



^{24/7}
Backup Advanced Backup Manager (B247PRO) v9
Microsoft System State Backup and Restore Guide

Copyright Notice

© 2023 Backup247 Pty Ltd. All rights reserved.

The use and copying of this product is subject to a license agreement. Any other use is prohibited. No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language in any form by any means without prior written consent of Backup247 Pty Limited. Information in this manual is subject to change without notice and does not represent a commitment on the part of the vendor, Backup247 Pty Limited does not warrant that this document is error free. If you find any errors in this document, please report to Backup247 Pty Limited in writing.

Trademarks

Backup247, Backup247 Cloud Backup Suite (B247CBS), Backup247 Advanced Backup Suite (B247PRO), Backup247 Offsite Backup Server, Backup247 Standard Backup Suite (B247LITE), Backup247 Replication Server, Backup247 BackupBox Firmware, Backup247 Universal Backup System and Backup247 NAS Client Utility, Backup247 Mobile are trademarks of Backup247 Pty Limited.

Amazon S3 is a registered trademark of Amazon Web Services, Inc., or its affiliates.

Apple and Mac OS X, macOS, and iOS are registered trademarks of Apple Computer, Inc.

Dropbox is a registered trademark of Dropbox Inc.

Google Cloud Storage, Google Drive, Google Authenticator, and Android are registered trademarks of Google Inc.

Backblaze B2 Cloud Storage is a registered trademark of Backblaze Inc.

MariaDB is a registered trademark of MariaDB Corporation AB.

Lotus, Domino, and Notes are registered trademark of IBM Corporation.

Microsoft Windows, Microsoft Exchange Server, Microsoft SQL Server, Microsoft Hyper-V, Microsoft Azure, OneDrive, OneDrive for Business, Microsoft Authenticator, and Microsoft Office 365 are registered trademarks of Microsoft Corporation.

Oracle, Oracle Database, Java and MySQL are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

OpenJDK is a registered trademark of Oracle America, Inc.

Rackspace and OpenStack are registered trademarks of Rackspace US, Inc.

Red Hat, Red Hat Enterprise Linux, the Shadowman logo and JBoss are registered trademarks of Red Hat, Inc. www.redhat.com in the U.S. and other countries.

Linux is a registered trademark of Linus Torvalds in the U.S. and other countries.

Ubuntu is a registered trademark of Canonical Ltd.

Debian is a registered trademark of Software in the Public Interest, Inc.

Rocky is a registered trademark of Rocky Brands.

ShadowProtect is a registered trademark of StorageCraft Technology Corporation.

VMware ESXi, vCenter, and vSAN are registered trademarks of VMware, Inc.

All other product names are registered trademarks of their respective owners.

Disclaimer

Backup247 Pty Limited will not have or accept any liability, obligation, or responsibility whatsoever for any loss, destruction or damage (including without limitation consequential loss, destruction or damage) however arising from or in respect of any use or misuse of reliance on this document. By reading and following the instructions in this document, you agree to accept unconditionally the terms of this Disclaimer and as they may be revised and/or amended from time to time by Backup247 Pty Limited without prior notice to you.

Revision History

Date	Descriptions	Version
25 January 2022	<ul style="list-style-type: none">Ch 1.2 – modified the system architecture diagramCh. 2, 3, 4, & 5 – updated the screenshotsCh. 2, 4, & Appendix – updated the links	9.1.0.0

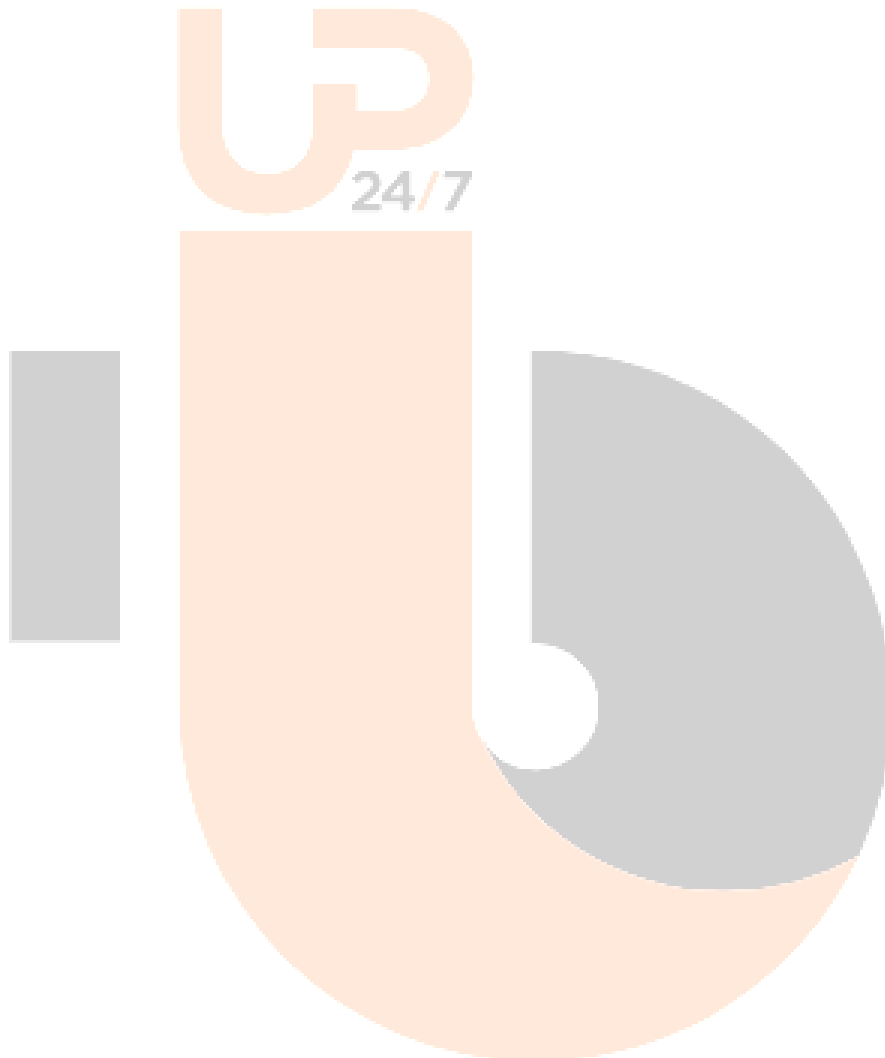


Table of Contents

1	Overview.....	1
1.1	What is this software?	1
1.2	System Architecture	2
2	Preparing for Backup and Restore.....	3
2.1	Hardware Requirement	3
2.2	Software Requirement	3
2.3	Antivirus Exclusion Requirement	3
2.4	Backup247 Advanced Client (B247PRO) Installation.....	3
2.5	Backup247 Advanced Client (B247PRO) Add-on Module Configuration	3
2.6	Backup Quota Requirement.....	4
2.7	Java Heap Size	4
2.8	License Requirement	4
2.9	Windows Requirements	5
2.10	Temporary Volume.....	7
2.11	Best Practices and Recommendations	9
2.12	Restore Considerations.....	11
3	Configuring a MS Windows System Backup Set	12
3.1	Configuring an MS Windows System State Backup Set.....	12
4	Running a Backup	22
4.1	Start a Manual Backup.....	22
4.2	Configure Backup Schedule for Automated Backup.....	25
5	Restore with a Microsoft Windows System Backup Set	32
5.1	Restore the System State Data.....	32
5.2	Apply the System State Data	38
6	Contact Backup247.....	45
6.1	Technical Assistance	45
6.2	Documentation	45
	Appendix.....	46
	Appendix A Cloud Storage as Backup Destination:	46

1 Overview

1.1 What is this software?

Backup247 brings you specialized client backup software, namely Backup247 Advanced Client (B247PRO), to provide a set of tools to protect your Microsoft System State. This includes backup feature, that leverages Microsoft's native WBAdmin command-line tool (<http://go.microsoft.com/fwlink/?LinkId=140216>) for Windows Server 2008 and newer releases, and recovery feature.

System state backup and restore operations include all system state data, and you cannot choose to backup or restore individual components due to dependencies among the system state components.

System state data is comprised of the following files:

- Boot files, including the system files, and all files protected by Windows File Protection (WFP)
- Active Directory (on a domain controller only)
- SYSVOL (on a domain controller only)
- Certificate Services (on certification authority only)
- Cluster database (on a cluster node only)
- Component Services Class registration database
- Performance counter configuration information
- Microsoft Internet Information Services (IIS) meta directory (on an IIS server only)
- Registry

The size of a set of system state backup data is dependent on the role installed on the server.

Please refer to the following article for more details:

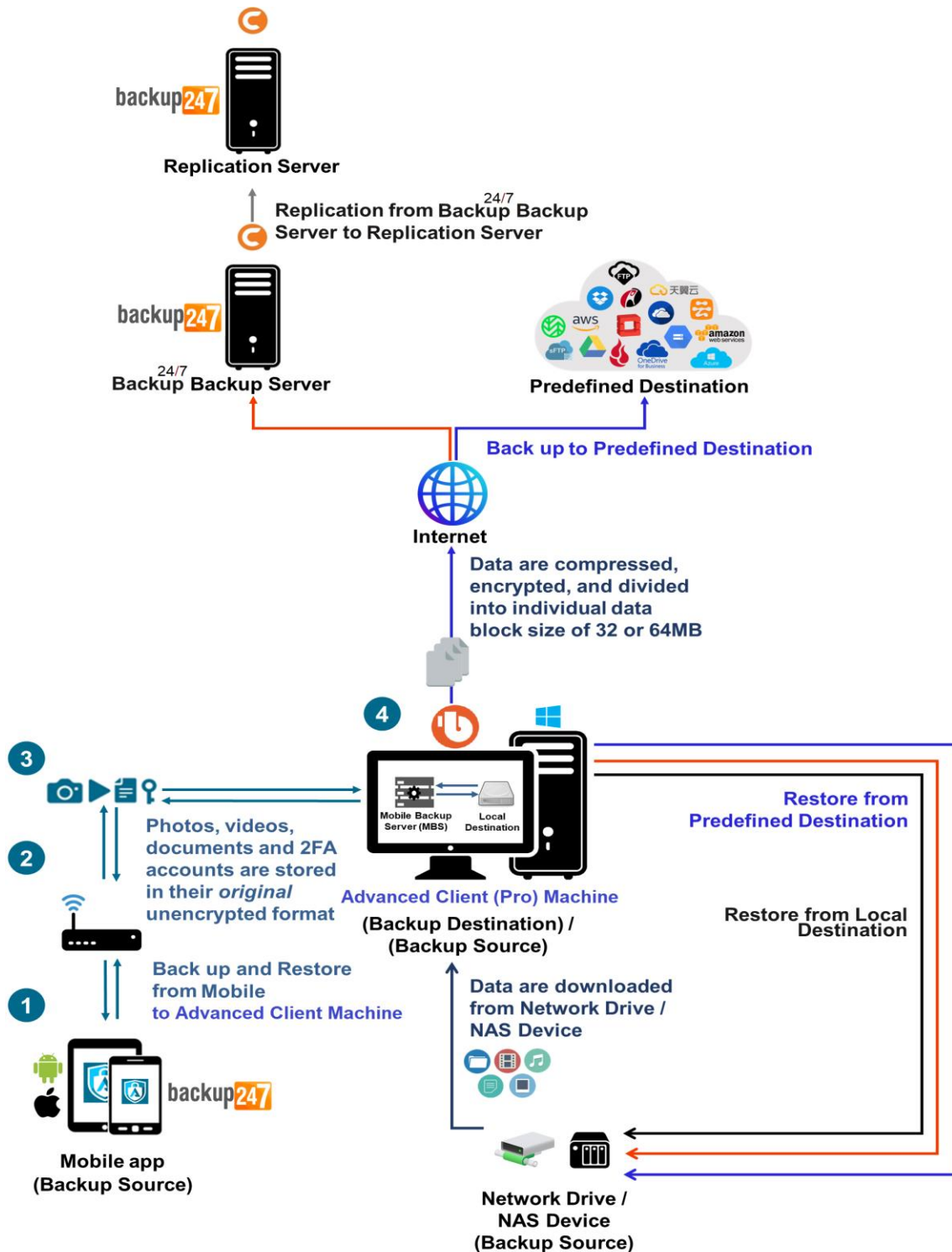
For Windows 2008 and newer releases:

<https://msdn.microsoft.com/en-us/library/windows/desktop/bb968830>

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 State backup with Backup247 Advanced Client (B247PRO) and B247CBS.

In this user guide, we will focus on the software installation, as well as the end-to-end backup and restore process of MS Windows System State using the Backup247 Advanced Client (B247PRO) as a client backup software.



2 Preparing for Backup and Restore

2.1 Hardware Requirement

To achieve the optimal performance when Backup247 Advanced Client (B247PRO) is running on your machine, refer to the following link for the list of hardware requirements for Backup247 Advanced Client (B247PRO):

[FAQ: Backup247 Hardware Requirement List \(HRL\) for version 9.1 or above](#)

2.2 Software Requirement

Make sure the operating system where you need the Windows System State to be backed up is compatible with the Backup247 Advanced Client (B247PRO). Refer to the following link for the list of compatible operating systems and application versions.

[FAQ: Backup247 Software Compatibility List \(SCL\) for version 9.1 or above](#)

2.3 Antivirus Exclusion Requirement

To optimize performance of Backup247 Advanced Client (B247PRO) 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:

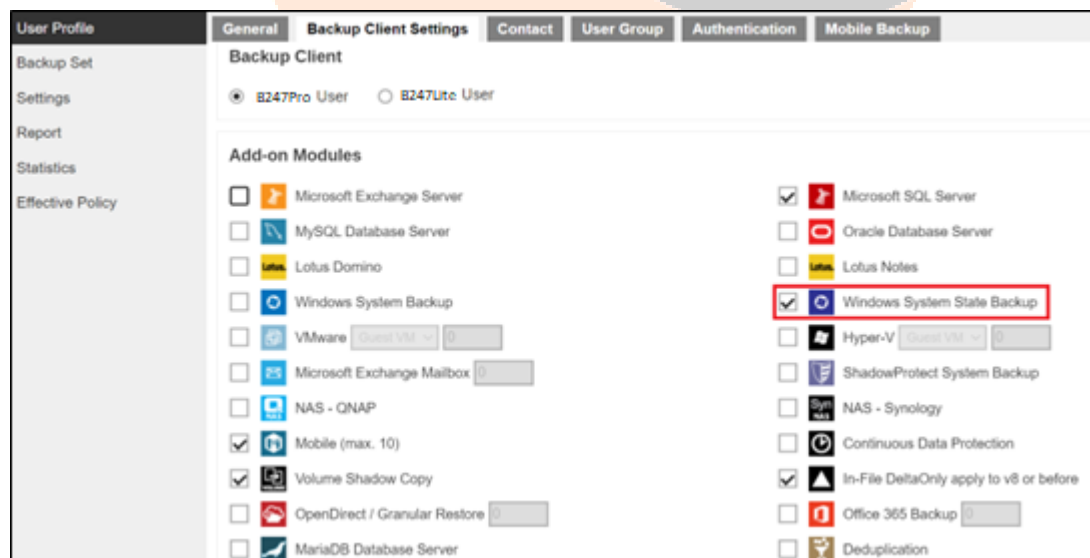
[FAQ: Suggestion on antivirus exclusions to improve performance of Backup247 software on Windows](#)

2.4 Backup247 Advanced Client (B247PRO) Installation

Make sure that the latest version of Backup247 Advanced Client (B247PRO) is installed on the computer to be backed up.

2.5 Backup247 Advanced Client (B247PRO) Add-on Module Configuration

Make sure that the **Windows System State Backup** add-on module is enabled in your Backup247 Advanced Client (B247PRO) user account. Please contact your service provider for more details.



2.6 Backup Quota Requirement

Make sure that your Backup247 Advanced Client (B247PRO) user account has sufficient quota assigned to accommodate the storage for the system state backup for the new backup set and retention policy. Please contact your backup service provider for more details.

2.7 Java Heap Size

The default Java heap size setting of Backup247 Advanced Client (B247PRO) is 2048MB. For Windows System State backup, it is highly recommended to increase the Java heap size setting to at least 4096MB to improve backup and restore performance. The actual heap size used will be dependent on amount of free memory available on the machine with Backup247 Advanced Client (B247PRO) installed (machine that is running the backup).

For best performance, consider increasing the memory allocation setting for Backup247 Advanced Client (B247PRO) (Java heap space).

Refer to this link for more details about the modification of the java heap size setting for Backup247 Advanced Client (B247PRO):

[FAQ: How to modify the Java heap size setting of Backup247 Advanced Client \(B247PRO\) / Backup247 Standard Backup Suite \(B247LITE\)?](#)

2.8 License Requirement

Backup247 Advanced Client (B247PRO) licenses are calculated on a per device basis:

- ▶ To back up users with 1 backup client computer (e.g. 1 Backup247 Advanced Client (B247PRO) installed), 1 Backup247 Advanced Client (B247PRO) license is required.
- ▶ To back up users with multiple backup client computers, the number of Backup247 Advanced Client (B247PRO) 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 Backup247 Advanced Client (B247PRO) licenses are required. Please contact your backup service provider for more details.

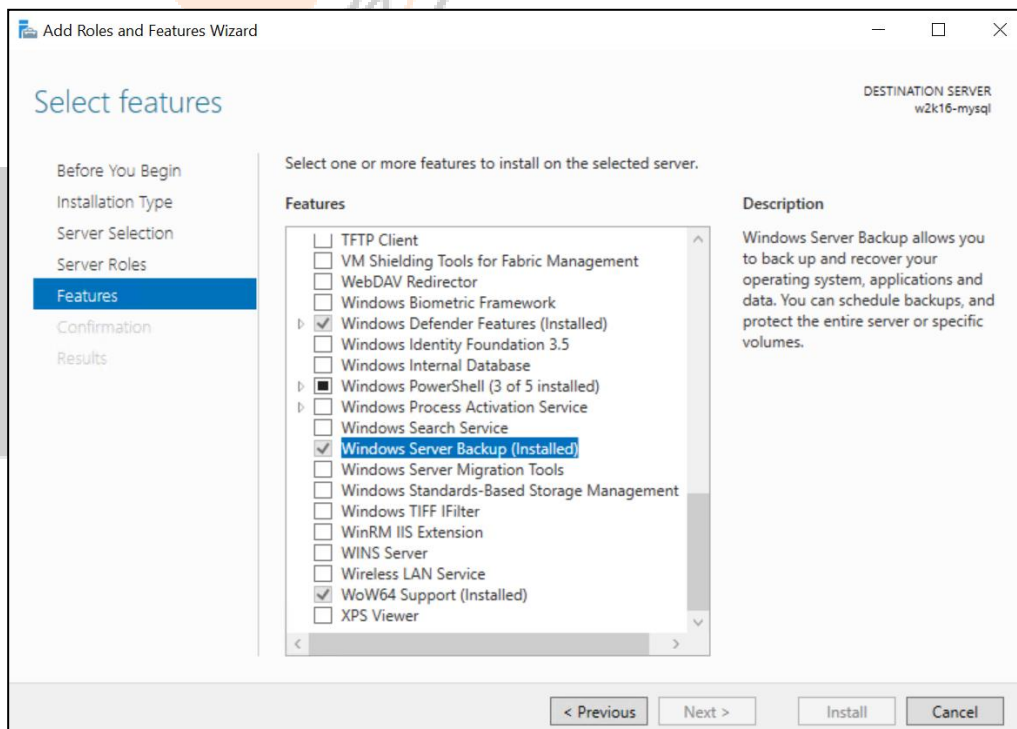
2.9 Windows Requirements

Windows Server Backup (WSB) Features

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

- Windows Server Backup
- Command line Tool
- Windows PowerShell

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



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

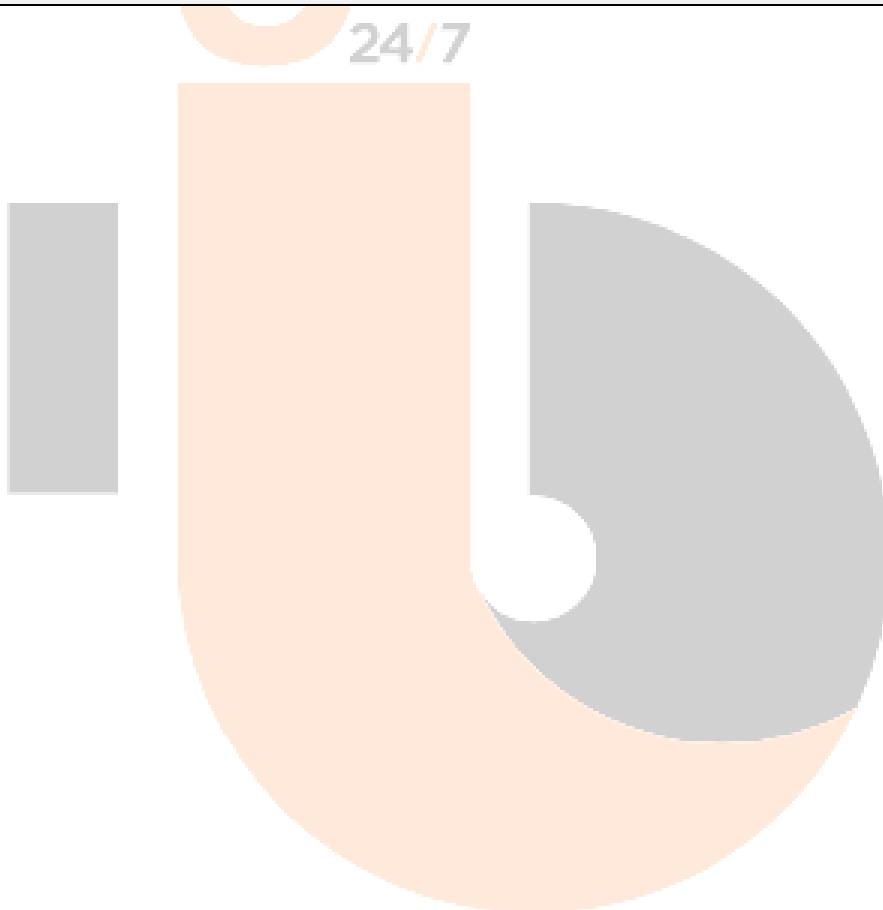
The system volume must be formatted with NTFS.

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.

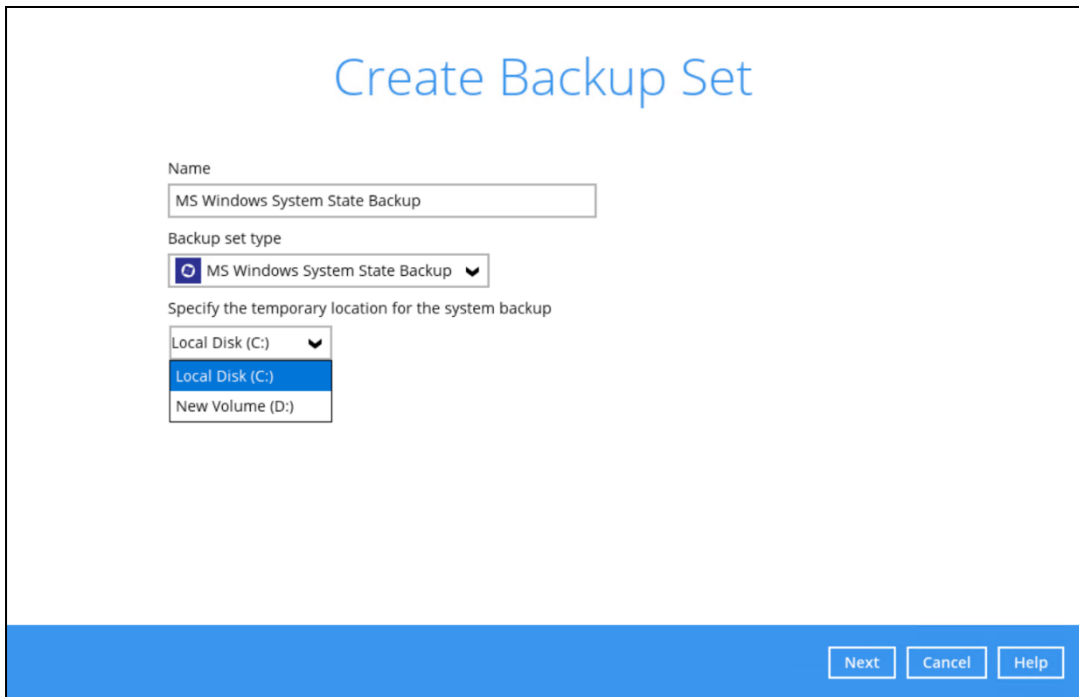
NOTE

- Windows XP Home is not supported for the system state backup and restore by Backup247 Advanced Client (B247PRO).
- As Windows XP and Windows 2003 are no longer supported by Microsoft anymore, Backup247 will provide best effort support for backup and restore for these 2 Windows platforms.



2.10 Temporary Volume

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



The screenshot shows the 'Create Backup Set' wizard. The 'Name' field is 'MS Windows System State Backup'. The 'Backup set type' is 'MS Windows System State Backup'. The 'Specify the temporary location for the system backup' dropdown is open, showing 'Local Disk (C:)' selected, 'Local Disk (C:)', and 'New Volume (D:)' as options. At the bottom right, there are 'Next', 'Cancel', and 'Help' buttons.

The temporary storage location is required by the WBADMIN utility to temporarily 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 see on our sample screen shot above, we have two (2) drives in total, Local Disk C: and New Volume D:

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](#)

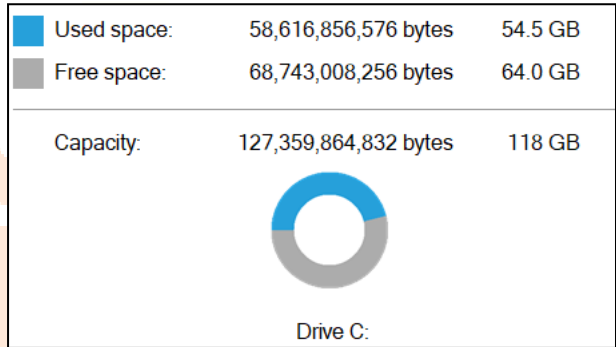
• **Disk Space Available in Temporary Storage Location**

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.

2.11 Best Practices and Recommendations

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

Temporary Directory Folder Location

For best performance, it is recommended that the temporary storage location of a MS Windows System State 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:).

The screenshot shows the configuration window for a Microsoft Windows System State backup. The 'General' tab is active. The 'Name' field contains 'MS Windows System State Backup'. The 'Owner' is 'w2k16-mysql'. Under 'Windows System State Backup', the 'Specify the temporary location for the system backup' dropdown is set to 'New Volume (D:)'. The 'Windows User Authentication' section has 'Domain Name (e.g. Ahsay.com) / Host Name' set to 'w2k16-mysql', 'User name' set to 'Administrator', and an empty 'Password' field. At the bottom, there are 'Save', 'Cancel', and 'Help' buttons, and a 'Delete this backup set' link.

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 State 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 to identify those flaws.

▶ 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 state backup to the same physical computer from which the system state 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 state 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.

2.12 Restore Considerations

Please consider the following before performing a MS System State 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>

3 Configuring a MS Windows System Backup Set

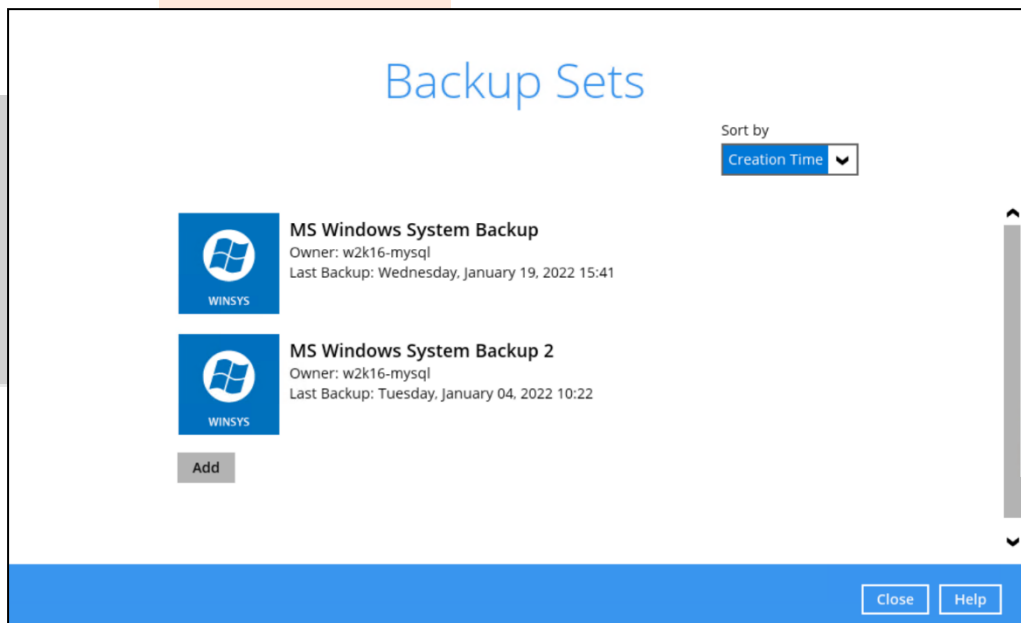
3.1 Configuring an MS Windows System State Backup Set

Create the MS Windows System State backup set using following steps.

1. In the Backup247 Advanced Client (B247PRO) main interface, click **Backup Sets**.



2. Create a MS Windows System State backup set by clicking the **Add** button.



3. Select **MS Windows System State Backup** as the **Backup set type**, enter a **Name** for your backup set, and specify a **Temporary Location** for your back up. Click **Next** to proceed.

Create Backup Set

Name
MS Windows System State Backup

Backup set type
MS Windows System State Backup

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

Next Cancel Help

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

Select a local volume from the dropdown menu.

Create Backup Set

Name
MS Windows System State Backup

Backup set type
MS Windows System State Backup

Specify the temporary location for the system backup
Local Disk (C:)
Local Disk (C:)
New Volume (D:)

Next Cancel Help

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

Create Backup Set

Name

Backup set type
 MS Windows System State Backup ▼

Specify the temporary location for the system backup

Note: For Windows 2008 Server, the temporary storage location cannot be set to a network path.

Note: If the storage location is set to a critical volume (e.g. system volume), the following message will be displayed:

? The backup storage location is invalid.

To enable the system state backup files to be targeted to critical volumes, you must set the value of the AllowSSBToAnyVolume registry entry under the following registry subkey:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\wbengine\SystemStateBackup

Set the value of this entry as follows:
 Name: AllowSSBToAnyVolume
 Data type: DWORD
 Value data: 1

Reference: <http://support.microsoft.com/kb/944530>

Enable this entry now?

Click **Yes** for Backup247 Advanced Client (B247PRO) to enable the registry entry, or click **No**, then change the storage location setting to another location.

Refer to the following link for the details on the restriction:

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

5. In the **Schedule** window, configure a backup schedule for backup job to run automatically at your specified time interval.

Click **Add** to add a new schedule.

The image shows two overlapping windows from a backup software interface. The top window, titled "Schedule", has a subtitle "Run scheduled backup for this backup set" and a "On" checkbox which is checked. Below this, under "Existing schedules", there is a list item "Backup Schedule" with a calendar icon and the text "Daily (Everyday at 20:00)". An "Add" button is positioned below the list. The bottom window, titled "New Backup Schedule", contains the following fields: "Name" with the text "Daily-1"; "Type" with a dropdown menu set to "Daily"; "Start backup" with a dropdown set to "at", and two more dropdowns set to "04" and "24"; "Stop" with a dropdown set to "until full backup completed"; and a checkbox labeled "Run Retention Policy after backup" which is currently unchecked. At the bottom of the "New Backup Schedule" window, there are buttons for "OK", "Cancel", and "Help". Below this window, a dark bar contains buttons for "Previous", "Next", "Cancel", and "Help".

Click **OK** to continue, and then click **Next** to proceed afterward.

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

Destination

Backup Mode
Sequential ▾

+ **🗑**

Name

← → X ?

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 Appendix A section in this guide.

7. Select the **Destination storage**.

B247PRO

New Storage Destination / Destination Pool

Name
Hot Cloud Storage Basic-Lite Plans

Destination storage
Hot Cloud Storage Basic-Lite Plans

Access the Internet through proxy

OK Cancel Help

Continue by adding another destination for the backup set or click **Next** to proceed.

Destination

Backup mode
Sequential

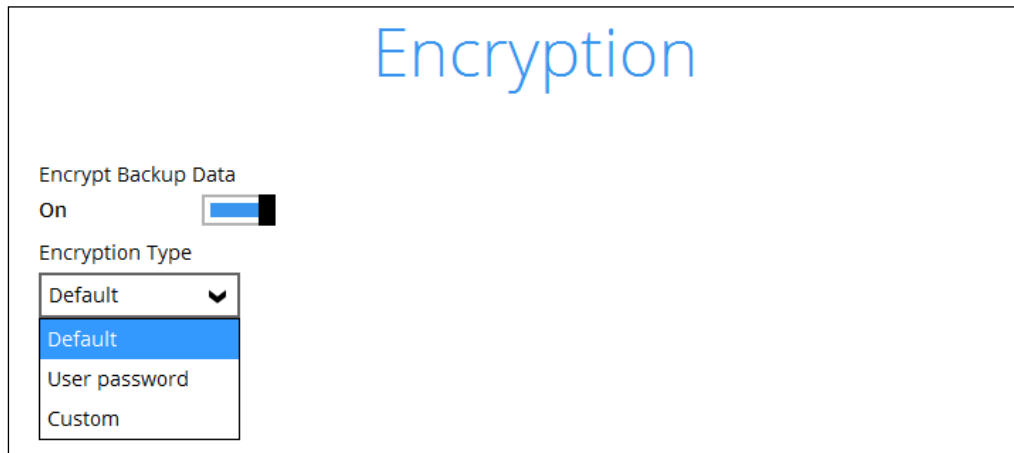
Existing storage destinations

- Hot Cloud Storage Basic-Lite Plans
- Local-1
C:\OneDriveTemp

Add

Note: Multiple backup destinations can be configured for a single backup set.

8. 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.

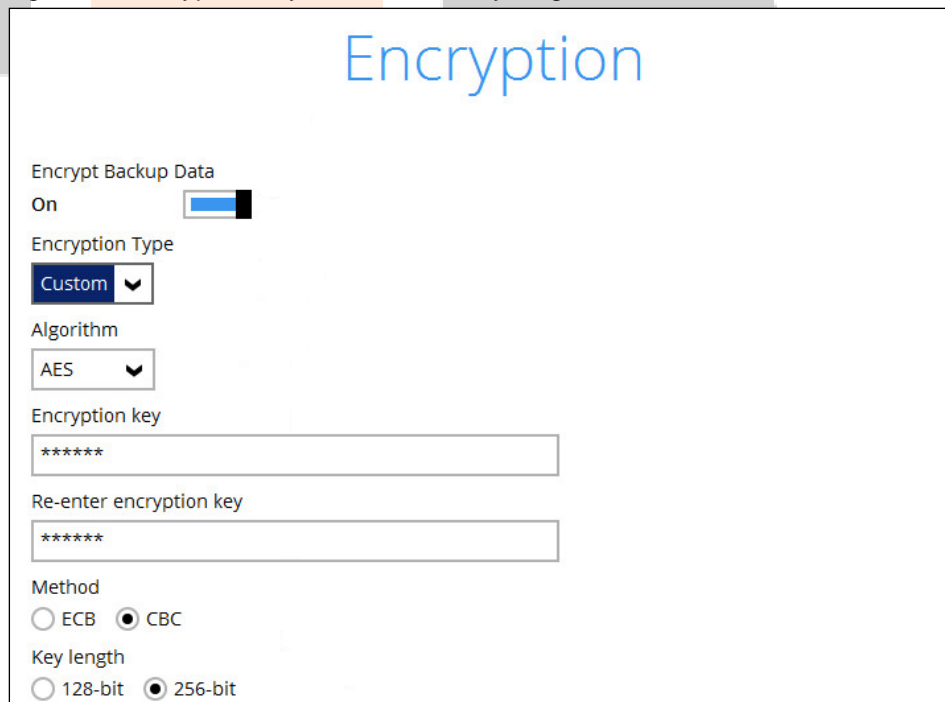


The screenshot shows the 'Encryption' window with the following settings:

- Encrypt Backup Data:** On (checkbox checked)
- Encryption Type:** Default (dropdown menu open, showing 'Default', 'User password', and 'Custom' options)

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 Backup247 Advanced Client (B247PRO) at the time when this backup set is created. Please be reminded that if you change the Backup247 Advanced Client (B247PRO) 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.



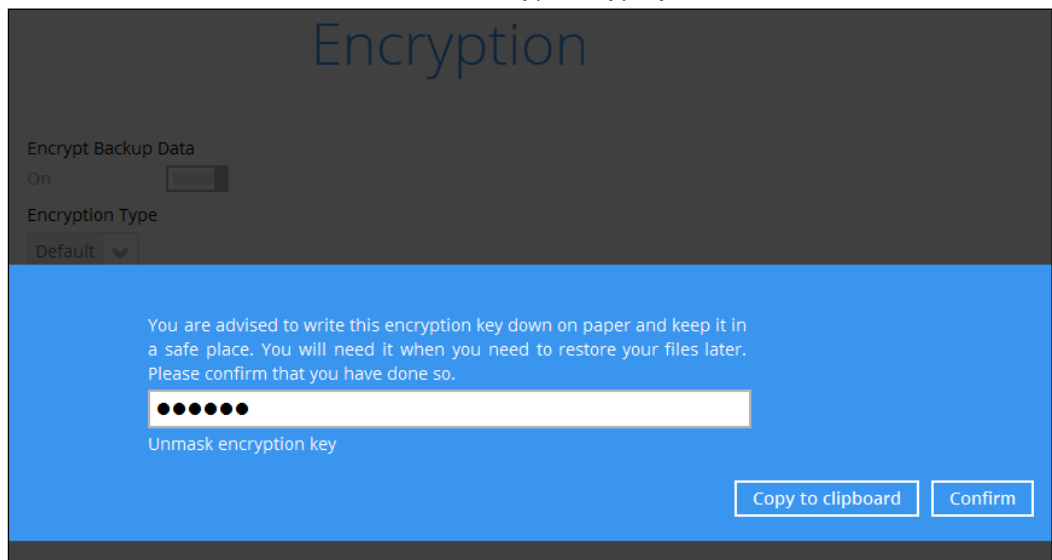
The screenshot shows the 'Encryption' window with the following settings:

- Encrypt Backup Data:** On (checkbox checked)
- Encryption Type:** Custom (dropdown menu)
- Algorithm:** AES (dropdown menu)
- Encryption key:** [Text field with asterisks]
- Re-enter encryption key:** [Text field with asterisks]
- Method:** ECB CBC
- Key length:** 128-bit 256-bit

Note: For best practice on managing your encryption key, refer to this link:
FAQ: Best practices for managing encryption key for Backup247 Advanced Client (B247PRO) or Backup247 Standard Backup Suite (B247LITE)

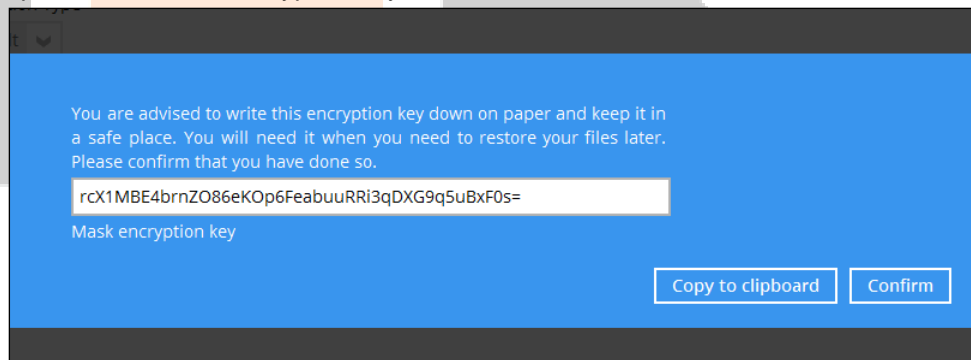
Click **Next** when you are done setting.

9. If you have enabled the **Encryption** feature in the previous step, the following pop-up window will be shown, no matter which encryption type you have selected.



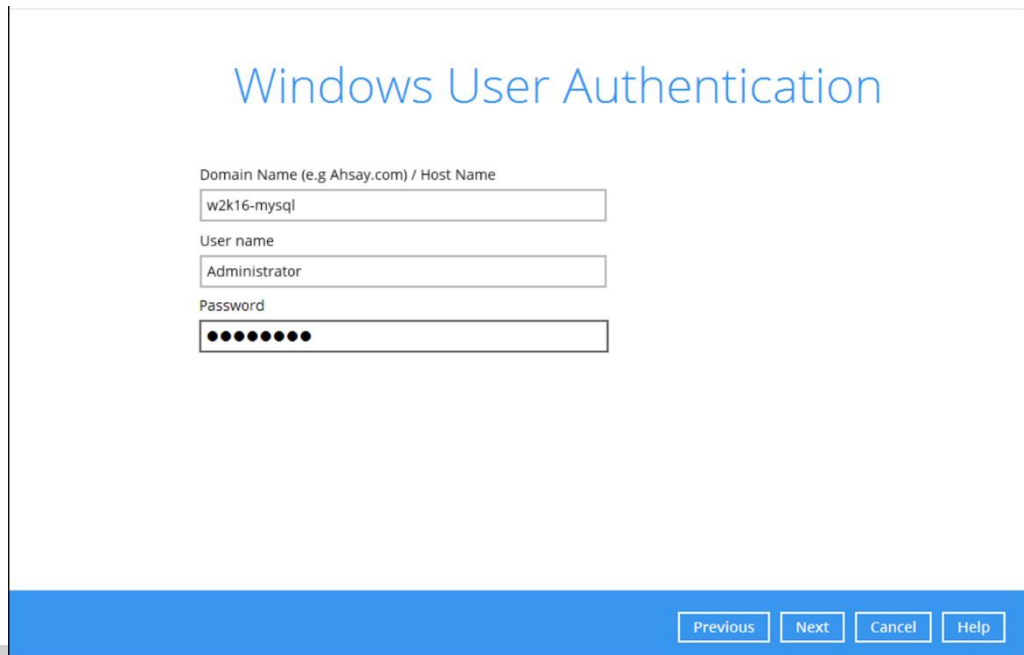
The pop-up window has the following three options to choose from:

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



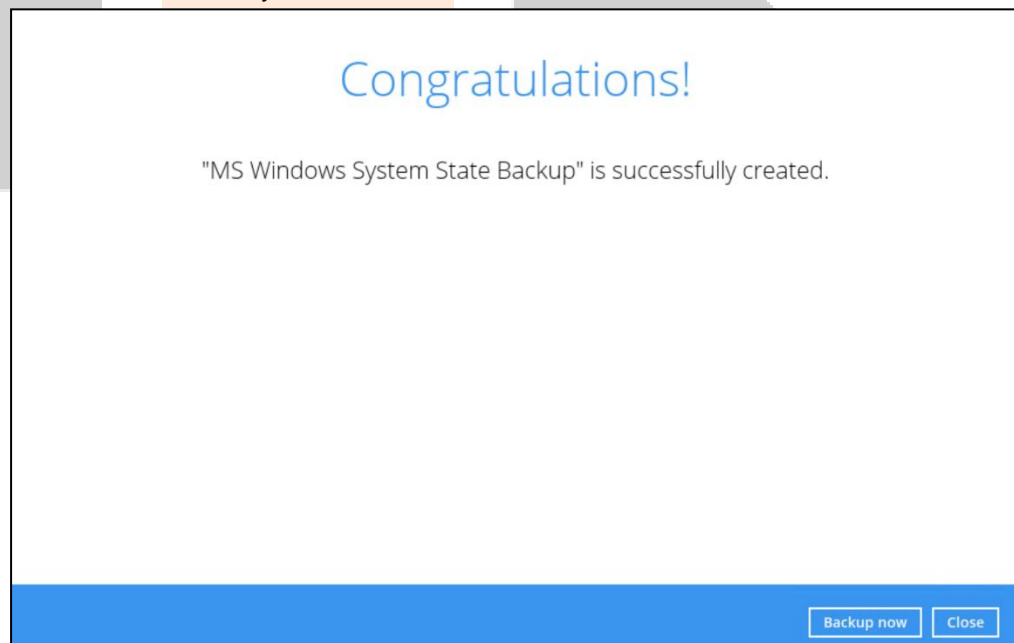
- **Copy to clipboard** – Click to copy the encryption key, then you can paste it in another location of your choice.
- **Confirm** – Click to exit this pop-up window and proceed to the next step.

10. Enter the **Domain Name / Host Name** of the computer, **User Name** and **Password** of the Windows account that will be running the backup. Click **Next** to create the backup set.



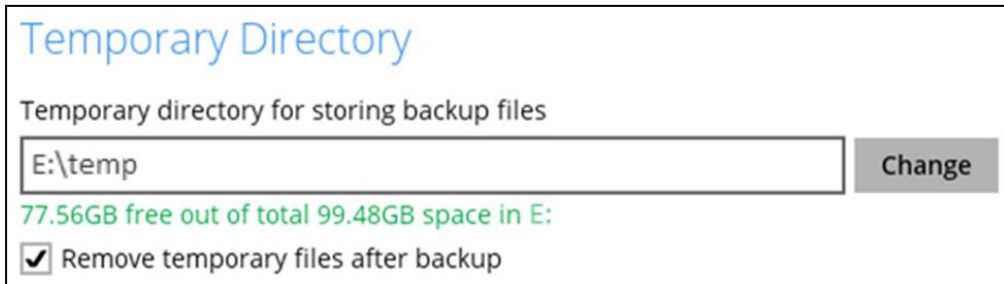
The screenshot shows a dialog box titled "Windows User Authentication". It contains three input fields: "Domain Name (e.g. Ahsay.com) / Host Name" with the value "w2k16-mysql", "User name" with the value "Administrator", and "Password" which is masked with dots. At the bottom right, there are four buttons: "Previous", "Next", "Cancel", and "Help".

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



The screenshot shows a dialog box titled "Congratulations!". The main text reads: "MS Windows System State Backup" is successfully created. At the bottom right, there are two buttons: "Backup now" and "Close".

12. 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.



Temporary Directory

Temporary directory for storing backup files

E:\temp Change

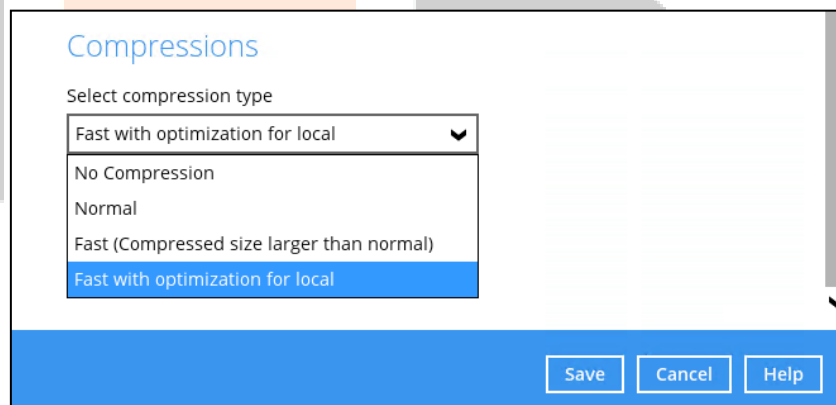
77.56GB free out of total 99.48GB space in E:

Remove temporary files after backup

13. 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



Compressions

Select compression type

Fast with optimization for local

No Compression

Normal

Fast (Compressed size larger than normal)

Fast with optimization for local

Save Cancel Help

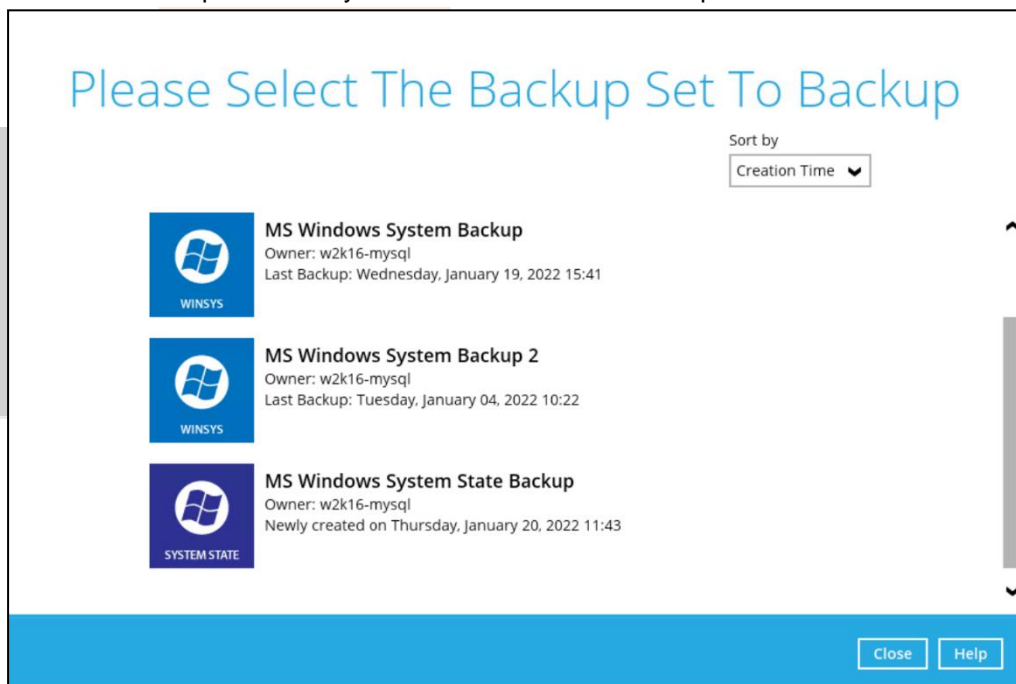
4 Running a Backup

4.1 Start a Manual Backup

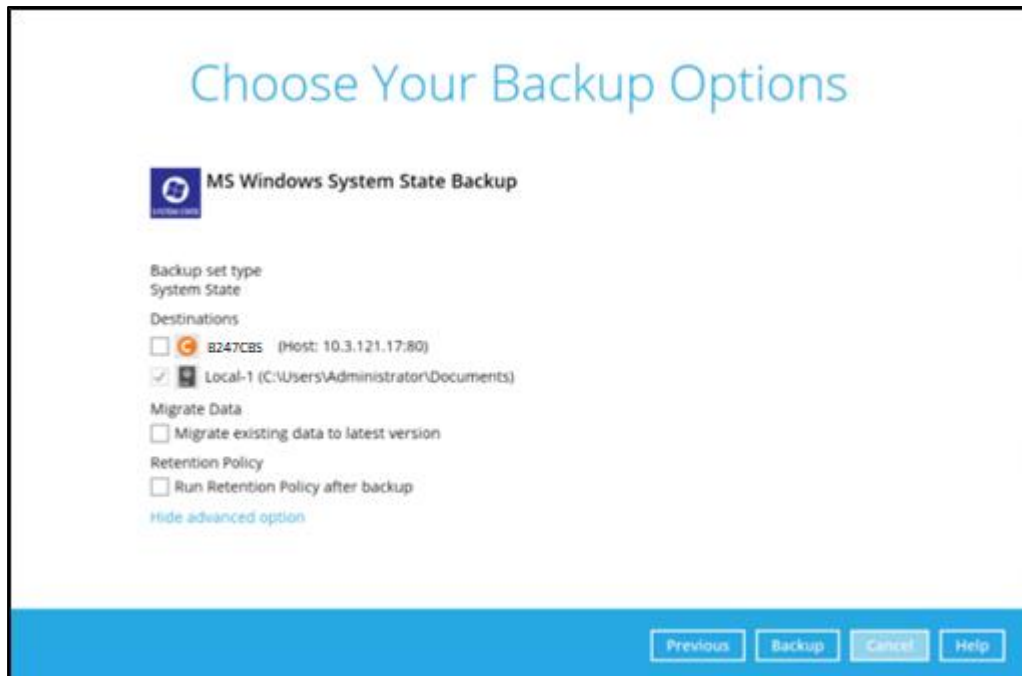
1. Click the **Backup** icon on the main interface of Backup247 Advanced Client (B247PRO).



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



3. If you would like to modify the Destinations, Migrate Date, and Retention Policy settings, click **Show advanced option**.

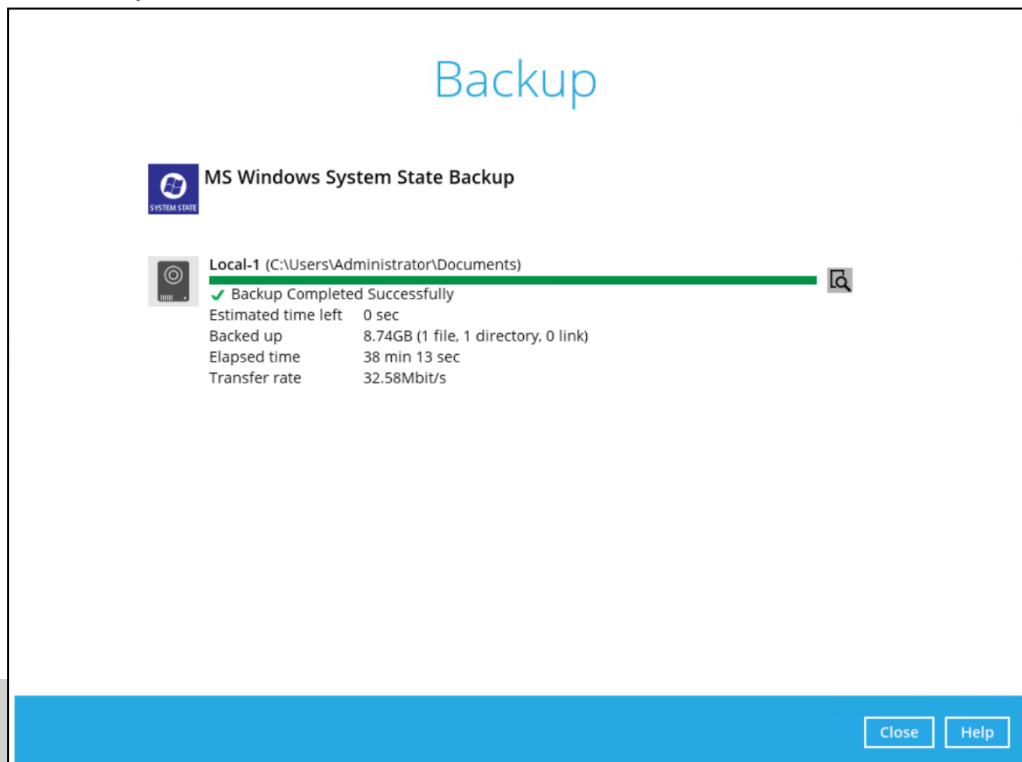


Click **Backup** to start the backup job.

NOTE

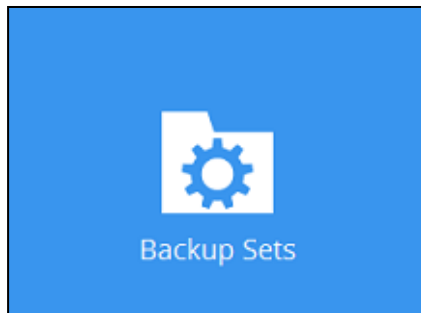
The Migrate Data option will only be displayed if Deduplication is enabled for the backup set. When the Migrate Data option is enabled, the existing data will be migrated to the latest version during a backup job. This option is disabled by default. Backup job(s) for backup sets with Migrate Data enabled may take longer to finish. For more information about this feature, refer to [Backup247 CBS v9 New Features Supplemental document](#).

4. The following screen is displayed when the system state data are backed up successfully.

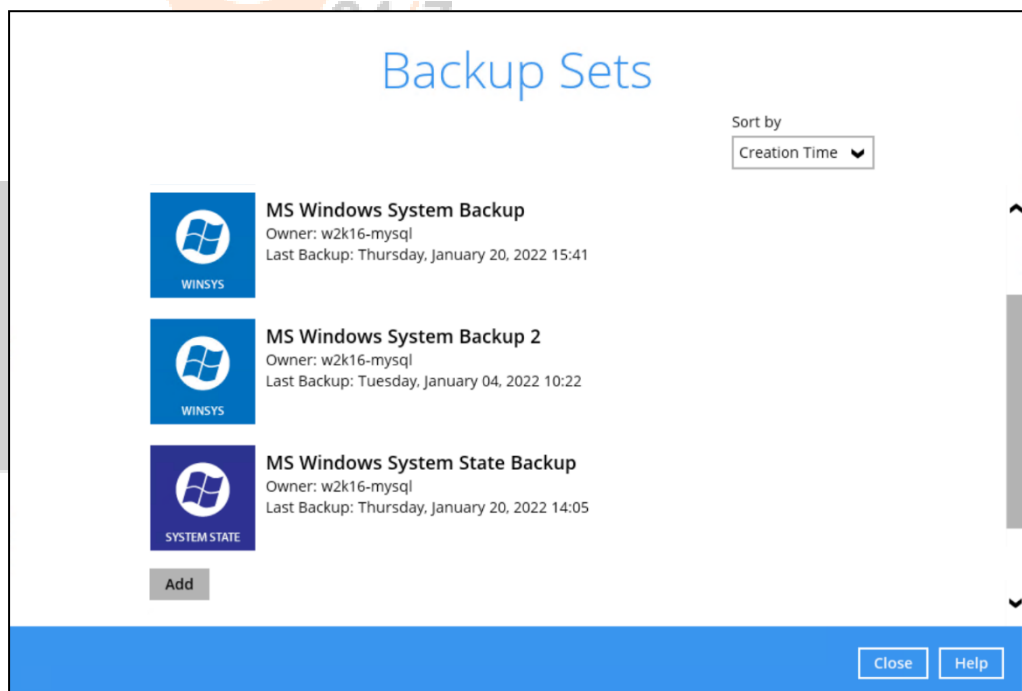


4.2 Configure Backup Schedule for Automated Backup

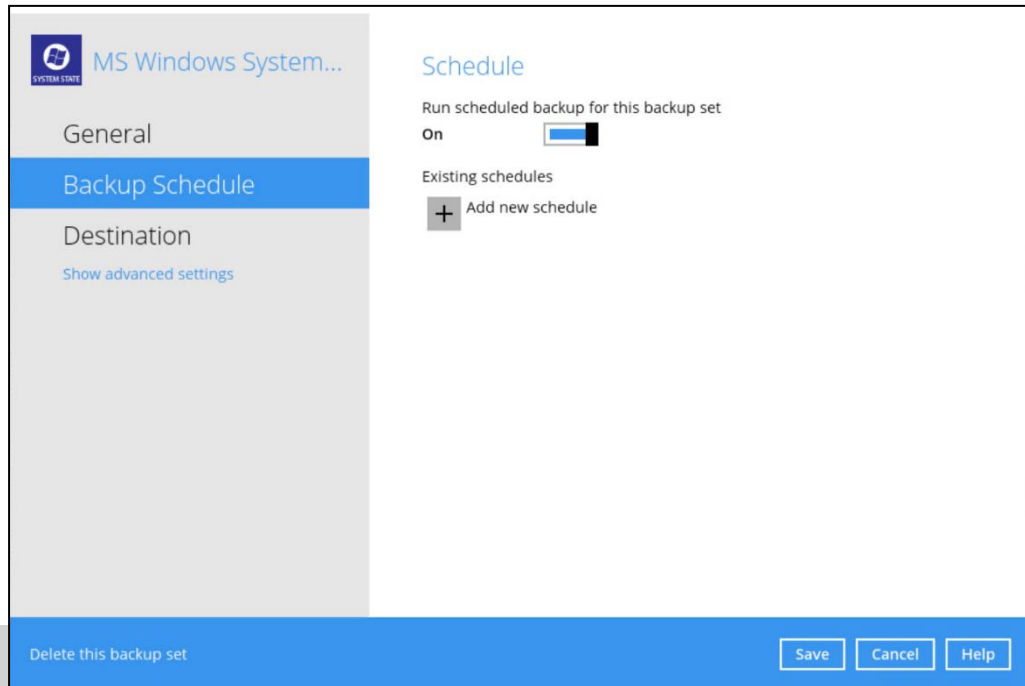
1. Click the **Backup Sets** icon on the main interface of Backup247 Advanced Client (B247PRO).



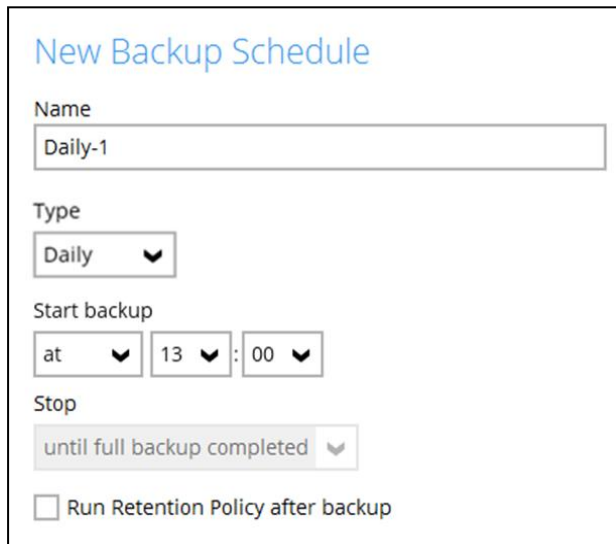
2. All backup sets will be listed. Select the backup set that you would like to create a backup schedule for.



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



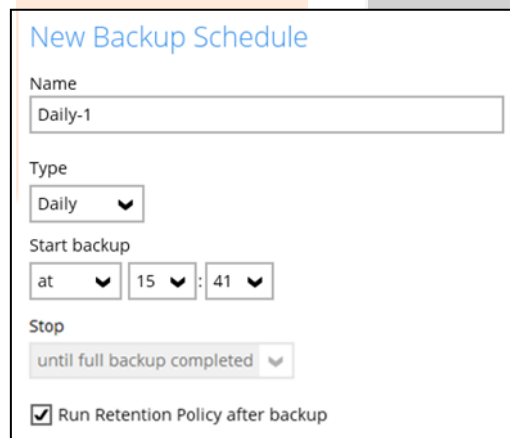
4. The New Backup Schedule window will appear.



The screenshot shows the 'New Backup Schedule' dialog box. The 'Name' field contains 'Daily-1'. The 'Type' dropdown is set to 'Daily'. The 'Start backup' is set to 'at 13:00'. The 'Stop' dropdown is set to 'until full backup completed'. The checkbox 'Run Retention Policy after backup' is unchecked.

1. 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.



The screenshot shows the 'New Backup Schedule' dialog box with the following settings: 'Name' is 'Daily-1', 'Type' is 'Daily', 'Start backup' is 'at 15:41', 'Stop' is 'until full backup completed', and the checkbox 'Run Retention Policy after backup' is checked.

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

New Backup Schedule

Name

Type

Backup on these days of the week
 Sun Mon Tue Wed Thu Fri Sat

Start backup
 at :

Stop

Run Retention Policy after backup

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

New Backup Schedule

Name

Type

Backup on the following day every month
 Day
 First

Start backup at
 : on the selected days

Stop

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

Type

Backup on the following day once

Start backup at
 :

Stop

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.

Start backup

Stop

Run Retention Policy after backup

- 1 minute
- 2 minutes
- 3 minutes
- 4 minutes
- 5 minutes
- 6 minutes
- 10 minutes
- 12 minutes

Start backup

Stop

Run Retention Policy after backup

- 30 minutes
- 1 hour
- 2 hours
- 3 hours
- 4 hours
- 6 hours
- 8 hours
- 12 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.

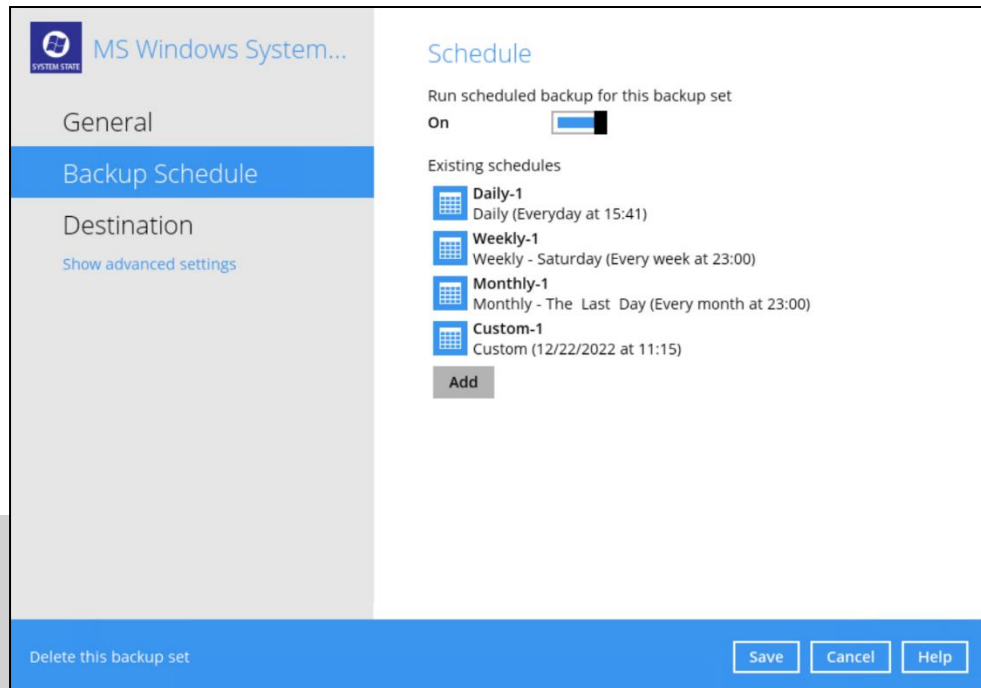
For example, if a backup has 100GB file size which will take approximately 15 hours to complete on your environment, but you set the “stop” after 10 hours, the file will be partially backed up and cannot be restored. The next backup will upload the files from scratch again.

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 Backup247 Advanced Client (B247PRO) 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:

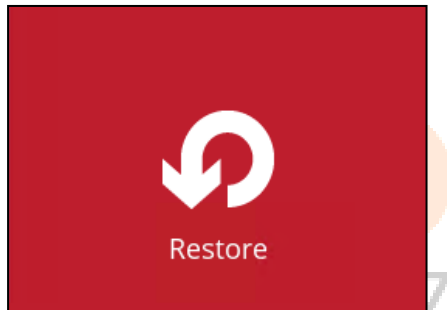


Click **Save** to confirm your settings once done.

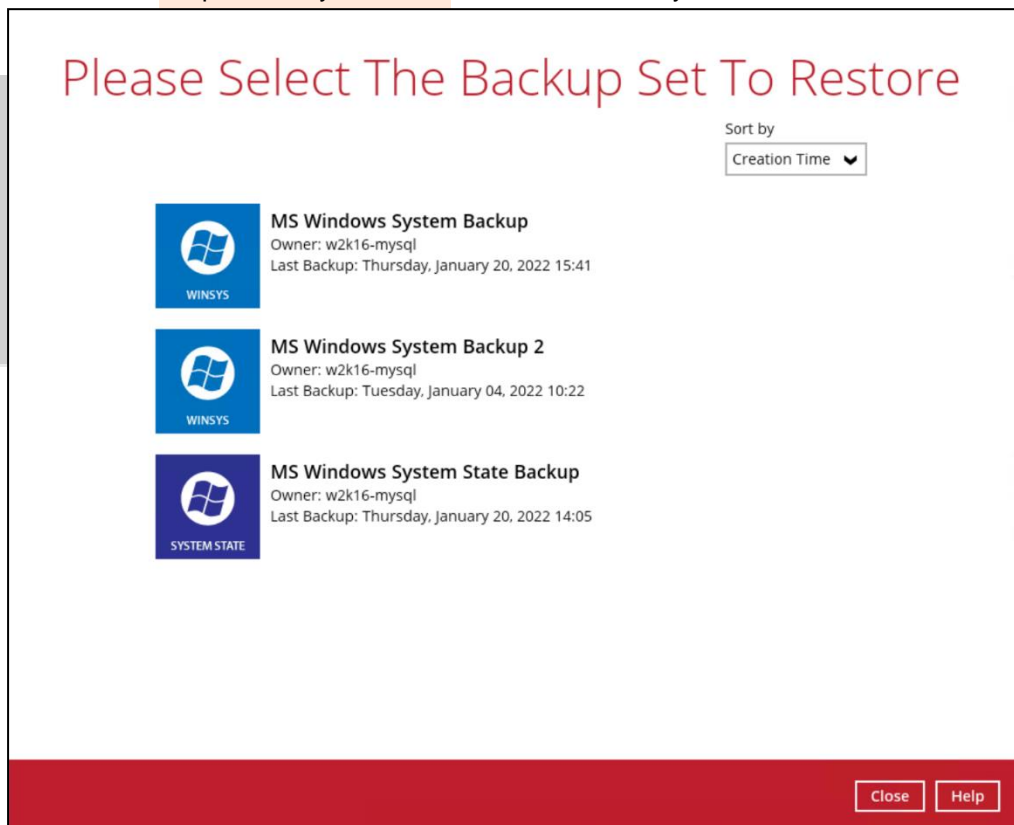
5 Restore with a Microsoft Windows System Backup Set

5.1 Restore the System State Data

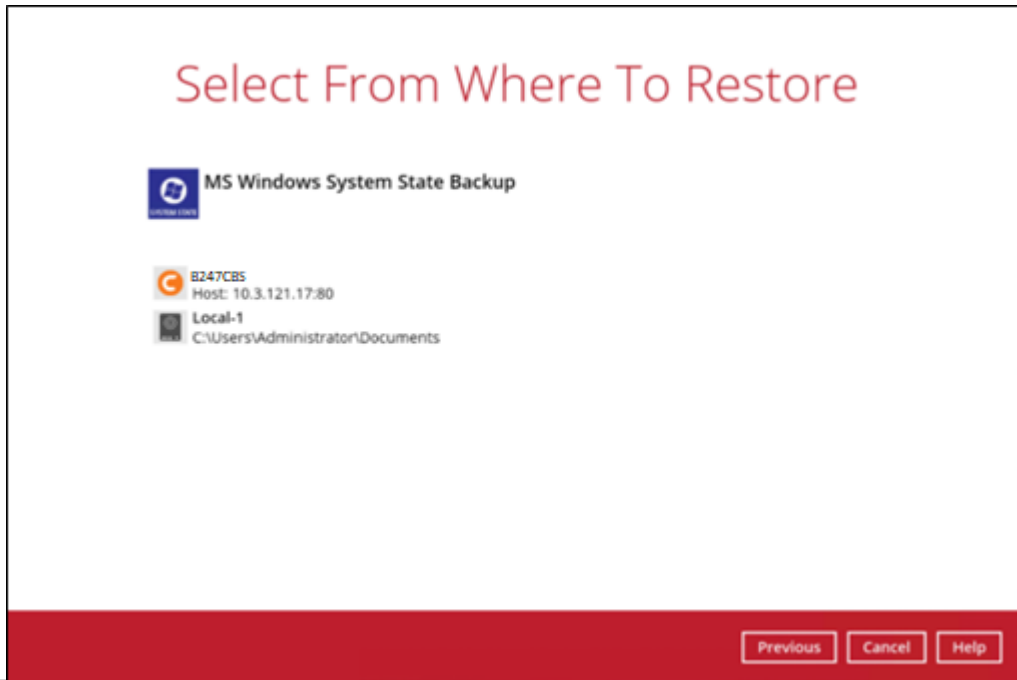
1. Click the **Restore** icon on the main interface of Backup247 Advanced Client (B247PRO).



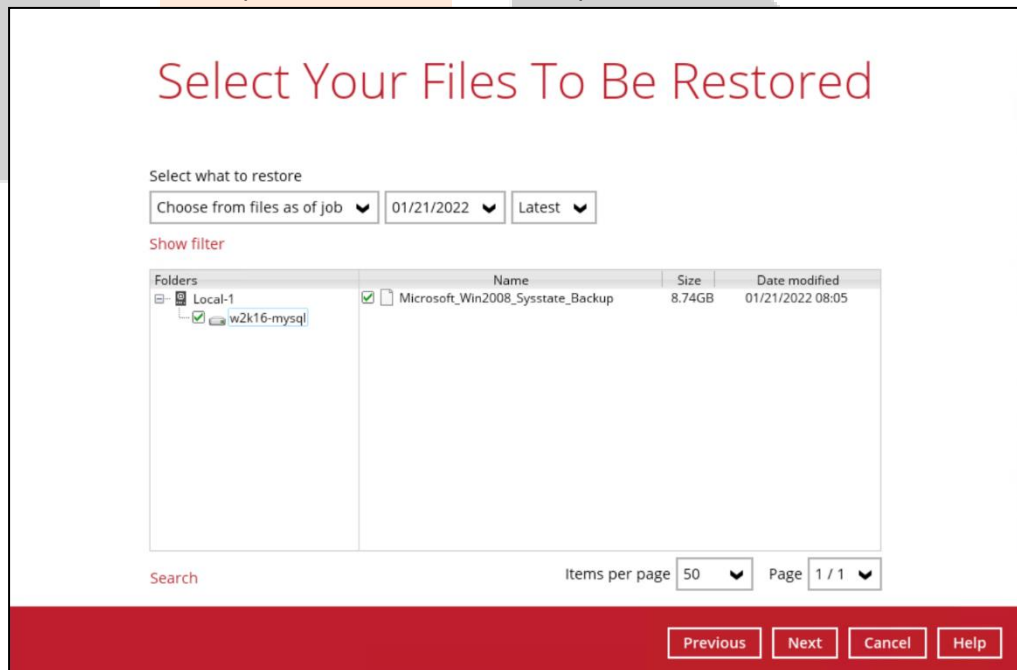
1. Select the backup set that you would like to restore the system state data from.



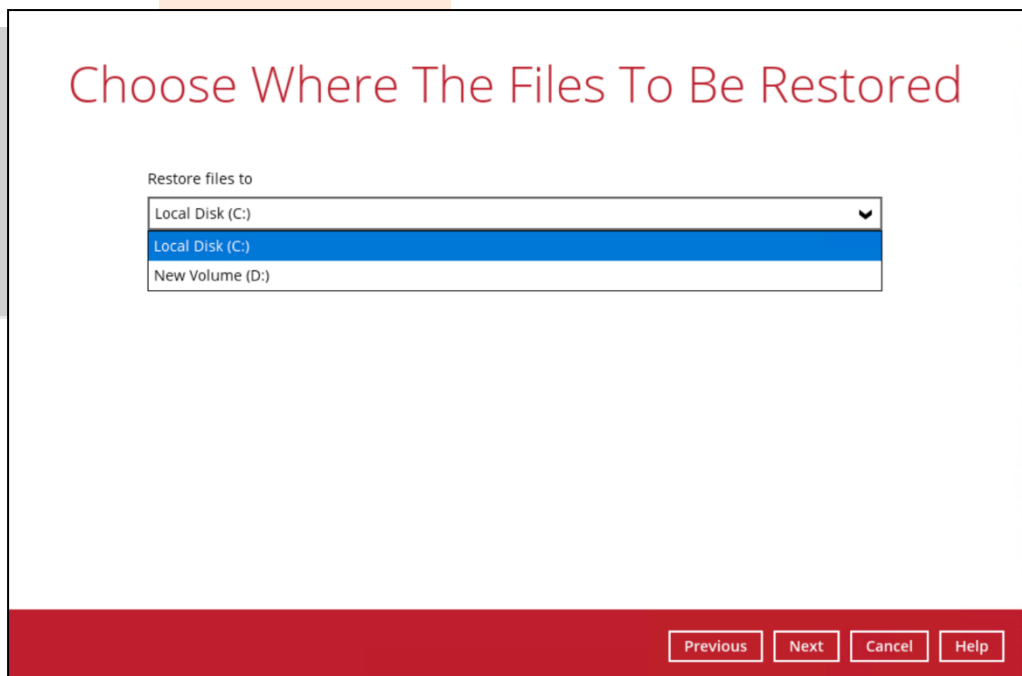
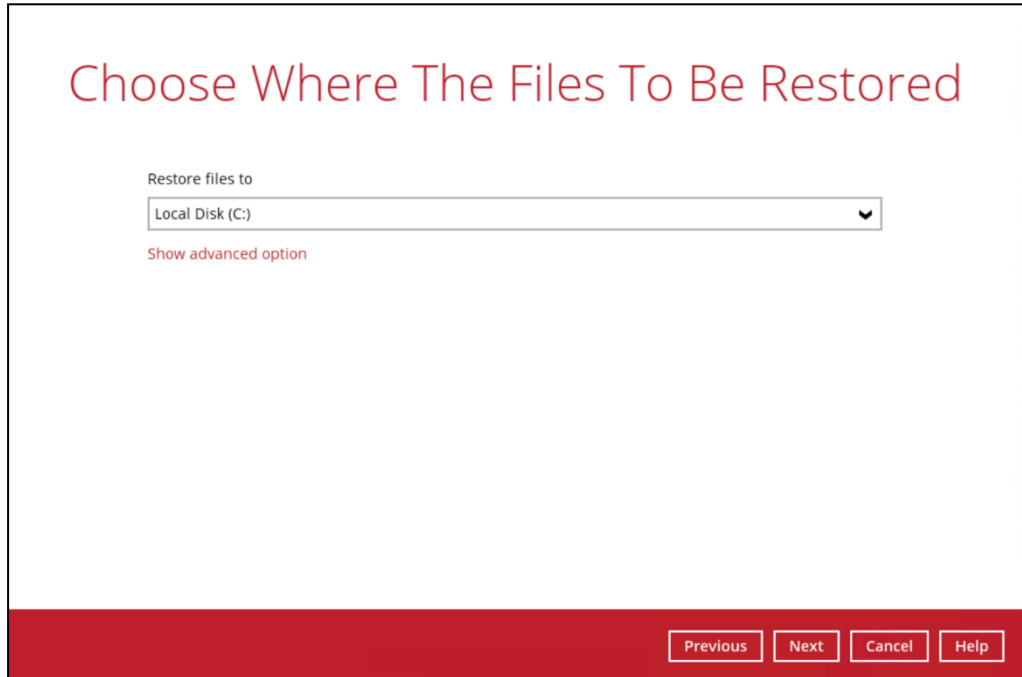
2. Select the backup destination that contains the system state data that you would like to restore.



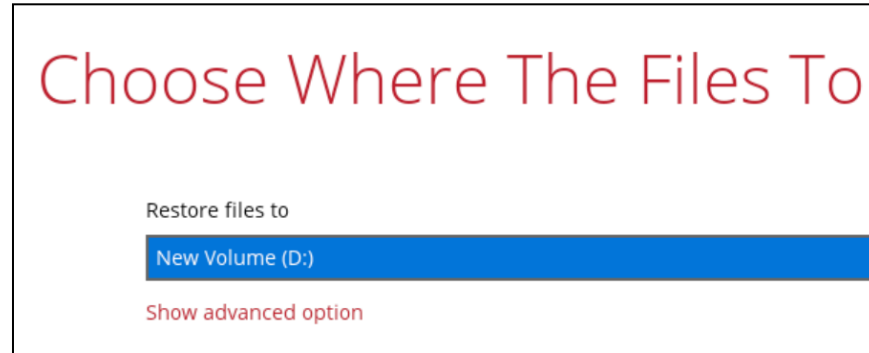
3. Select to restore from a specific backup job, or the latest job available from the **Select what to restore** drop down menu. Click **Next** to proceed.



4. Select the location to restore the system state data to by clicking the arrow down icon.



Click **Show advanced option** to configure other restore settings.

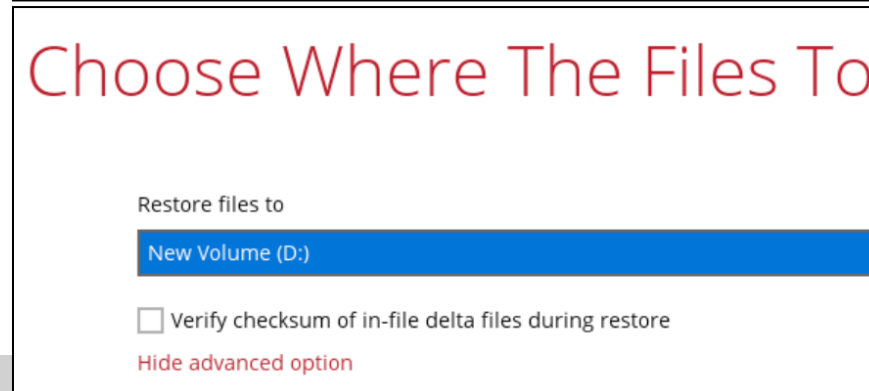


Choose Where The Files To

Restore files to

New Volume (D:)

Show advanced option



Choose Where The Files To

Restore files to

New Volume (D:)

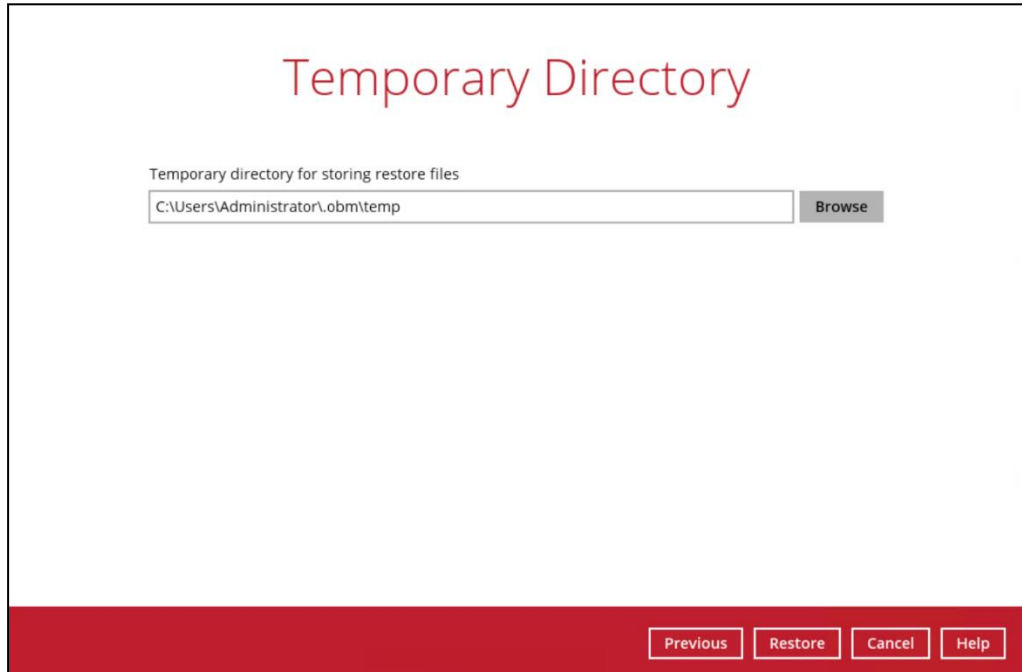
Verify checksum of in-file delta files during restore

Hide advanced option

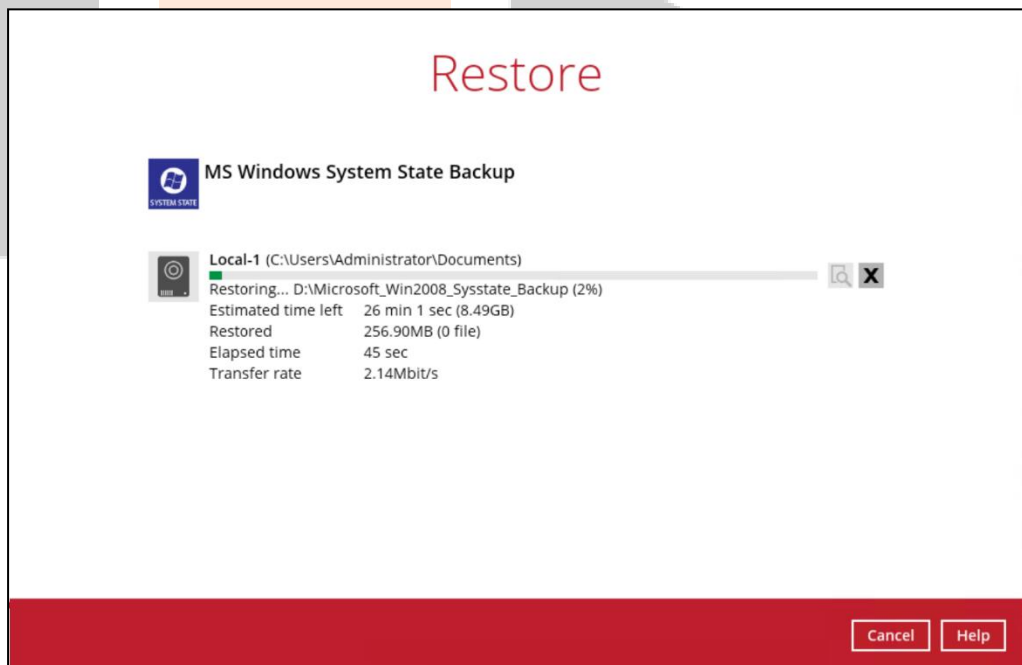
• **Verify checksum of in-file delta files during restore**

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.

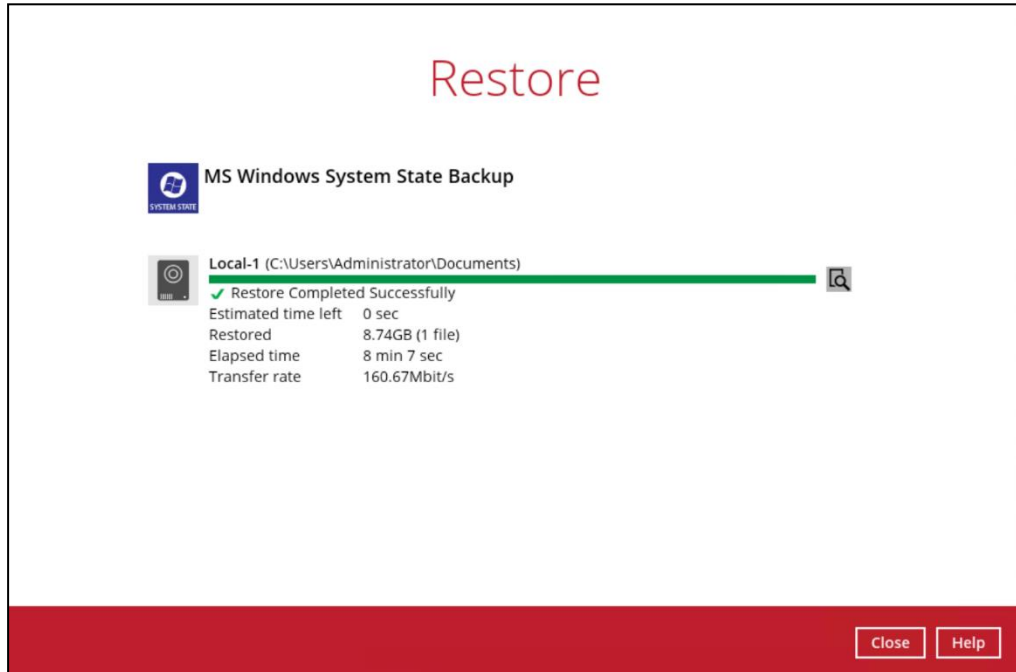
5. Select the temporary directory for storing temporary files.



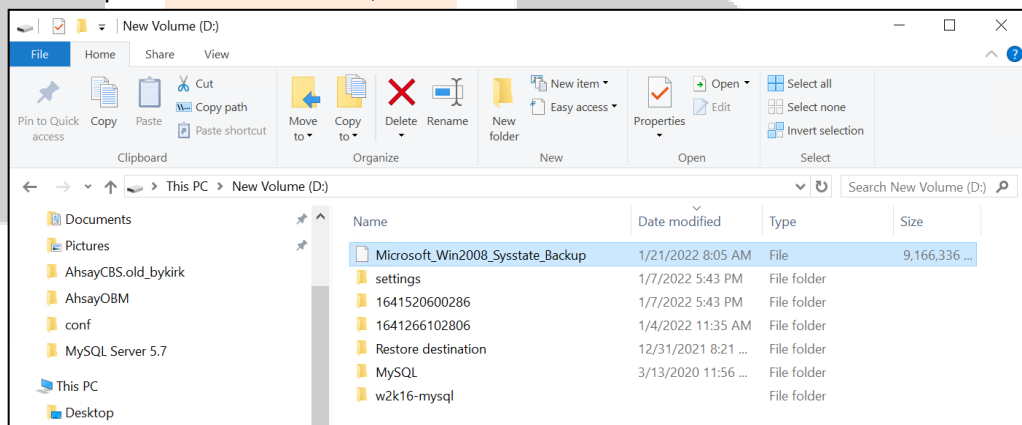
6. Click **Restore** to start the restoration.



7. The following screen is displayed when the system state data is restored successfully.



8. Go to the restore location you have selected and copy the file to the server that you want to perform the restore for, or to a network drive that is accessible to the server.



9. Continue to the next section of the guide.

5.2 Apply the System State Data

Before you begin, make sure that the system state data restored with Backup247 Advanced Client (B247PRO) are copied to a local disk (where you will perform the restore), or in a remote shared folder.

For Windows Server 2008 R2 or later, you can use the Recovery Wizard in Windows Server Backup or `wbadmin` command to recover the system state.

For Windows Server 2008, you can only use the `wbadmin` command to recover the system state.

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

Note: Refer to the following page for syntax of the `Wbadmin` command: <http://go.microsoft.com/fwlink/?LinkId=140216>

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

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

Example (system state restored to G: volume):

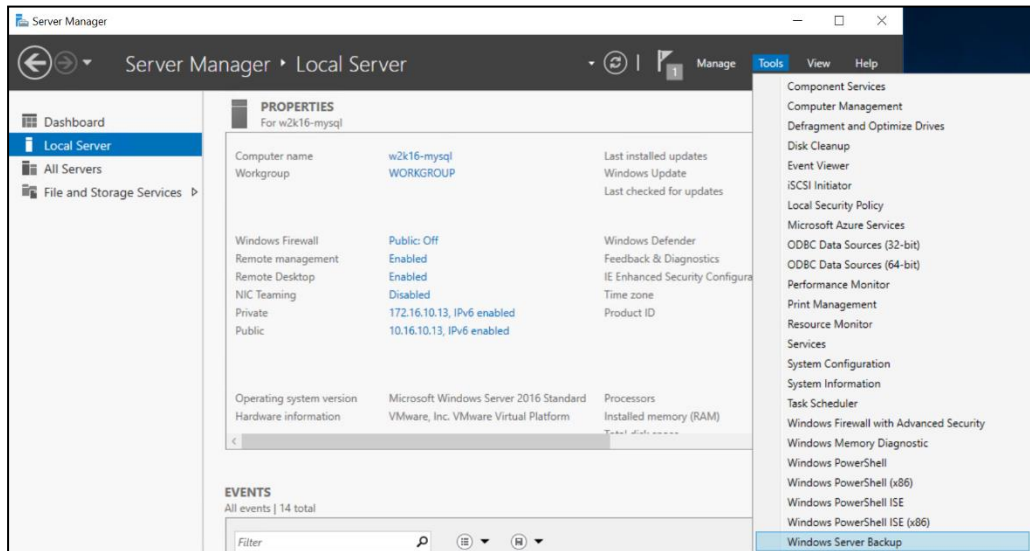
```
C:\Users\Administrator>wbadmin get versions -backupTarget:g:  
wbadmin 1.0 - Backup command-line tool  
(C) Copyright 2012 Microsoft Corporation. All rights reserved.  
  
Backup time: 01/21/2022 8:05 AM  
Backup target: 1394/USB Disk labeled Volume 3(G:)  
Version identifier: 01/21/2022-08:05  
Can recover: Volume(s), File(s), Application(s), Bare Metal  
Recovery, System State  
Snapshot ID: {feb9079c-9459-4034-908f-7b5a9b0bb1e5}
```

NOTE

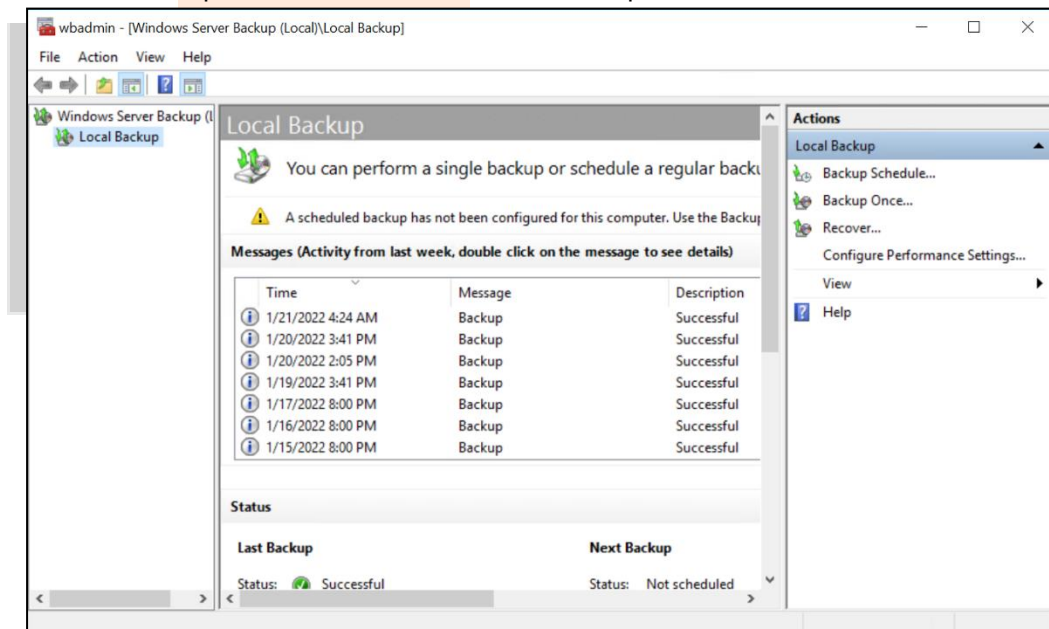
File and folder recovery is not possible from a system state backup performed on Windows Server 2008.

To recover the system state using the Windows Server Backup user interface.

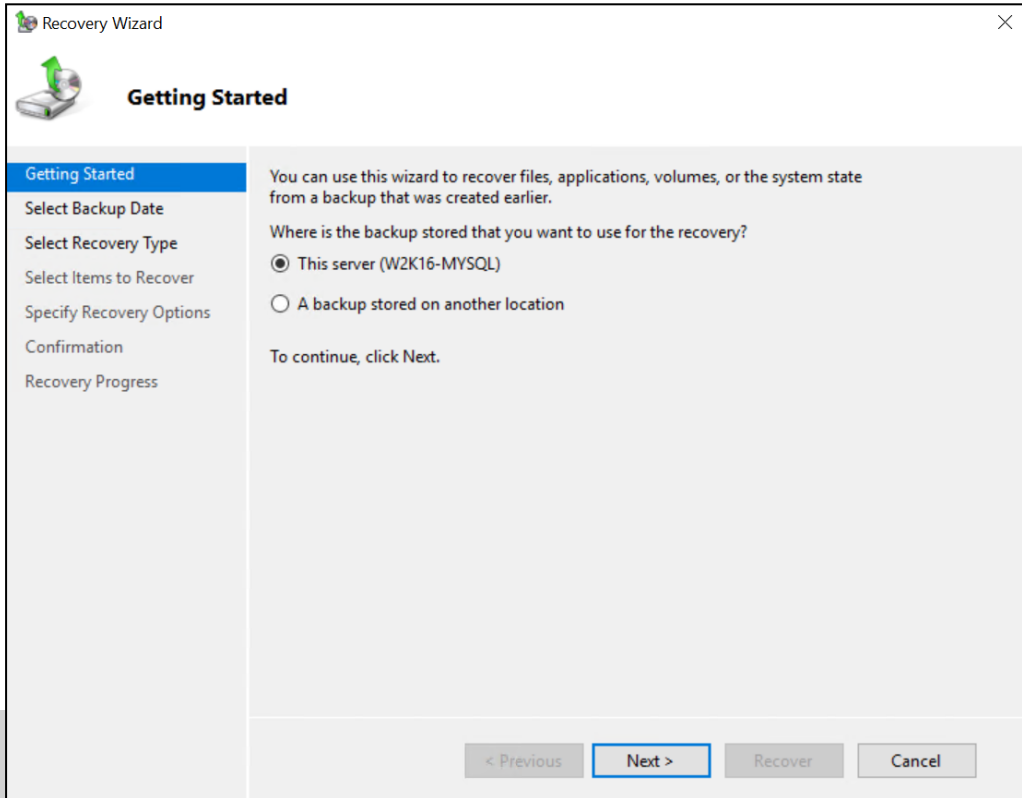
1. Open **Windows Server Backup** from **Administrative Tools** or **Server Manager**.



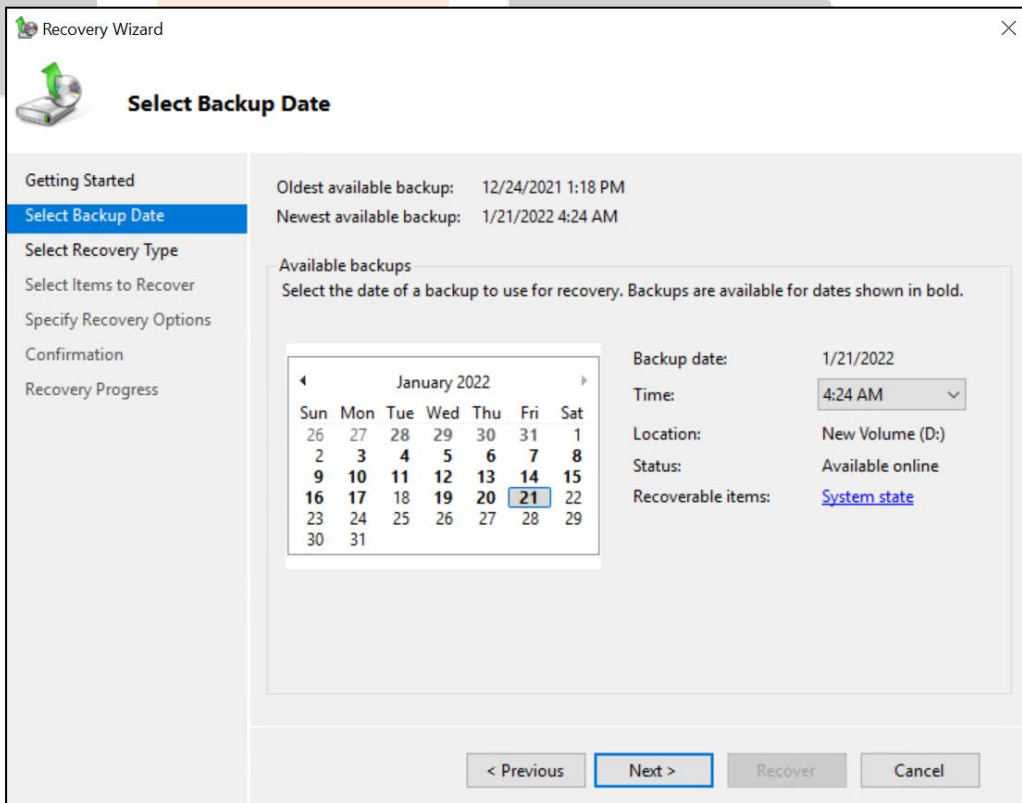
2. In the **Actions** panel under Windows Server Backup, click **Recover...**



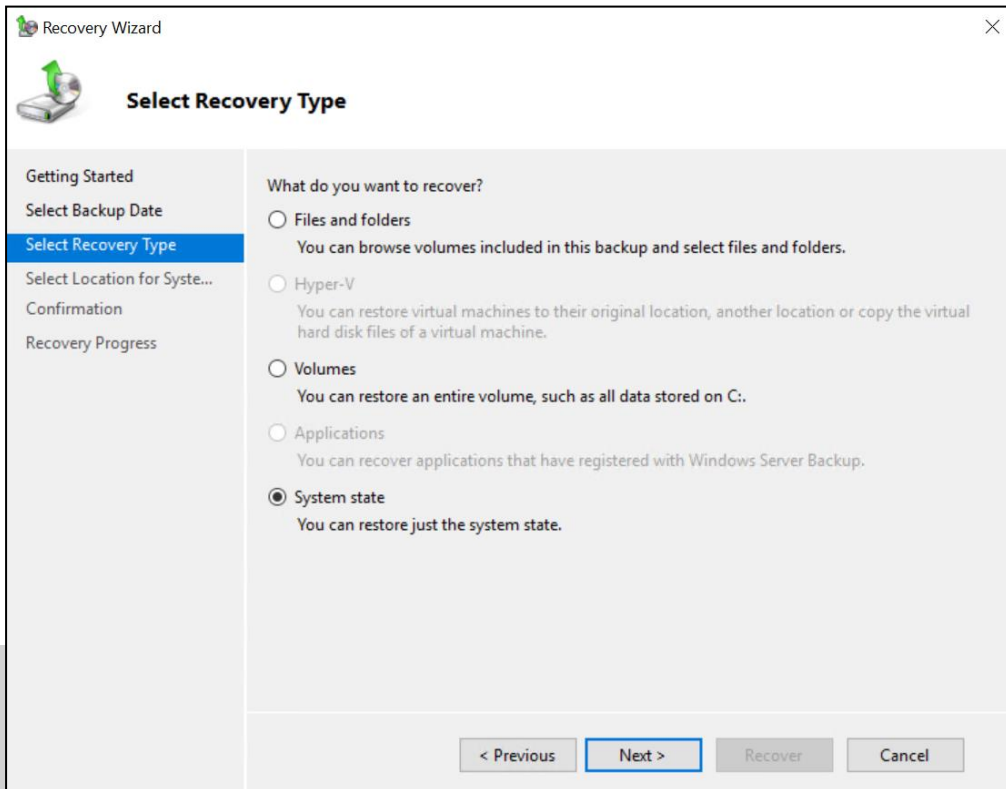
3. On the **Getting Started** page, select **This server**, then click **Next**.



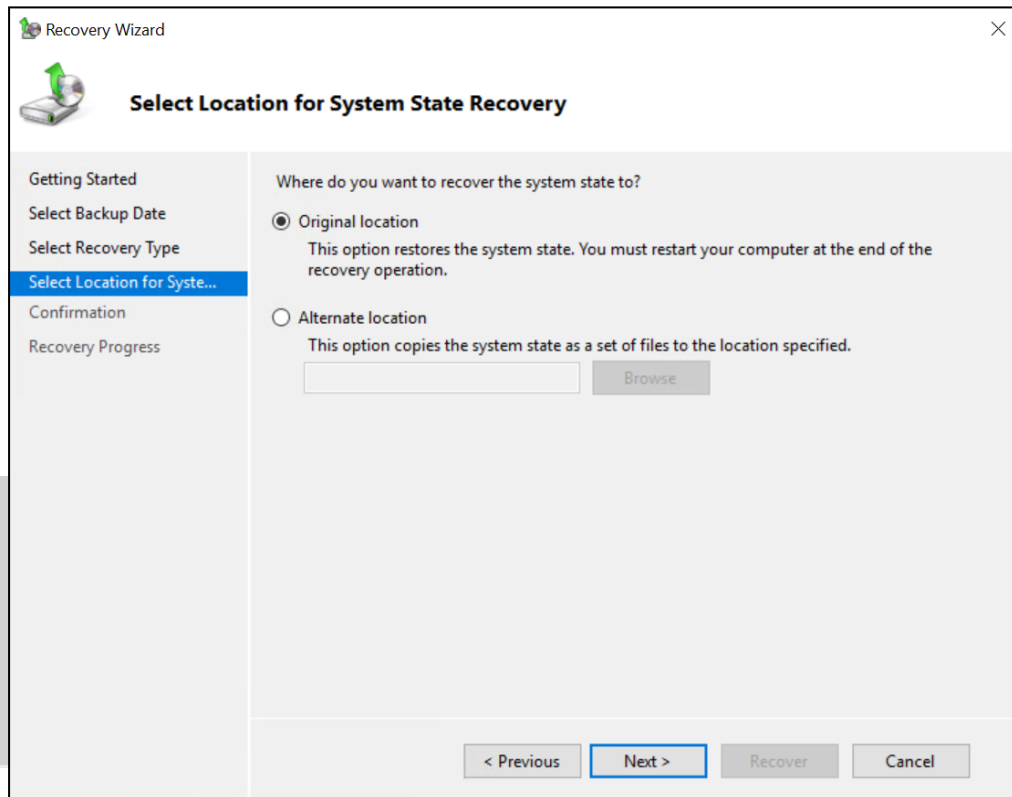
4. On the **Select Backup Date** page, select the point in time of the backup you want to restore from. Click **Next**.



5. On the **Select Recovery Type** page, select **System state**. Click **Next**.



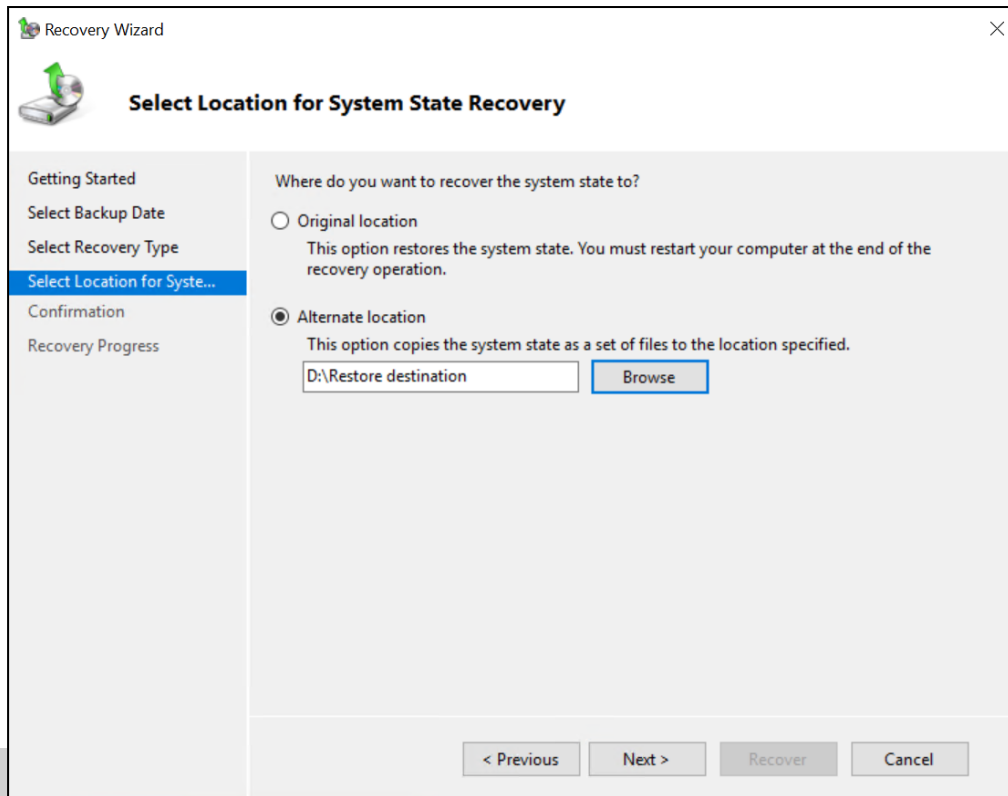
6. On the **Select Location for System State Recovery** page, select
- **Original location**, to restore the system state to the same physical computer from which the system state backup was created
- Or
- **Alternate location**, to restore a copy of the system state as a set of files.



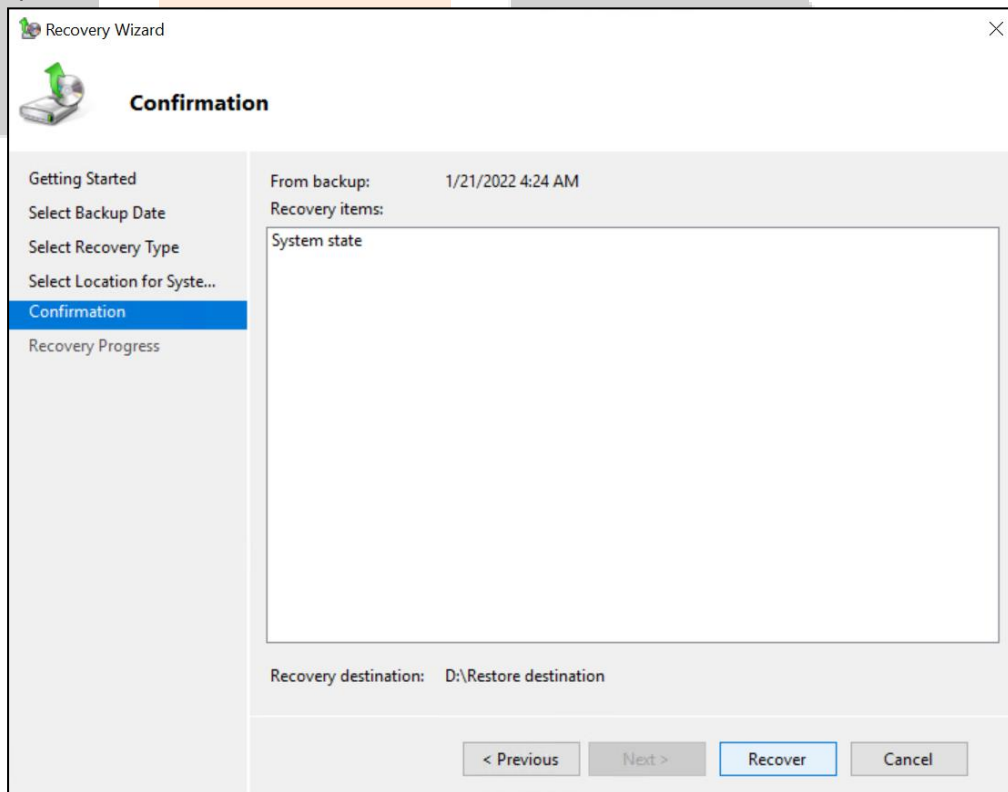
Note: The options displayed are different for system state containing Active Directory Domain Services.

You will also need to start the server in Directory Services Restore Mode (DSRM) to restore system state data containing Active Directory Domain Services.

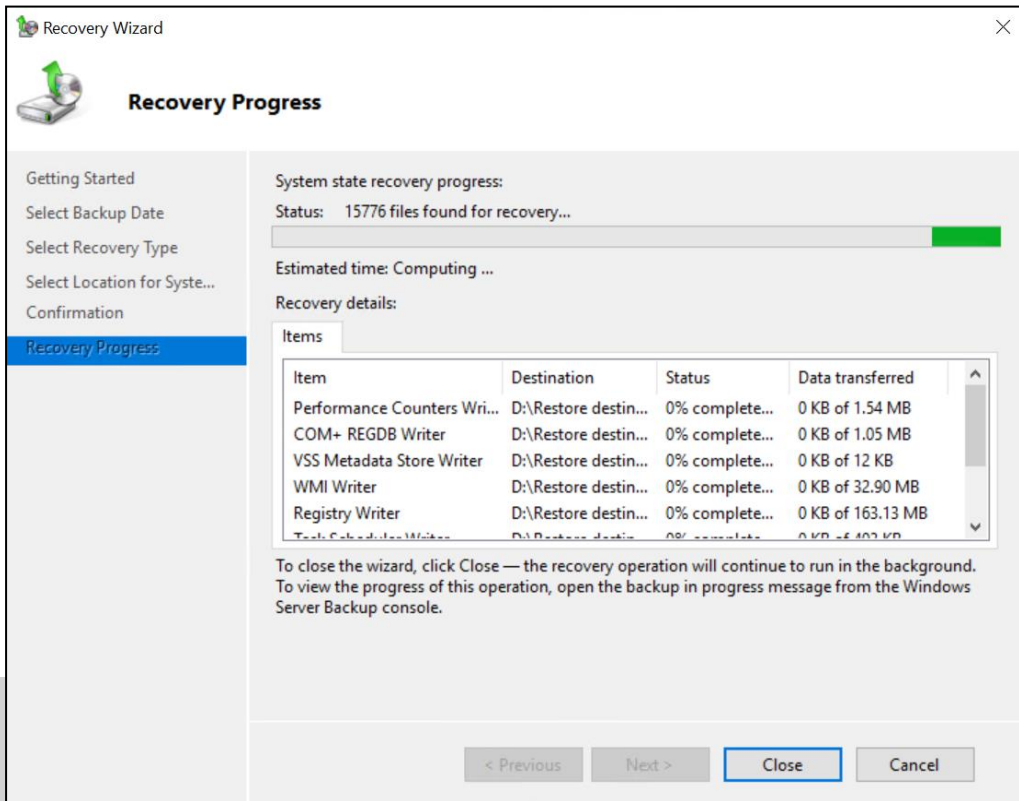
For instructions specific to recovering system state to Active Directory server, see <http://go.microsoft.com/fwlink/?LinkId=143754>



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



- On the **Recovery progress** page, the status and result of the recovery operation are displayed.



Important: For restore to **Original location**, the system state recovery cannot be stopped once it is started, or the system could become unbootable.

- Reboot the server once the system state recovery procedure is completed.

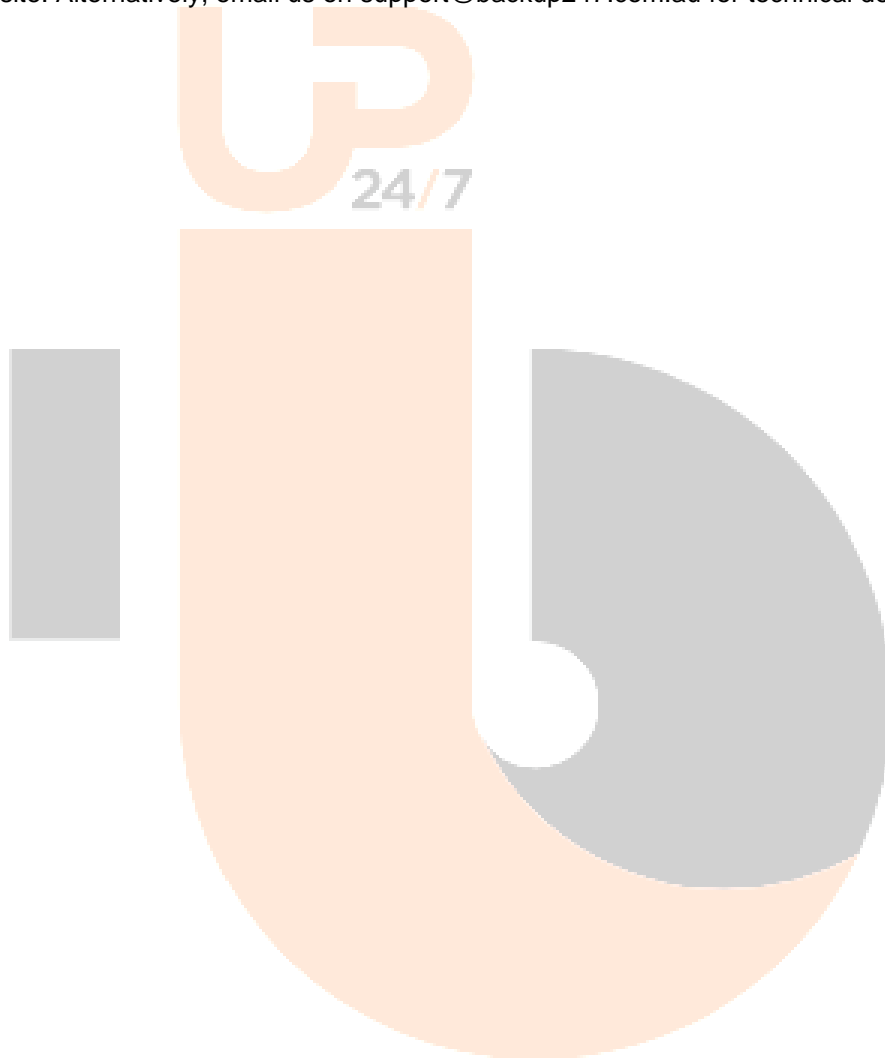
6 Contact Backup247

6.1 Technical Assistance

To contact Backup247 support representatives for technical assistance, visit our website <https://backup247.com.au/Support.php>

6.2 Documentation

Documentations for all Backup247 modules, user guide and QuickStart are available on our website. Alternatively, email us on support@backup247.com.au for technical demo.



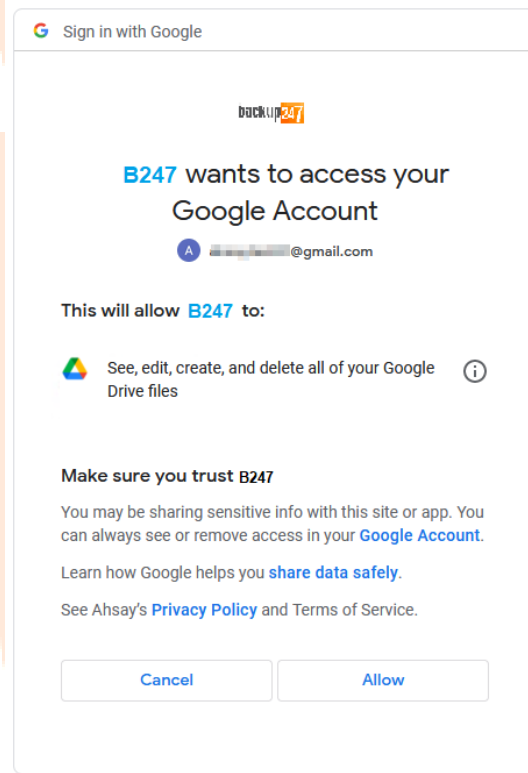
Appendix

Appendix A Cloud Storage as Backup Destination:

For most cloud storage providers (e.g., Dropbox, Google Drive ... etc.), you need to allow access Backup247 Advanced Client (B247PRO) 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 Backup247 Advanced Client (B247PRO) to access the cloud storage:



Enter the authentication code returned in Backup247 Advanced Client (B247PRO) 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.