

# Windows System (Bare Metal) Backup Set

AhsayOBM allows you to back up the whole Windows System with the Windows System Backup Module. This 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.



## Requirement and Limitation

### Hardware Requirement

For the list of hardware requirements for AhsayOBM, refer to: [Ahsay Hardware Requirement List \(HRL\)](#)

### Software Requirement

For the list of compatible Windows operating systems platforms refer to: [Ahsay Software Compatibility List \(SCL\)](#)

### Antivirus Exclusion Requirement

To optimize performance of AhsayOBM on Windows, and to avoid conflict with your antivirus software, refer to [Suggestion on antivirus exclusions to improve performance of Ahsay software on Windows](#) for the list of processes and directory paths that should be added to all antivirus software white-list / exclusion list.

## Other Requirement and Limitation

### AhsayOBM Installation

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

### Add-on Module Requirement

Make sure that the Windows System Backup add-on module is enabled for your AhsayOBM user account.

The screenshot shows the 'Backup Client Settings' configuration page. The 'Backup Client' section has 'AhsayOBM User' selected. The 'Add-on Modules' section contains a list of services with checkboxes and input fields. 'Windows System Backup' is checked and highlighted with a red box. Other modules include Microsoft Exchange Server, MySQL Database Server, Lotus Domino, Microsoft SQL Server, Oracle Database Server, Lotus Notes, Windows System State Backup, Hyper-V, ShadowProtect System Backup, NAS - Synology, NAS - QNAP, In-File Delta, Office 365 Backup, VMware, Microsoft Exchange Mailbox, Continuous Data Protection, Mobile, and Volume Shadow Copy.

### 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.

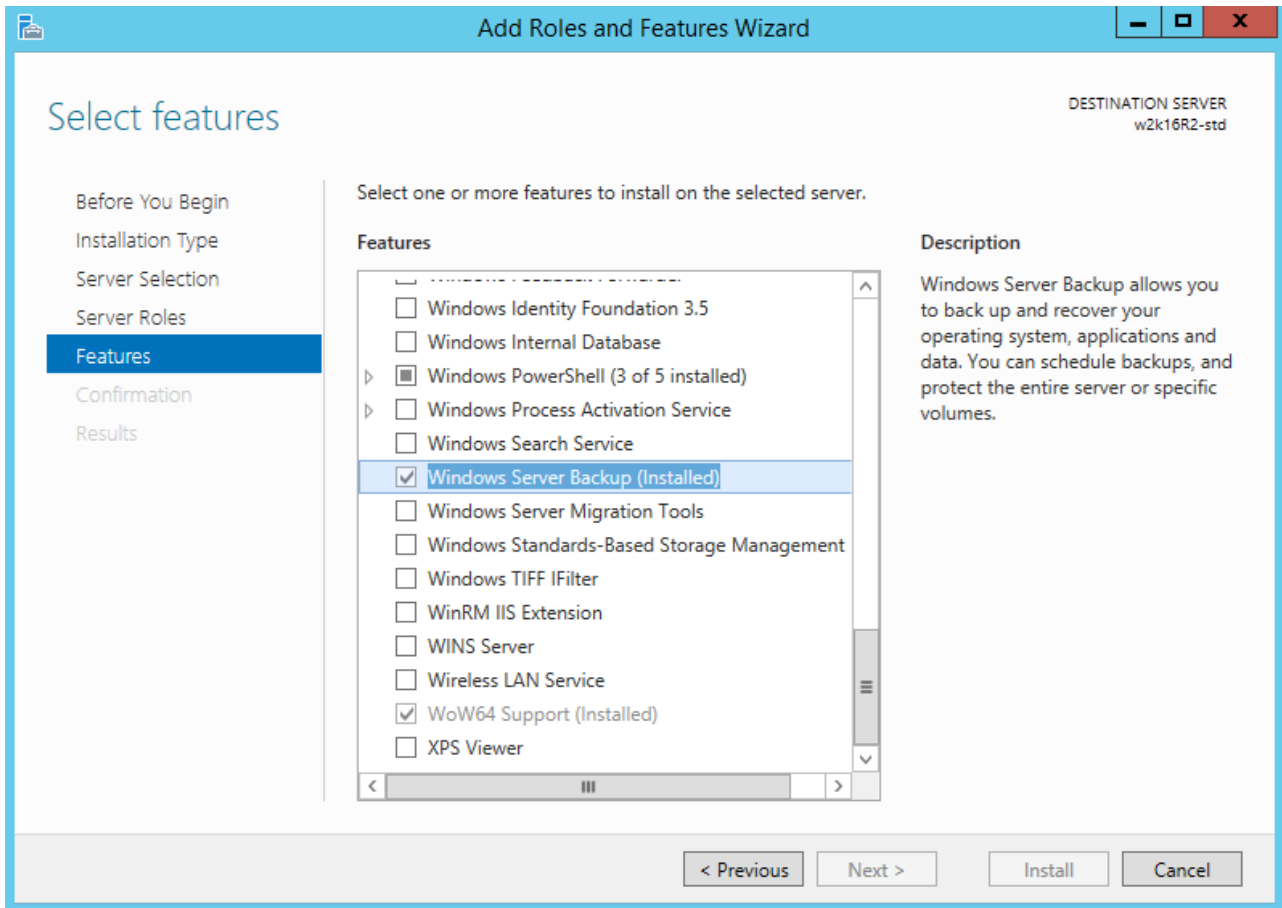
### AhsayOBM Licenses

AhsayOBM licenses are calculated on a per device basis:

- To backup users with 1 backup client computer (e.g. 1 AhsayOBM installed), 1 AhsayOBM license is required.
- To backup 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 backup with 3 backup client computers, then 3 AhsayOBM licenses are required. Please contact your backup service provider for more details.

### Windows Server Backup (WSB) Features

For Windows server platforms, the Windows Server Backup feature must be installed in order for either the system backup to take place. Confirm in the Server Manager, the feature can be added by selecting Add Roles and Features.

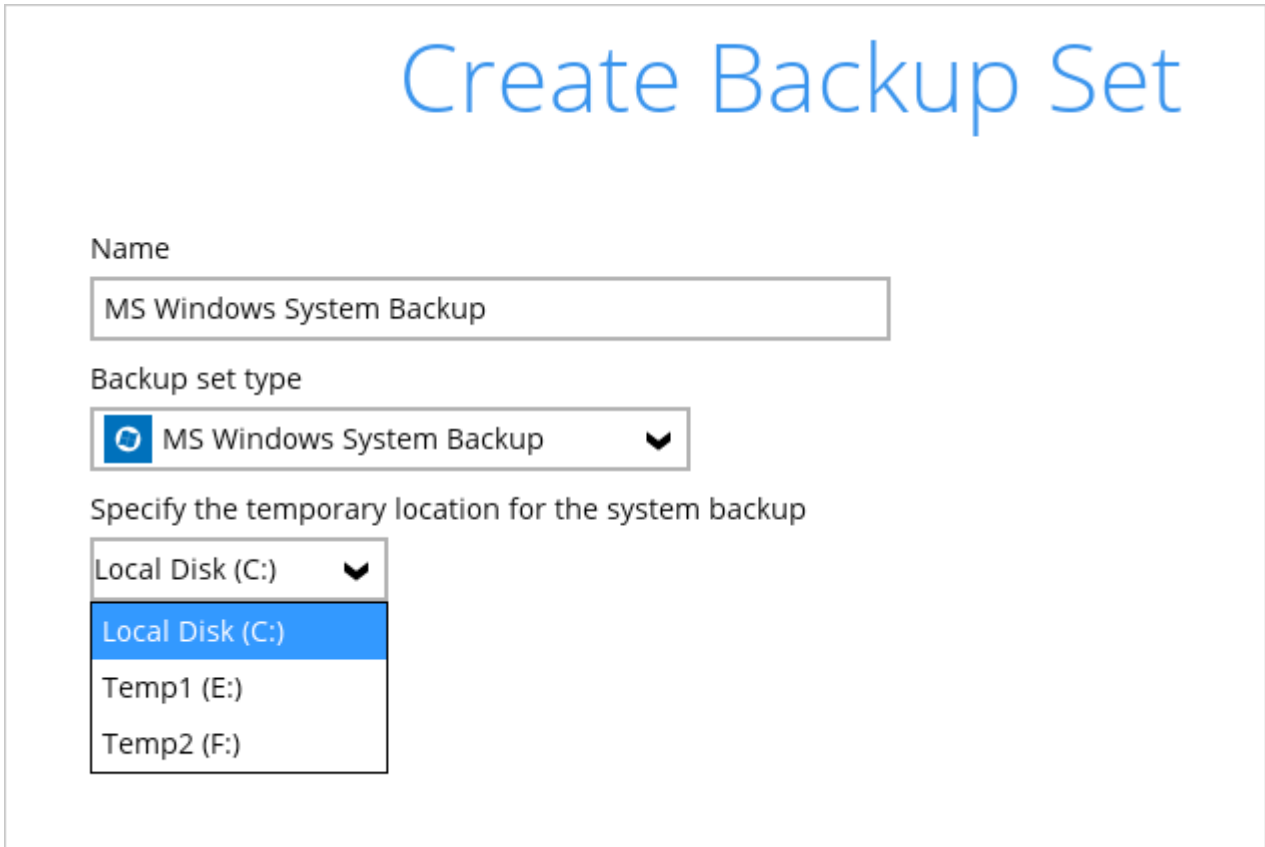


### Latest Service Packs from Microsoft

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.

### Temporary Storage Location

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



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

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

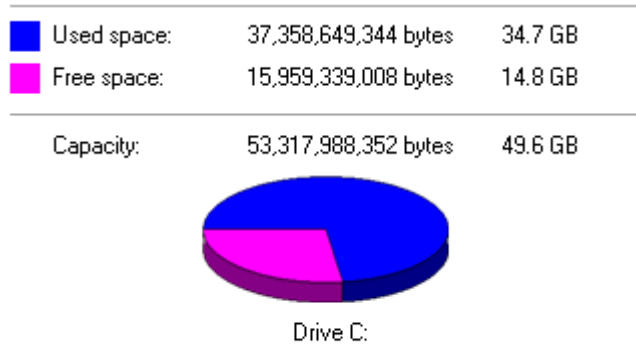
If by any chance the machine has only one (1) drive and it is his/her Local Disk C:, then one of the following options will need to be implemented

- i. An extra physical drive will need to be installed
- ii. The existing C: drive will need to be repartitioned to create an additional drive, i.e. D:
- iii. A USB drive needs to be connected
- iv. Setup a network drive

Refer to here for more details about the restrictions: [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.



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.

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

## Best Practices

### Latest AhsayOBM

It is recommended that the latest version of AhsayOBM is installed on the computer to be backed up. User should also stay up-to-date when newer version of AhsayOBM is released.

### Local Temporary Storage

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).

**MS Windows System Backup**

**General**

Name: MS Windows System Backup

Owner: w2k16R2-std

**Windows System Backup**

Specify the temporary location for the system backup: Local Disk (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

### Enable "Include all critical volumes"

It is highly recommended to 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.

## Backup Source

| Volume  | Total Size | Used     |
|---|------------|----------|
| <input checked="" type="checkbox"/> System Reserved | 0 byte     | 0 byte   |
| <input type="checkbox"/> Temp1 (E:)                 | 60 GB      | 385.8 MB |
| <input checked="" type="checkbox"/> Local Disk (C:) | 39.7 GB    | 14.9 GB  |
| <input type="checkbox"/> Temp2 (F:)                 | 80 GB      | 101.2 MB |

Include all critical volumes

Previous | Next | Cancel | Help

## Memory Setting

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) For more details about the modification of the java heap size setting for AhsayOBM, refer to: [How to modify the Java heap size setting of AhsayOBM / AhsayACB?](#)

## Not a Replacement for File Backup

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

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## Restore Consideration

Please consider the following before performing a 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: <http://go.microsoft.com/fwlink/?LinkID=143722>

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## Documentation

- [Windows System \(Bare Metal\) Backup and Restore](#)

## FAQs

- [Difference between Windows System and System State backup sets](#)
- [Restriction on the temporary storage location for the Windows System State and System backup](#)



## Issues

- Cannot start a MS Windows System or System State backup job after a failed backup (Another backup job is still running)
- Incorrect error message 'Another backup job is still running' is displayed (MS Windows System / System State backup)
- MS Windows System / System State backup job cannot run to completion (for backup set with backup schedule disabled)

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