-1
Type Daily V Start backup at V 15 V: 41 V
Stop
until full backup completed 🖌
Run Retention Policy after backup

• Weekly – the day of the week and the time of the day or interval in minutes/hours which the backup job will run.

Weekly-	1					
Туре						
Weekly	~					
Backup o	n these day	/s of the w	eek			
🗌 Sun	Mon	Tue	Wed	🗌 Thu	🗌 Fri	✔ Sat
Start bac	kup					
at	23 🗸	: 00 🖌				
Stop						

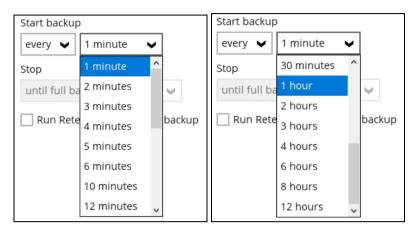
• **Monthly** - the day of the month and the time of that day which the backup job will run.

New Backup Schedule
Name
Monthly-1
Туре
Monthly 🖌
Backup on the following day every month
● Day Last ♥
🔘 First 🖌 Sunday 🖌
Start backup at
23 V: 00 V on the selected days
Stop
until full backup completed 🖌
Run Retention Policy after backup

• **Custom** – a specific date and the time of that date which the backup job will run.

New Backup Schedule
Name
Custom-1
Type Custom V Backup on the following day once 2020 June V 31 V Start backup at 23 V : 59 V
Stop
until full backup completed 🖌
Run Retention Policy after backup

- Start backup the start time of the backup job.
 - at this option will start a backup job at a specific time.
 - every this option will start a backup job in intervals of minutes or hours.



- Stop the stop time of the backup job. This only applies to schedules with start backup "at" and is not supported for periodic backup schedule (start backup "every")
 - until full backup completed this option will stop a backup job once it is complete. This is the configured stop time of the backup job by default.
 - after (defined no. of hrs.) this option will stop a backup job after a certain number of hours regardless of whether the backup job has completed or not. This can range from 1 to 24 hrs.

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

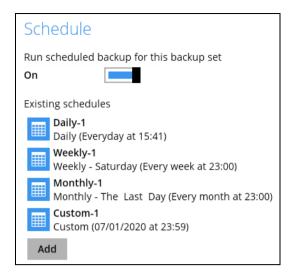
For example, if a backup has 100GB file size which will take approximately 15 hours to complete on your environment, but you set the "stop" after 10 hours, the file will be partially backed up and cannot be restored. The next backup will upload the files from scratch again.

The partially backed up data will have to be removed by running the data integrity check.

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

Run Retention Policy after backup – if enabled, the AhsayOBM will run a retention policy job to remove files from the backup destination(s) which have exceeded the retention policy after performing a backup job. To save hard disk quote in the long run, it is recommended to enable this option.

As an example, the four types of backup schedules may look like the following:



6. Click **Save** to confirm your settings once done.

9 Restore with a MS Windows System Backup Set

9.1 Login to AhsayOBM

Login to the AhsayOBM application according to the instruction provided in the chapter on <u>Starting AhsayOBM</u>.

9.2 Restore the System Image

1. Click the **Restore** icon on the main interface of AhsayOBM.



2. Select the backup set that you would like to restore the system image from.

0	AhsayOBM	x
	Please Select The Backup Set To Restore	
	Creation Time MS Windows System Backup Owner: w2k16R2-std Last Backup: Tuesday, October 08, 2019 20:00	
	Close Help]

3. Select the backup destination that contains the system image that you would like to restore.

0	AhsayOBM	_ D X
Select	The Destination From Which To	Restor
	MS Windows System Backup	
	AhsayCBS Host: 10.16.10.30:80 Local-1 F:\	
	Previous	Cancel Help

- 4. Select to restore from a specific backup job, or the latest job available from the **Select** what to restore drop down menu.
- 5. Select Microsoft_Windows_System_Backup, then click Next to proceed.

0		AhsayOBM		_ D X
	Select Yo	ur Files To Be I	Restored	
	Select what to restore Choose from files as of job Show filter	✔ 10/08/2019 ✔ Latest ♥		
	Folders G AhsayCBS W2k16R2-std	Name	Size Creation T 17,354,01/29/201	
	Search	Items per page	50 V Page 1/1 V	
			Previous Next Canc	el Help

6. Select to restore the system image to a local volume or to a removable drive.

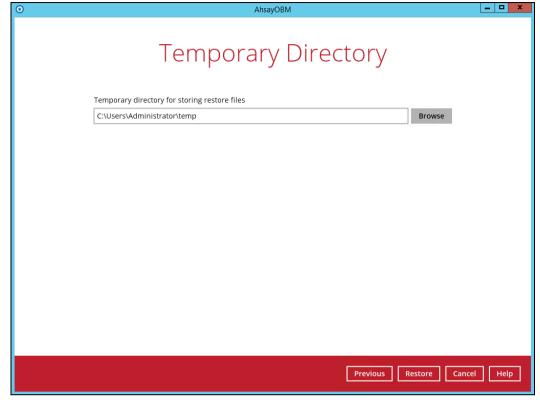
0	AhsayOBM	- D X
	Chance Where The Files To De Deste	rad
	Choose Where The Files To Be Resto	rea
	Restore files to	
	Local Disk (C:)	
	Local Disk (C:)	
	Temp1 (E:)	
	Temp2 (F:)	
	Previous Next	Cancel Help

Click Show advanced option to configure other restore settings.

Choose Where The Files To
Restore files to
Temp2 (F:)
Show advanced option
Choose Where The Files To
Restore files to Temp2 (F:)
Verify checksum of in-file delta files during restore Hide advanced option

• Verify checksum of in-file delta files during restore

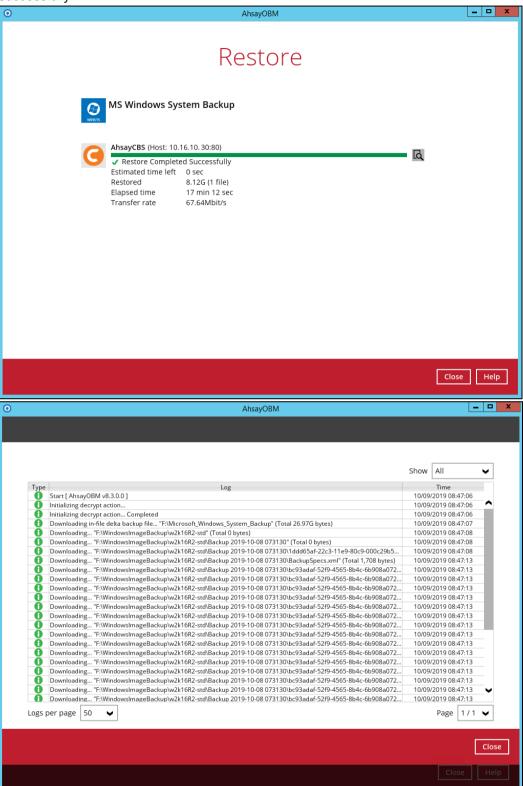
By enabling this option, the checksum of in-file delta files will be verified during the restore process. This will check the data for errors during the restore process and create a data summary of the in-file delta files which will be included in the report. 7. Select the temporary directory for storing temporary files.



8. Click Restore to start the restoration.

Ο	AhsayOBM	- 🗆 X
	Restore	
	MS Windows System Backup	
	AbsayCBS (Host: 10.16.10.30:80) Restoring F:WVindowsImageBackup/w2k16R2-std\Backup 2019-10-08 073130\faece Estimated time left 4 min 56 sec (14.84G) Restored 2.18G (0 file) Eapsed time 1 min 56 sec Transfer rate 214.96Mbit/s	
	Cance	Help

9. The following screen is displayed when the system image files are restored successfully.



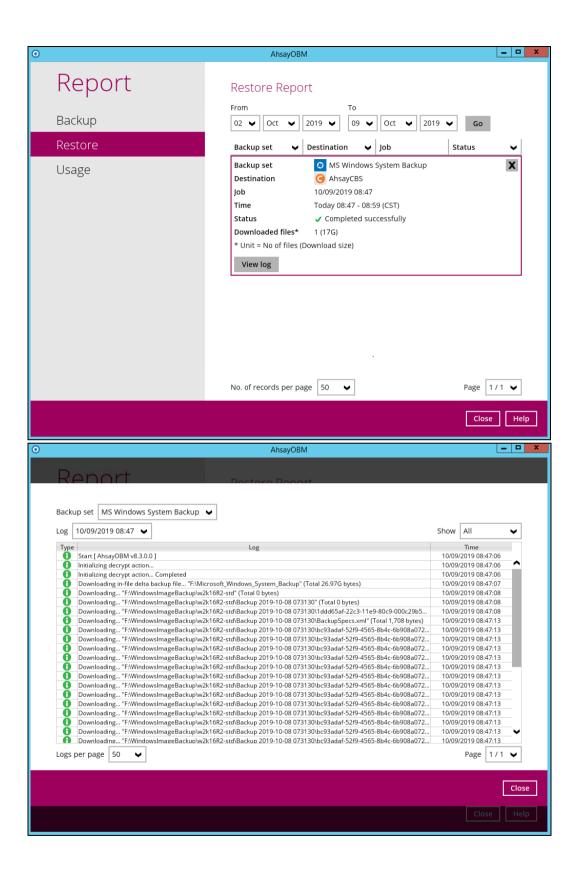
To view the report, go to the **Report > Restore**



In this Restore Report screen, you can see the backup set with corresponding destination, completion date and time, and status.

0	AhsayOBM	I X
Report	Restore Report	
Backup	From To 02 ♥ Oct ♥ 2019 ♥ 09 ♥ Oct ♥ 2019 ♥ Go	
Restore	Backup set 🗸 Destination 🖌 Job Status	~ ∣
Usage	MS Windows S G AhsayCBS Today 08:47 Completed	
	No. of records per page 50 V Page 1 /	1 🗸
	Close	Help

Click the restore report and the summary of the restoration will be displayed. You can also click the **View Log**, this will redirect you to the log summary of your backup.



You can also search for restore reports from a specific period of date. For example, we have the From date which is, 01 Jan 2019 and the To date which is, 23 Jan 2019. Then click the Go button to generate the available reports.



If this is a valid range of dates then restore reports will be displayed unless there were no restoration running on the specified dates. A message of No records found will also be displayed.

From 01 Oct 2	To 019 V 05 V Oct V 2019 V Go
0	AhsayOBM
Report	Restore Report
Backup	From To 01 V Oct V 2019 V 05 V Oct V 2019 V Go
Restore	Backup set 🗸 Destination 🗸 Job Status 🗸
Usage	No records found
	No. of records per page 50 V Page - V
	Close Help

10. The restored system image files are stored in the **WindowsImageBackup** folder in the restore location.

👝 l 💽 🕕 = l		Te	mp2 (F:)					x
File Home	e Share View							^ 🕜
Navigation pane - Panes		Small icons → Details →	Sort by • Current view	File I	check boxes name extensions len items Show/hide	Hide selected items	Soptions	
€ ⊚ - 1	🖿 🕨 This PC 🕨 Temp	o2 (F:) ▶				~ ¢	Search Te	٩
Name	•	Date modified	Туре		Size			
📗 w2k16R2-st	td		File folder					
🐌 WindowsIn	nageBackup	10/9/2019 8:47 AM	File folder					
6 items 1 ite	m selected							

Important: In addition to the system image files, the **WindowsImageBackup** folder includes catalog files that contain information about all backups in there up to the current backup, and Mediald, that contains the identifier for the backup storage location.

This information is required to perform a recovery. <u>Do not</u> alter the directory structure or delete any file / folder within the **WindowsImageBackup** folder.

11. Copy the **WindowsImageBackup** folder with its content to the server that you want to perform the restore for or copy the folder to a network drive that is accessible to the server that you want to perform the restore for.

WindowsImageBackup folder must be stored at the root level of a volume (e.g. topmost level), unless you are copying the folder to a network drive.

12. Continue to the next section of the guide.

9.3 Recovering Your Server

For server platforms such as Server 2008 / 2008 R2 / 2012 / 2012 R2, you can recover individual files, folders, volumes, application, application data, operating system, or full-system (bare-metal) with the following tools:

ΤοοΙ	What you can recover
Recovery wizard (in Windows Server Backup)	Files, folders, volumes, application, and application data.
Windows setup disc / Windows Recovery Environment (Windows RE)	Operating system (critical volume), and full server recovery (all volumes).

Note: You can also perform the above tasks using wbadmin command. For the syntax of the command, refer to the following: <u>http://go.microsoft.com/fwlink/?LinkId=140216</u>

To determine what can be recovered from your restored system image, enter the following command in an elevated command prompt:

```
wbadmin get versions
[-backupTarget:{<BackupTargetLocation> | <NetworkSharePath>}]
```

Example (system image restored to G: volume):

```
C:\Users\Administrator>wbadmin get versions -backupTarget:g:
wbadmin 1.0 - Backup command-line tool
(C) Copyright 2012 Microsoft Corporation. All rights reserved.
Backup time: 1/29/2019 10:29 AM
Backup target: 1394/USB Disk labeled Temp1(E:)
Version identifier: 01/29/2019-02:29
Can recover: Volume(s), File(s), Application(s), Bare Metal
Recovery, System State
Snapshot ID: {f8cf57da-0c9d-453c-adbb-5f9a976c75c2}
```

For non-server platforms such as Windows 7/8/8.1/10, you can recover the full-system (bare-metal) with the following tools:

ΤοοΙ	What you can recover
Advanced startup option (in safe mode)	Full system recovery.
Advanced startup option (Windows installation media)	Full system recovery.

Note: You can also perform the above tasks using wbadmin command. For the syntax of the command, refer to the following: <u>http://go.microsoft.com/fwlink/?LinkId=140216</u>

The following chapters in this guide contain instructions for:

- Recover Files and Folders
- Recover Application and Data
- <u>Recover Volumes</u>
- Recover the Operating System or Full System
- Recover the Full System (Non-Server Platforms)

For instructions specific to recovering Active Directory Domain Services, refer to the following: <u>http://go.microsoft.com/fwlink/?LinkId=143754</u>.

9.3.1 Recover Files and Folders

To recover files and folders using the Recovery Wizard in the Windows Server Backup user interface.

1. Open Windows Server Backup from Administrative Tools or Server Manager.

	Server Manager	
Server Mai	nager 🕨 Local Server 🛛 🗸 🕫 🖡	Manage <mark>Tools</mark> View Help
<u> </u>	- PROPERTIES	Component Services Computer Management
Dashboard	For w2k16R2-std	Defragment and Optimize Drives
Local Server		Disk Cleanup
All Servers	Computer name w2k16R2-std Workgroup WORKGROUP	Last installed Windows Up Event Viewer
File and Storage Services ▷	workgroup workdroup	Last checked Hyper-V Manager
		iSCSI Initiator
🚹 Hyper-V		Local Security Policy
	Windows Firewall Public: Off	Windows Err Microsoft Azure Services
	Remote management Enabled	Customer Ex ODBC Data Sources (32-bit)
	Remote Desktop Enabled NIC Teaming Disabled	IE Enhanced Time zone ODBC Data Sources (64-bit)
	Private 172.16.10.12. IPv6 enabled	Product ID Performance Monitor
	Public 10.16.10.12. IPv6 enabled	Resource Monitor
		Security Configuration Wizard
		Services
		System Configuration
	Operating system version Microsoft Windows Server 2012 R2 Standar Hardware information VMware. Inc. VMware Virtual Platform	System Information
	Hardware information VMware, Inc. VMware Virtual Platform	Installed mer Task Scheduler
	٢	Windows Firewall with Advanced Security
		Windows Memory Diagnostic
	EVENTS	Windows PowerShell
	All events 13 total	Windows PowerShell (x86)
		Windows PowerShell ISE
	Filter P 🗐 🔻 🗎 🔻	Windows PowerShell ISE (x86)
		Windows Server Backup
	Server Name ID Severity Source	Log Date and Time
	W2K16R2-STD 8233 Warning Microsoft-Windows-Security-SPP	Application 10/8/2019 12:39:19 PM 🛆
	W2K16R2-STD 8233 Warning Microsoft-Windows-Security-SPP	Application 10/8/2019 10:39:19 AM =

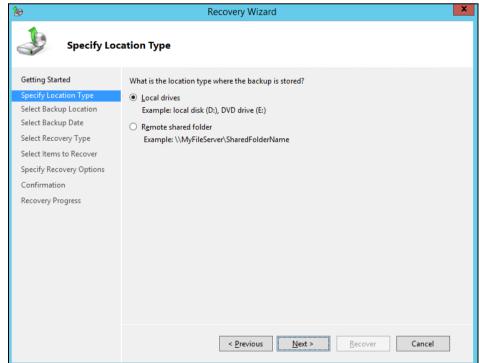
2. In the Actions panel under Windows Server Backup, click Recover...

a	wbadmin - [Window	ws Server Backup	(Local)\Local Ba	ckup]			x
File Action View Help)						
🗢 🌩 🙇 🖬 🚺 🎫							
Windows Server Backup (I	.ocal Backup		-	Ac	tions		
🐌 Local Backup	14			Lo	cal Backup		•
	You can perform a si	ingle backup or	schedule a reg	1	Backup Schedule		
	A scheduled backup has no	at have a set in model for	a this commutes 11	1	Backup Once		
		-		1 10	Recover		
	Messages (Activity from last weel	k, double click on th	e message to see	II	Configure Performance	Settings	
	Time	Message	Description		View		•
	10/8/2019 12:08 PM	Backup	Successful =	?	Help		
	(i) 10/3/2019 11:56 AM	Backup	Successful				
	štatus			١.			
	Last Backup		Next Backup				
	Status: 👩 Successful		Status: Not sc				
	Time: 10/8/2019 12:08 PM		Time: -				
	View details		View detai				
< III >	< III		>				

3. On the **Getting Started page**, select **A backup stored on another location**, then click **Next**.

10	Recovery Wizard	x
Getting Star	rted	
Getting Started Specify Location Type Select Backup Location Select Backup Date Select Recovery Type Select Items to Recover Specify Recovery Options Confirmation Recovery Progress	You can use this wizard to recover files, applications, volumes, or the system state from a backup that was created earlier. Where is the backup stored that you want to use for the recovery? This server (W2K16R2-STD) Image: A backup stored on another location To continue, click Next. Previous Previous Previous Previous]

- 4. On the Specify Location Type page, select
 - Click Local drives if the system image was copied to a local volume on the server.
 - Click Remote shared folder, if the system image was copied to a network path accessible to this server.



5. On the **Select Backup Location** page, select the volume that contains the system image file.

10	Recovery Wizar	d	X
Select Back	up Location		
Getting Started Specify Location Type Select Backup Location	as a volume. If your backup is on a DVD an backup is inserted into a DVD drive.	the backup. An external disk attached to this server is liste d spans multiple DVDs, make sure that the last DVD of th	
Select Backup Date	Backup location:	Temp1 (E:) 🗸	
Select Recovery Type	Total space in location:	60.00 GB	
Select Items to Recover Specify Recovery Options Confirmation Recovery Progress	Free space in backup location:	30.46 GB	
	< Previous	Next > Recover Cancel	

Note: Assuming that the **WindowsImageBackup** folder was copied to the following *F:* **WindowsImageBackup**

6. On the **Select Server** page, select the server whose data you want to recover.

100	Recovery Wizard	x
Select Serv	er	
Getting Started Specify Location Type Select Backup Location Select Server Select Backup Date Select Recovery Type Select Items to Recover Specify Recovery Options Confirmation Recovery Progress	Please select which server's data you would like to recover. Server: W2k16R2-std	
	< Previous Next > Recover Cancel	

7. On the **Select Backup Date** page, select the point in time of the backup you want to restore from.

10	Recovery Wizard	x
Select Back	up Date	
Getting Started Specify Location Type Select Backup Location Select Server Select Backup Date Select Recovery Type Select Items to Recover Specify Recovery Options Confirmation Recovery Progress	Oldest available backup: 10/8/2019 12:08 PM Newest available backups 10/8/2019 12:08 PM Available backups Select the date of a backup to use for recovery. Backups are available for dates shown in bold. Image: Select the date of a backup to use for recovery. Backups are available for dates shown in bold. Image: Select the date of a backup to use for recovery. Backups are available for dates shown in bold. Image: Select the date of a backup to use for recovery. Backups are available for dates shown in bold. Image: Select the date of a backup to use for recovery. Backups are available for dates shown in bold. Image: Select the date of a backup to use for recovery. Backup date: Image: Select the date of a backup to use for recovery. Backup date: Image: Select the date of a backup to use for recovery. Image: Select the date of a backup to use for recovery. Image: Select the date of a backup to use for recovery. Image: Select the date of a backup to use for recovery. Image: Select the date of a backup to use for recovery. Image: Select the date of a backup to use for recovery. Image: Select the date of the date of the date. Image: Select the date. 10/8/2019 Image: Select the date. 10/8/2019 Image: Select the date. 10/8/2019 Image: Select the date. 1	
	< Previous Next > Recover Cancel]

8. On the Select Recovery Type page, click Files and folders.

10	Recovery Wizard
Select Reco	overy Type What do you want to recover?
Specify Location Type Select Backup Location Select Server Select Backup Date Select Recovery Type	 Files and folders You can browse volumes included in this backup and select files and folders. Hyper-V You can restore virtual machines to their original location, another location or copy the virtual hard disk files of a virtual machine.
Select Items to Recover Specify Recovery Options Confirmation Recovery Progress	 Volumes You can restore an entire volume, such as all data stored on C:. Applications You can recover applications that have registered with Windows Server Backup. System state You can restore just the system state.
	< Previous Next > Recover Cancel

9. On the **Select Items to Recover** page, under **Available items**, expand the list until the folder you want is visible.

Click a folder to display the contents in the adjacent pane, click each item that you want to restore.

100	Recovery Wizard	x
Select Item	s to Recover	
Getting Started Specify Location Type Select Backup Location Select Server Select Backup Date Select Recovery Type Select Items to Recover Specify Recovery Options Confirmation Recovery Progress	Browse the tree in Available items to find the files or folders that you want to recover. Click an it in the tree or under Name to select it for recovery. Available items: Available items:	em (
	Saved Games Searches Image: Comparison of the searc	~

10. On the **Specify Recovery Options** page, under **Recovery destination**, select **Alternate location**.

Гуре the path to the location or click Browse to select it.
--

100	Recovery Wizard	x
Specify Rec	overy Options	
Getting Started Specify Location Type Select Backup Location Select Server Select Backup Date Select Recovery Type Select Items to Recover Specify Recovery Options Confirmation Recovery Progress	Recovery destination Original location Another location E:\Restore Destination Browse When this wizard finds items in the backup that are already in the recovery destination Create copies so that you have both versions Overwrite the existing versions with the recovered versions Do not recover the items that already exist on the recovery destination Security settings	
	< Previous Next > Recover Cancel]

Modify the When this wizard finds items in the backup that are already in the recovery destination setting, and the Security settings if necessary.

Click **Next** to proceed.

11. On the **Confirmation** page, review the details, and then click **Recover** to restore the specified items.

10	Recovery Wizard	x
Confirmatio	on	
Getting Started	From backup: 1/29/2019 10:29 AM	
Specify Location Type	Recovery items:	
Select Backup Location Select Server Select Backup Date Select Recovery Type Select Items to Recover Specify Recovery Options Confirmation Recovery Progress	C:\Users\Administrator\Desktop\online help backup\BackupRestore_Basic_BackupDataMigration. C:\Users\Administrator\Desktop\online help backup\BackupRestore_Basic_BackupDataMigration. C:\Users\Administrator\Desktop\online help backup\BackupRestore_Basic_FreeTrialOptions_guot C:\Users\Administrator\Desktop\online help backup\BackupRestore_Basic_FreeTrialOptions_Quot C:\Users\Administrator\Desktop\online help backup\BackupRestore_Basic_FreeTrialOptions_Quot C:\Users\Administrator\Desktop\online help backup\BackupRestore_Basic_VorgensiveDIC.jsp C:\Users\Administrator\Desktop\online help backup\BackupRestore_Basic_UserHomes.jsp C:\Users\Administrator\Desktop\online help backup\BackupRestore_Basic_UserHomes_UserHome C:\Users\Administrator\Desktop\online help backup\BackupRestore_Basic_UserHomes_UserHome C:\Users\Administrator\Desktop\online help backup\BackupRestore_UsersGroupsPolicies_Backup C:\Users\Administrator\Desktop\online help backup\BackupRestore_UsersGroupsPolicies_Backup C:\Users\Administrator\Desktop\on	
	Recovery destination: E:\Restore Destination Recovery option: Create copies of recovered files Security settings: Recover	
	< Previous Next > Recover Cancel	

12. On the **Recovery progress** page, the status and result of the recovery operation is displayed.

10	Recovery Wizard	x
Recovery P	rogress	
Getting Started Specify Location Type Select Backup Location Select Server Select Backup Date Select Recovery Type Select Items to Recover Specify Recovery Options Confirmation Recovery Progress	File recovery progress: Status: Recovery in progress Recovery details: Items Item Data transferred C:\Users\A E\Restore Destin Completed. 8 KB of 8 KB C:\Users\A E\Restore Destin Completed. 1 KB of 1 KB To close the wizard, click Close — the recovery operation will continue to run in the backgroun To view the progress of this operation, open the backup in progress message from the Window Server Backup console. Server Backup console.	
	< Previous Next > Close Cancel	



10	Recovery Wizard			
Recovery P	rogress			
Getting Started Specify Location Type Select Backup Location Select Server	File recovery progress: Status: Completed. Recovery details:			
Select Backup Date Select Recovery Type Select Items to Recover Specify Recovery Options Confirmation Recovery Progress	Items Item Destination Status Data transferred C:\Users\A E:\Restore Destin Completed. 9 KB of 9 KB C:\Users\A E:\Restore Destin Completed. 9 KB of 9 KB C:\Users\A E:\Restore Destin Completed. 9 KB of 9 KB C:\Users\A E:\Restore Destin Completed. 4 KB of 4 KB C:\Users\A E:\Restore Destin Completed. 2 KB of 2 KB C:\Users\A E:\Restore Destin Completed. 8 KB of 8 KB C:\Users\A E:\Restore Destin Completed. 1 KB of 1 KB To close the wizard, click Close — the recovery operation will continue to run in the backgroun To view the progress of this operation, open the backup in progress message from the Window Server Backup console. Server Backup console. Server Backup console.			
	< Previous Next > Close Cancel			

9.3.2 Recover Applications and Data

To recover application and data using the Recovery Wizard in the Windows Server Backup user interface.

1. Open Windows Server Backup from Administrative Tools or Server Manager.

Server Ma	inager 🔸 Local Server 🔹 🕫 🖡 Manage Tools View Help
<u> </u>	Component Services
Dashboard	PROPERTIES Computer Management
	Derragment and Optimize Drives
Local Server	Computer name w2k16R2-std Last installed Disk Cleanup
All Servers	Workgroup WORKGROUP Windows Up
File and Storage Services ▷	Last checked Hyper-V Manager
Hyper-V	iSCSI Initiator
	Windows Firewall Public: Off Windows Err
	Remete management Enabled Customer Fin
	Remote Desition Enabled IE Enhanced
	NIC Teaming Disabled Time zone ODBC Data Sources (64-bit)
	Private 172.16.10.12, IPv6 enabled Product ID Performance Monitor
	Public 10.16.10.12, IPv6 enabled Resource Monitor
	Security Configuration Wizard
	Services
	System Configuration
	Operating system version Microsoft Windows Server 2012 R2 Standard Processors System Information
	Hardware information VMware, Inc. VMware Virtual Platform Installed mer
	< III Windows Firewall with Advanced Security
	Windows Memory Diagnostic
	EVENTS Windows PowerShell
	All events 13 total Windows PowerShell (x86)
	Windows PowerShell ISE
	Filter 🔎 🗒 🕶 🛞 🕶 Windows PowerShell ISE (x86)
	Windows Server Backup
	Server Name ID Severity Source Log Date and Time
	W2K16R2-STD 8233 Warning Microsoft-Windows-Security-SPP Application 10/8/2019 12:39:19 PM
	W2K16R2-STD 8233 Warning Microsoft-Windows-Security-SPP Application 10/6/2019 12:35:15 PM
	WERTORESTE 0233 Warning Microsoft-Windows-Security-SPP Application 10/0/2019 10:39:19 AM

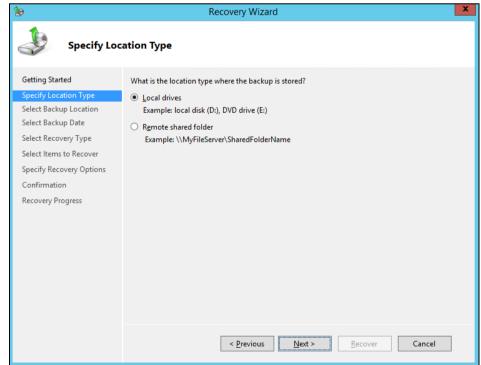
2. In the Actions panel under Windows Server Backup, click Recover...

-	wbadmin - [Window	vs Server Backup	(Local)\Local Ba	ckup]	l		x	
File Action View Help								
🗢 🔿 🞽 🖬 🚺 🛐								
	ocal Backup 🔶			Act	Actions			
	14	You can perform a single backup or schedule a reg			Local Backup Backup Schedule			
	A scheduled backup has not been configured for this computer. Us				Recover			
	Messages (Activity from last week, double click on the message to see			0	Configure Performance	Settings		
	Time	Message	Description		View		•	
	(i) 10/8/2019 12:08 PM (i) 10/3/2019 11:56 AM	Backup Backup	Successful ≡ Successful	?	Help			
	Status		_					
	Last Backup		Next Backup					
	Status: 🕢 Successful		Status: Not sc					
	Time: 10/8/2019 12:08 PM		Time: -					
	View details		View detai					
< III >	<		>					

3. On the **Getting Started page**, select **A backup stored on another location**, then click **Next.**

10	Recovery Wizard					
Getting Started						
Getting Started Specify Location Type Select Backup Location Select Backup Date Select Recovery Type Select Items to Recover Specify Recovery Options Confirmation Recovery Progress	You can use this wizard to recover files, applications, volumes, or the system state from a backup that was created earlier. Where is the backup stored that you want to use for the recovery? This server (W2K16R2-STD) A backup stored on another location To continue, click Next.]				

- 4. On the Specify Location Type page, select
 - Click Local drives if the system image was copied to a local volume on the server.
 - Click Remote shared folder, if the system image was copied to a network path accessible to this server.



5. On the **Select Backup Location** page, select the volume that contains the system image file.

10	Recovery Wizar	d ×
Select Back	up Location	
Getting Started Specify Location Type Select Backup Location		he backup. An external disk attached to this server is listed d spans multiple DVDs, make sure that the last DVD of the
Select Backup Date	Backup location:	Temp2 (F:) 🗸
Select Recovery Type	Total space in location:	80.00 GB
Select Items to Recover	Free space in backup location:	63.35 GB
Specify Recovery Options		
Confirmation		
Recovery Progress		
	< Previous	Next > Recover Cancel

Note: Assuming that the **WindowsImageBackup** folder was copied to the following *F:***WindowsImageBackup**

6. On the **Select Server** page, select the server whose data you want to recover.

100	Recovery Wizard	x
Select Serve	er	
Getting Started Specify Location Type Select Backup Location Select Server Select Backup Date Select Recovery Type Select Items to Recover Specify Recovery Options Confirmation Recovery Progress	Verse: V2k16R2-std	1
		-

7. On the **Select Backup Date** page, select the point in time of the backup you want to restore from

100	Recovery Wizard	x
Select Back	up Date	
Getting Started Specify Location Type Select Backup Location Select Server Select Backup Date Select Recovery Type Select Items to Recover Specify Recovery Options Confirmation Recovery Progress	Oldest available backup: 10/8/2019 12:08 PM Newest available backups 10/8/2019 12:08 PM Available backups Select the date of a backup to use for recovery. Backups are available for dates shown in bold. Image: Cotober 2019 Image: Cotober 2019 Sun Mon Tue Wed Thu Fri Sat 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 4 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	
	< Previous Next > Recover Cancel]

8. On the **Select Recovery Type** page, click **Applications**, and then click **Next**.

10	Recovery Wizard			
Select Reco	Select Recovery Type			
Getting Started Specify Location Type Select Backup Location Select Server Select Backup Date Select Recovery Type Select Application Specify Recovery Options Confirmation Recovery Progress	 What do you want to recover? Files and folders You can browse volumes included in this backup and select files and folders. Hyper-V You can restore virtual machines to their original location, another location or copy the virtual hard disk files of a virtual machine. Volumes You can restore an entire volume, such as all data stored on C:. Applications You can recover applications that have registered with Windows Server Backup. System state You can restore just the system state. 			
	< Previous Next > Recover Cancel			

9. On the **Select Application** page, under **Applications**, click the application that you want to recover.

100	Recovery Wizard
Select Appl	lication
Getting Started Specify Location Type Select Backup Location <u>Select Server</u> Select Backup Date Select Recovery Type <u>Select Application</u> Specify Recovery Options Confirmation Recovery Progress	Select application to recover. Applications Registry View Details
	< Previous Next > Recover Cancel

Note: If the backup that you are using is the most recent and the application you are recovering supports a "roll-forward" of the application database, you will see a check box labeled **Do not perform a roll-forward recovery of the application databases**.

Select this check box if you want to prevent Windows Server Backup from rolling forward the application database that is currently on your server.

10. On the **Specify Recovery Options** page, select **Recover to another location**. Type the path to the location or click **Browse** to select it.

100	Recovery Wizard	x
Specify Rec	overy Options	
Getting Started Specify Location Type Select Backup Location Select Server Select Backup Date Select Application Specify Recovery Options Confirmation Recovery Progress	Where do you want to recover the application and application data to?	1

11. On the **Confirmation** page, review the details, and then click **Recover** to restore the listed items.

10	Recovery Wizard	x
Confirmatio	on	
Getting Started Specify Location Type	From backup: 1/29/2019 10:29 AM Recovery items:	
Select Backup Location Select Server Select Backup Date Select Recovery Type Select Application Specify Recovery Options Confirmation Recovery Progress	Registry	
	Recovery destination: E:\Restore Destination	
	< Previous Next > Recover Cancel]

12. On the **Recovery progress** page, the status and result of the recovery operation is displayed.

10	Recovery Wizard	x
Recovery P	rogress	
Getting Started Specify Location Type Select Backup Location	Application recovery progress: Status: Recovery in progress	
Select Server Select Backup Date	Recovery details:	
Select Recovery Type Select Application Specify Recovery Options Confirmation Recovery Progress	Item Destination Status Data transferred Registry E:\Restore Destin 45% of files re 72.07 MB of 157.8 To close the wizard, click Close — the recovery operation will continue to run in the backgroun To view the progress of this operation, open the backup in progress message from the Window Server Backup console.	
	< Previous Next > Close Cancel	

10	Recovery Wizard	x
Recovery P	rogress	
Getting Started Specify Location Type Select Backup Location Select Server	Application recovery progress: Status: Completed. Recovery details:	
Select Backup Date	Items	
Select Recovery Type Select Application Specify Recovery Options Confirmation Recovery Progress	Item Destination Status Data transferred Registry E:\Restore Destin Completed. 157.82 MB of 157 To close the wizard, click Close — the recovery operation will continue to run in the background To view the progress of this operation, open the backup in progress message from the Windows Server Backup console.	
	< Previous Next > Close Cancel	

9.3.3 Recover Volumes

To recover volume using the Recovery Wizard in the Windows Server Backup user interface.

1. Open Windows Server Backup from Administrative Tools or Server Manager.

i 🚔	Server Manager	
Server Ma	anager 🔸 Local Server 🛛 🔹 🕫 🖡 Manage	Tools View Help
		Component Services
_	PROPERTIES	Computer Management
Dashboard	For w2k16R2-std	Defragment and Optimize Drives
Local Server	Computer name w2k16R2-std Last installer	Disk Cleanup
All Servers	Computer name w2k16R2-std Last installed Workgroup WORKGROUP Windows Up	Event Viewer
■ File and Storage Services ▷	Last checked	Human V Managana
		iSCSI Initiator
🛅 Hyper-V		Local Security Policy
	Windows Firewall Public: Off Windows Err	Microsoft Azure Services
	Remote management Enabled Customer Ex	ODBC Data Sources (32-bit)
	Remote Desktop Enabled IE Enhanced	ODBC Data Sources (64-bit)
	NIC Teaming Disabled Time zone	Performance Monitor
	Private 172.16.10.12, IPv6 enabled Product ID Public 10.16.10.12 IPv6 enabled	Resource Monitor
	Public 10.16.10.12, IPv6 enabled	Security Configuration Wizard
		Services
		System Configuration
	Operating system version Microsoft Windows Server 2012 R2 Standard Processors	System Information
	Hardware information VMware, Inc. VMware Virtual Platform Installed me	
	Takal dide an	Windows Firewall with Advanced Security
	×	Windows Memory Diagnostic
		Windows PowerShell
	EVENTS	
	All events 13 total	Windows PowerShell (x86)
		Windows PowerShell ISE
	Filter P III • III •	Windows PowerShell ISE (x86)
		Windows Server Backup
	Server Name ID Severity Source Log Dat	e and Time
	W2K16R2-STD 8233 Warning Microsoft-Windows-Security-SPP Application 10/8	8/2019 12:39:19 PM 🔼
	W2K16R2-STD 8233 Warning Microsoft-Windows-Security-SPP Application 10/8	8/2019 10:39:19 AM _

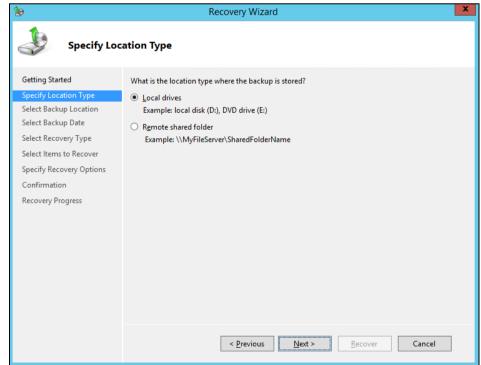
2. In the Actions panel under Windows Server Backup, click Recover.

a	wbadmin - [Window	ws Server Backup	(Local)\Local Ba	ckup]		x
File Action View Help	L					
🗢 🔿 🙍 🖬 🚺						
🐌 Windows Server Backup (l	.ocal Backup		^	Act	ions	
🐌 Local Backup	14		_	Lo	cal Backup	•
	You can perform a s	ingle backup or	schedule a reg	1	Backup Schedule	
				1	Backup Once	
	A scheduled backup has no	ot been configured fo	or this computer. Us	1 10	Recover	
	Messages (Activity from last wee	k, double click on th	e message to see		Configure Performance Settings	
	Time	Message	Description		View	►
	10/8/2019 12:08 PM	Backup	Successful =	?	Help	
	10/3/2019 11:56 AM	Backup	Successful			
	štatus					
	Last Backup		Next Backup			
	Status: 🕢 Successful		Status: Not sc			
	Time: 10/8/2019 12:08 PM		Time: -			
	View details		View detai			
<	<		>			
× III 2			1			

3. On the **Getting Started page**, select **A backup stored on another location**, then click **Next.**

10	Recovery Wizard	x
Getting Sta	rted	
Getting Started Specify Location Type Select Backup Location Select Backup Date Select Recovery Type Select Items to Recover Specify Recovery Options Confirmation Recovery Progress	You can use this wizard to recover files, applications, volumes, or the system state from a backup that was created earlier. Where is the backup stored that you want to use for the recovery? This server (W2K16R2-STD) A backup stored on another location To continue, click Next. <a click-next-style-styl<="" href="https://www.energy.org/list-style=" text-align:="" th=""><th>]</th>]

- 4. On the Specify Location Type page, select
 - Click Local drives if the system image was copied to a local volume on the server.
 - Click Remote shared folder, if the system image was copied to a network path accessible to this server.



5. On the **Select Backup Location** page, select the volume that contains the system image file.

10	Recovery Wizar	d ×		
Select Backup Location				
Getting Started Specify Location Type Select Backup Location		he backup. An external disk attached to this server is listed d spans multiple DVDs, make sure that the last DVD of the		
Select Backup Date	Backup location:	Temp2 (F:) 🗸		
Select Recovery Type	Total space in location:	80.00 GB		
Select Items to Recover	Free space in backup location:	63.35 GB		
Specify Recovery Options				
Confirmation				
Recovery Progress				
	< Previous	Next > Recover Cancel		

Note: Assuming that the **WindowsImageBackup** folder was copied to the following *F:***WindowsImageBackup**

6. On the **Select Server** page, select the server whose data you want to recover.

100	Recovery Wizard	x
Select Serve	er	
Getting Started Specify Location Type Select Backup Location Select Server Select Backup Date Select Recovery Type Select Items to Recover Specify Recovery Options Confirmation Recovery Progress	Please select which server's data you would like to recover. Server:	
	< Previous Next > Recover Cancel]

7. On the **Select Backup Date** page, select the point in time of the backup you want to restore from

100	Recovery Wizard	x
Select Back	up Date	
Getting Started Specify Location Type Select Backup Location Select Server Select Backup Date Select Recovery Type Select Items to Recover Specify Recovery Options Confirmation Recovery Progress	Oldest available backup: 10/8/2019 12:08 PM Newest available backups 10/8/2019 12:08 PM Available backups Select the date of a backup to use for recovery. Backups are available for dates shown in bold. Image: Cotober 2019 Image: Cotober 2019 Sun Mon Tue Wed Thu Fri Sat 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 4 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	
	< Previous Next > Recover Cancel]

8. On the Select Recovery Type page, click Volumes, and then click Next.

10	Recovery Wizard
Select Reco	overy Type
Getting Started Specify Location Type Select Backup Location Select Server Select Backup Date Select Recovery Type Select Volumes Confirmation Recovery Progress	 What do you want to recover? Files and folders You can browse volumes included in this backup and select files and folders. Hyper-V You can restore virtual machines to their original location, another location or copy the virtual hard disk files of a virtual machine. Volumes You can restore an entire volume, such as all data stored on C:. Applications You can recover applications that have registered with Windows Server Backup. System state You can restore just the system state.
	< Previous Next > Recover Cancel

9. On the **Select Volumes** page, select the check boxes associated with the volumes in the **Source Volume** column that you want to recover.

Then, from the associated dropdown list in the **Destination Volume** column, select the location that you want to recover the volume to.

	Recovery W	lizard		x
Select Volu	mes			
Getting Started Specify Location Type Select Backup Location Select Server Select Backup Date	Under 'Source Volume' select the che Under 'Destination Volume' select the this volume will be deleted at the star contains data that you need. Source Volume Size	location that you want to recov	er to. Important: All data on	
Select Recovery Type Select Volumes Confirmation Recovery Progress	□ System Reserved 0.34 GB ✓ Local disk (C:) 39.66 GB	Tempi (E:)	-	
	< Previo	us Next > Rec	cover Cancel	
100	Recovery W	izard		
Select Volu				x
Getting Started Specify Location Type Select Backup Location Select Server		:kboxes for the volumes that you location that you want to recov	er to. Important: All data on	x
Getting Started Specify Location Type Select Backup Location	mes Under 'Source Volume' select the cher Under 'Destination Volume' select the this volume will be deleted at the start	:kboxes for the volumes that you location that you want to recov	er to. Important: All data on ot select a volume if it Size Used Space	
Getting Started Specify Location Type Select Backup Location Select Server Select Backup Date Select Recovery Type Select Volumes Confirmation	mes Under 'Source Volume' select the chee Under 'Destination Volume' select the this volume will be deleted at the start contains data that you need. Source Volume Size System Reserved 0.34 GB	kboxes for the volumes that you location that you want to recov of the recovery operation. Do n Destination Volume	er to. Important: All data on ot select a volume if it Size Used Space	

Important: Before clicking **Next** to continue, make sure that the destination volume is empty, or does not contain information that you will need later.

	Windows Server Backup
4	Data on the volume(s) that you are recovering to will be lost. Volume(s): Temp1 (E:) Note: If the recovered volume contains applications, you will need to recover those applications separately after you recover the volume. Are you sure you want to continue with the recovery operation?
	Yes No

10. On the **Confirmation** page, review the details, and then click **Recover** to restore the volume.

10	Recovery Wizard	x
Confirmatio	on	
Getting Started	From backup: 1/29/2019 10:29 AM Recovery items:	
Specify Location Type Select Backup Location Select Server Select Backup Date Select Recovery Type Select Volumes Confirmation Recovery Progress	Source Volume Destination Volume Local disk (C:) Temp1 (E:)	
	< Previous Next > Recover Co	ancel

11. On the **Recovery progress** page, the status and result of the recovery operation is displayed.

Recovery Prog	Recovery Wizard			
	iress			
	gress			
Getting Started				
Getting Started				
-	Volume recovery progress:			
	Status: Recovery in progress			
Select Backup Location Select Server Recovery details:				
Select Backup Date	Items			
Select Recovery Type	Item Destination Status Data transferred			
Select Volumes	Local disk (E: 16% of volum 2.35 GB of 13.89 GB			
Confirmation				
Recovery Progress				
	To close the wizard, click Close — the recovery operation will continue to run in the background. To view the progress of this operation, open the backup in progress message from the Windows			
	Server Backup console.			
< Previous Next > Close Cancel				
Secovery Wizard				
Recovery Progress				
Getting Started	Volume recovery progress:			
-	Status: Completed.			
Select Backup Location				
Select Server	Recovery details:			
Select Backup Date Items				
Select Recovery Type	Item Destination Status Data transferred			
Select Volumes	Local disk (E: Completed. 13.89 GB of 13.89			
Recovery Progress				
	To also the wined slick Class — the receiver acception will continue to sur in the background			
	To close the wizard, click Close — the recovery operation will continue to run in the background. To view the progress of this operation, open the backup in progress message from the Windows			
	Server Backup console.			
Select Server Select Backup Date Select Recovery Type	Items Destination Status Data transferred			

< Previous

Next >

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Cancel

Close

9.3.4 Recover Operating System or Full System

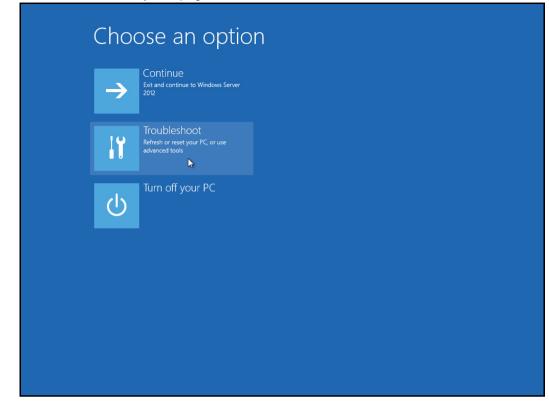
You can recover an operating system or full system by using Windows Recovery Environment, or by booting from a Windows setup disc.

Note: For instructions specific to recovering Active Directory Domain Services, refer to the following: <u>http://go.microsoft.com/fwlink/?LinkId=143754</u>

To launch in Windows Recovery Environment, insert the Windows setup disc that has the same architecture of the system that you are recovering, into the CD / DVD drive and start or restart the computer. Press the required key to boot from the disc.

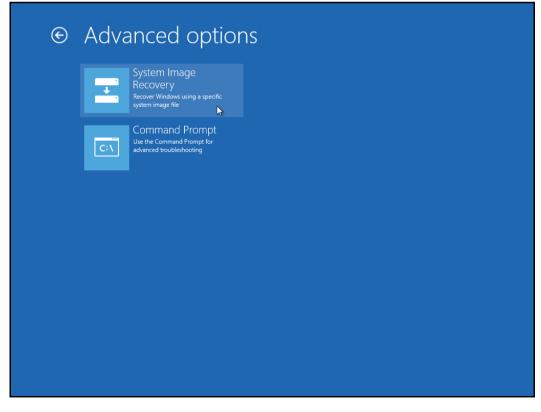
- Windows Setup Windows Server 2012 Install now Repair your computer © 2012 Microsoft Generation & Finghts reserved.
- 1. On the Windows Setup page, select Repair your computer.

2. On the Choose an option page, click Troubleshoot.



Note: This screen will only be displayed when you are recovering a Windows 2012 / 2012 R2 Server.

3. Click System Image Recovery.



Note: This screen will only be displayed when you are recovering a Windows 2012 / 2012 R2 Server.

4. Confirm on the target operating system. This opens the **Re-image your computer** page.

System Im	age Recove	ry	
Windows S	Server 2012		

Note: This screen will only be displayed when you are recovering a Windows 2012 / 2012 R2 Server.

5. Click Select a system image, then click Next.

<u>A</u>	Re-image your o	computer	×
	Select a sys	stem image backup	
		be restored using the system image. computer will be replaced with the system image.	
		nformation for BMR: ft.com/fwlink/p/?LinkId=225039	
	O Use the latest	available system image(recommended)	
	Location:	Volume 1 (D:)	
	Date and time:	8/10/2019 9:46:10 PM (GMT-8:00)	
	Computer:	Root	
	 Select a system 	n image	40
		< Back Next > Can	cel
		13	

6. Select the location that contains the system image to restore from. If you do not see the image available, then

	f the backup for the computer y is on an external device, attach the sh.			
	on a DVD, insert the last DVD from the two of a DVD, insert the last DVD from the two of location or install a driver for a			
Location	Most recent system image	Computer		
Volume 1 (D:)	8/10/2019 9:46:10 PM	Root		
		Refresh		
Advanced				

 Click Advanced and install the required driver for the removable drive to be accessed, if the system image was copied to a removable drive attached to the server.

To install a driver, the driver must be located on the local system. You cannot install a driver from the network.

 Click Advanced and browse to the remote shared folder which contains the system image if the system image was copied to a network path.

For domain environment, if the backup storage location is on a computer that is a member of that domain, then the computer containing the storage location should be on the IPsec boundary, to be accessible by non-domain computer.

When a computer boots into Windows Recovery Environment, it becomes a nondomain computer, therefore, cannot access the usual network shares. Only those computers that allow non-domain computers to access the share can be used as a backup storage location in this way.

7. Select the date and time of system image to restore.

2	Re-image your computer			
	Select the date and time of system image to restore If more than one system image is available and you're not sure which one to restore, choose the most recent one.			
	Backups available for Root on Vo Current time zone: GMT-8:00	olume 1 (D:)		
	Date and time Drives in backup			
	8/10/2019 9:46:10 PM \?Volume{81858dad-fbc8-11e2-93e8-806e			
		2		
	<			
		< Back Next >	Cancel	

8. On the Choose additional restore options page



Select the **Format and repartition disks** check box to delete existing partitions and reformat the destination disks to be the same as the backup.

Click the **Exclude disks** button, then select the check boxes associated with any disks that you want to exclude from being formatted and partitioned.

×
3
ne
Cancel

Note: The disk that contains the backup that you are using is automatically excluded.

Select the **Only restore system drives** check box (not displayed in screenshot) to perform an operating system only recovery (instead of a full system recovery).

Click **Install drivers** to install device drivers for the hardware that you are recovering to.

restore options	M
artition disks	
Add Drivers	xclude disks
dick OK to select the driver.] Install drivers
u are restoring to might solve the Problem.	Advanced
	Add Drivers Add Drivers Insert the installation media for the device and dick OK to select the driver. OK Cancel

Click **Advanced** to specify whether the computer is automatically restarted, and the disks are checked for errors immediately after the recovery.

	R	e-image Your	Computer		×
Autor	natically restart	t this computer afte	r the restore i	s complete	
To ma	ake additional d	hanges before rest	arting this com	puter, clear	this check box.
Autor	natically check a	and update disk err	or information		
		ral minutes to comp , clear this check b		disks and up	odate <mark>e</mark> rror
			-		
				OK	Cancel

9. Confirm the details for the restoration, and then click **Finish** to start the recovery process.

2	Re-image your com	iputer 🎫
	Your computer will be r image: Date and time: Computer: Drives to restore:	restored from the following system /10/2019 9:46:10 PM (GMT-8:00) Root \\?81858dad-fbc8-11e2-
	< 6	Back Finish Cancel

The recovery will succeed as long as all the critical volumes (e.g. volumes containing operating system components) are recovered.

If any data volume cannot be recovered, Windows will show a prompt with the unrecoverable volumes at the end of the recovery operation.

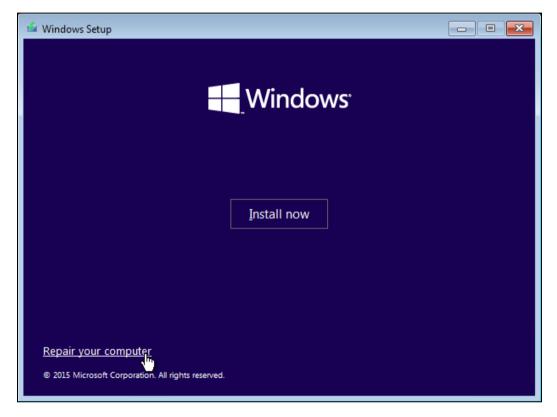
9.3.5 Recover a Full System (Non Server Platforms)

You can recover a full system using the advanced startup option by

Booting from a Windows installation media

Insert the installation media that has the same architecture of the system that you are recovering and restart your computer. Press the required key to boot from the disc.

When you see the Windows Setup page, click Next, then click Repair your computer.



Starting Windows in safe mode

Press the **Power** button at the Windows login screen, in the Start menu, or in the Setting screen. Then press and hold the SHIFT key on the keyboard and click **Restart**.

Once you are in the Startup Option menu, perform the following steps.

1. Click **Troubleshoot**.

Continue Exit and continue to Windows 10 Troubleshoot Refresh or reset your PC, or use advanced tools
Refresh or reset your PC, or use advanced tools
Turn off your PC

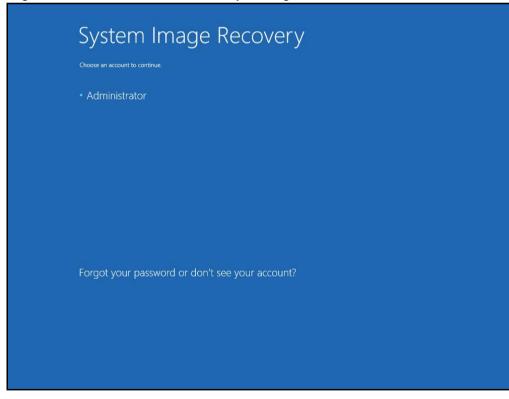
2. Click Advanced options.

E	Troul	oleshoot		
	Ð.	Reset your PC If you want to remove all of your files, you can reset your PC completely		
	*==	Advanced options		

3. Click System Image Recovery.

© Adv	vanced options
	System Restore Use a restore point recorded on your PC to restore Windows
	System Image Recovery Recover Windows using a specific system image file
<0)	Automatic Repair Fix problems that keep Windows from loading

4. Login with an administrative account, by clicking on Administrator.



5. Click Select a system image, then click Next.

Re-image your computer		
	Select a sys	tem image backup
		be restored using the system image. computer will be replaced with the system image.
- 0-		iformation for BMR: ft.com/fwlink/p/?LinkId=225039
	Use the latest	available system image(recommended)
	Location;	Volume 2 (D:)
	Date and time:	8/10/2019 9:10:03 PM (GMT-8:00)
	Computer:	Win10
	Select a system	n image
		< Back Next > Cancel

6. Select the location that contains the system image to restore from. If you do not see the image available, then

and then click Refre	is on an external device, attach the sh.	device to this computer,
Advanced to add a ne	on a DVD, insert the last DVD from the twork location or install a driver for a	
up in the list below.		
Current time zone: GN		Constant Inc.
Location	Most recent system image	Computer
Volume 2 (D:)	8/10/2019 9:10:03 PM	Win10
		Refresh
Advanced		

 Click Advanced and install the required driver for the removable drive to be accessed, if the system image was copied to a removable drive attached to the server.

To install a driver, the driver must be located on the local system. You cannot install a driver from the network.

 Click Advanced and browse to the remote shared folder which contains the system image if the system image was copied to a network path.

For domain environment, if the backup storage location is on a computer that is a member of that domain, then the computer containing the storage location should be on the IPsec boundary, to be accessible by non-domain computer.

When a computer boots into Windows Recovery Environment, it becomes a nondomain computer, therefore, cannot access the usual network shares. Only those computers that allow non-domain computers to access the share can be used as a backup storage location in this way.

If more than one system in restore, choose the most n Backups available for Win 10 Current time zone: GMT-8:0	on Volume 2 (D:)
Date and time	Drives in backup
8/10/2019 9:10:03 PM	\\?799266f4-0000-0000-0000-100000000
<	>

7. Select the date and time of system image to restore.

8. On the **Choose additional restore options** page.

Choose additional restore options	J.
Format and repartition disks	
Select this to delete any existing partitions and reformat all disks on this computer to match the layout of the system image.	Exclude disks
If you're unable to select an option above, installing the drivers for the disks you are restoring to might solve the problem.	Install drivers
	Advanced

Click Install drivers to install device drivers for the hardware that you are recovering to.

	al restore options	L.
	- the	
Select this to on this compu	Add Drivers	xdude disks
	Insert the installation media for the device and click OK to select the driver.	
	OK Cancel]
	and the second	Install drivers
If you're unator for the disks y	ou are restoring to might solve the problem.	
	ou are restoring to might solve the problem.	<u>A</u> dvanced

Click **Advanced** to specify whether the computer is automatically restarted, and the disks are checked for errors immediately after the recovery.

Re-image Your Compu	ter		X
Automatically <u>r</u> estar	t <mark>t</mark> his computer after the re	store is complete	
To make additional o	hanges before restarting th	nis computer, <mark>clear t</mark> l	his check box.
Automatically check	and update disk error infor	mation	
	ral minutes to complete. To r, clear this check box.) check disks and upo	late <mark>error</mark>
		ОК	Cancel
			Contect

9. Confirm the details for the restoration, and then click **Finish** to start the recovery process.

🌺 Re-image your computer			
2	Your computer will be re image: Date and time:	stored from the following system	
	Computer:	Win 10	
	Drives to restore:	\\?799266f4-0000-0000-	
	complete, your co this happens, you to restore the co	ocess is interrupted or fails to omputer might not start up(boot). If u can use a system repair disc to try mputer again or attempt other options. <u>Create a system repair disc</u>	
	< B2	ack Finish Cancel	

Important: Do not interrupt the restore process.

The recovery will succeed as long as all the critical volumes (e.g. volumes containing operating system components) are recovered.

10 Contact Ahsay

10.1 Technical Assistance

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

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

10.2 Documentation

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

You can send us suggestions for improvements or report on issues in the documentation by contacting us at:

https://www.ahsay.com/partners/

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

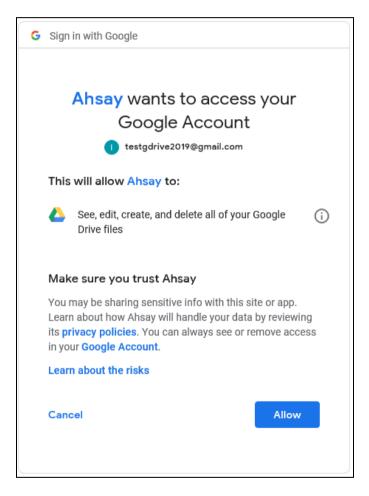
Appendix

Appendix A Cloud Storage as Backup Destination:

For most cloud storage provider (e.g. Dropbox, Google Drive ... etc.), you need to allow AhsayOBM to access the cloud destination. Click OK / Test, you will be prompted to login to the corresponding cloud service.

Important: The authentication request will be opened in a new tab / window on the browser, ensure that the pop-up tab / window is not blocked (e.g. pop-up blocker in your browser).

Click Allow to permit AhsayOBM to access the cloud storage:



Enter the authentication code returned in AhsayOBM to complete the destination setup.

Note: A backup destination can be set to a supported cloud storage, backup server, FTP / SFTP server, network storage, or local / removable drive on your computer.

Multiple backup destinations can be configured for a single backup set. In fact, it is recommended for you to setup at least 2 backup destinations for your backup set.

For more details on backup destination, for example which cloud service providers are supported, destination type, or limitation, you can refer to this link: <u>FAQ: Frequently Asked Questions on Backup Destination</u>

