

Ahsay Online Backup Manager v8

Microsoft Exchange Database Backup & Restore Guide

Ahsay Systems Corporation Limited

15 March 2019

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Revision History

Date	Descriptions	Type of modification
21 February 2019	Updated link to wiki in Ch. 1.2, 2.1 and 6; Updated screenshots in Ch. 1.3, 2.1, 2.2, 3.2, 4.2, 5.2 and Appendix B; Added PDIC step in Ch. 1.5	Modification

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1 Getting started

1.1 Introduction

This user guide aims at providing detailed information for backing up and restoring Microsoft Exchange Database with AhsayOBM.

1.2 Antivirus Exclusion Requirement

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

http://wiki.ahsay.com/doku.php?id=public:8014_faq:suggestion_on_antivirus_exclusions

NOTE

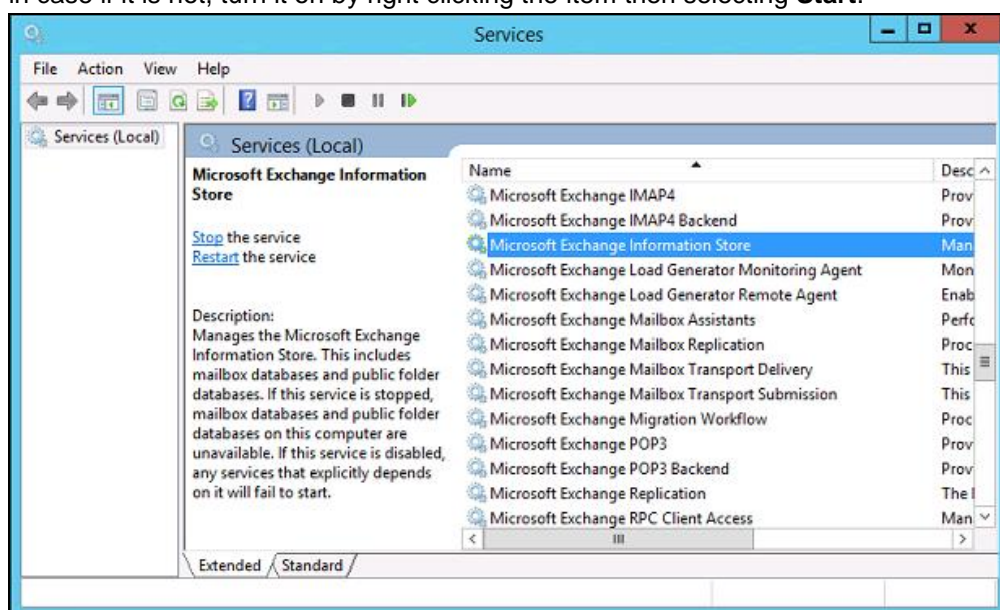
The bJW.exe process is automatically added to Windows Defender exclusion list for Windows 10 and 2016, during installation / upgrade via installer or upgrade via AUA.

1.3 General Best Practices and Recommendations

Please ensure that the following requirements are met by the Microsoft Exchange Server:

1. The latest version of AhsayOBM is installed on the Exchange server / DAG member services. For Exchange Server 2010/2013/2016, Database Availability Group (DAG) backup option is available, please refer to [Backing up Microsoft Exchange Server in Database Availability Group \(DAG\)](#) for details.
2. Ensure that all MS Exchange related services have been started, particularly the **MS Exchange Information Store Service**.

To verify this setting, launch **Services** in Windows by clicking **Start** then typing "Services" in the search box. All Exchange related services should be started by default, in case if it is not, turn it on by right clicking the item then selecting **Start**.



3. AhsayOBM must be installed on the Exchange server with mailbox role.

4. Make sure the Exchange Server has been updated to the latest roll-up patch of that specific service pack.
5. Make sure that circular logging is disabled for all Information Store(s) or Public Folder selected for backup.
6. Make sure that the Microsoft Exchange Server add-on module has been enabled for your AhsayOBM user account. Contact your backup service provider for more details.

The screenshot shows the 'User Profile' settings for a user. The 'Backup Client Settings' tab is active. The 'Backup Client' section has 'AhsayOBM User' selected. The 'Add-on Modules' section lists several options, with 'Microsoft Exchange Server' checked and highlighted by a red rectangle. Other modules include MySQL Database Server, Lotus Domino, Windows System Backup, VMware (with a dropdown for 'Guest VM' and a value of '0'), Microsoft Exchange Mailbox (with a value of '0'), and Continuous Data Protection.

7. The Exchange Server 2010/2013/2016 database files are no longer stored in the temporary directory during backup. However, the VSS-based Exchange backup will still require certain amount of disk space to operate. Microsoft suggested that certain shadow copy mechanism may require free space around 100% of the original database. Refer to the following URL for more information. <https://docs.microsoft.com/en-us/exchange/client-developer/exchange-server-development>
8. Temporary Directory folder is used by AhsayOBM for storing backup set index files and any incremental or differential delta files generated during a backup job. To ensure optimal backup/restore performance, it is recommended that the folder is located on a local drive with plenty of free disk space.
9. Ensure that the **Microsoft Exchange Writer** is installed and running on the Exchange Server, and the writer state is **Stable**. This can be verified by running the **vssadmin list writers** command.

Example:

```
C:\Users\Administrator>vssadmin list writers
vssadmin 1.1 - Volume Shadow Copy Service administrative
command-line tool
(C) Copyright 2001-2013 Microsoft Corp.

Writer name: 'System Writer'
  Writer Id: {e8132975-6f93-4464-a53e-1050253ae220}
  Writer Instance Id: {a2f2507d-b348-493a-9685-da3f20959e9d}
```

```

State: [1] Stable
Last error: No error

Writer name: 'COM+ REGDB Writer'
Writer Id: {542da469-d3e1-473c-9f4f-7847f01fc64f}
Writer Instance Id: {60b9b261-ab81-4c4d-be0f-5d432a4dea64}
State: [1] Stable
Last error: No error

Writer name: 'ASR Writer'
Writer Id: {be000cbe-11fe-4426-9c58-531aa6355fc4}
Writer Instance Id: {1aab9829-3b91-46bc-a7f1-ae9e1123c2fe}
State: [1] Stable
Last error: No error

Writer name: 'Microsoft Exchange Writer'
Writer Id: {76felac4-15f7-4bcd-987e-8e1acb462fb7}
Writer Instance Id: {2e8409fa-1dd8-483c-ba95-5c9277be0509}
State: [1] Stable
Last error: No error

Writer name: 'IIS Metabase Writer'
Writer Id: {59b1f0cf-90ef-465f-9609-6ca8b2938366}
Writer Instance Id: {3303e28e-afae-4c99-8f1a-2ce23e6455a7}
State: [1] Stable
Last error: No error

Writer name: 'FRS Writer'
Writer Id: {d76f5a28-3092-4589-ba48-2958fb88ce29}
Writer Instance Id: {d35e3901-f9b9-4fa6-86af-36b8a4872933}
State: [1] Stable
Last error: No error

Writer name: 'Shadow Copy Optimization Writer'
Writer Id: {4dc3bdd4-ab48-4d07-adb0-3bee2926fd7f}
Writer Instance Id: {8e19e851-95ca-4c97-813d-4bc51898c7ac}
State: [1] Stable
Last error: No error

Writer name: 'WMI Writer'
Writer Id: {a6ad56c2-b509-4e6c-bb19-49d8f43532f0}
Writer Instance Id: {0619e684-14f3-495b-be59-e35fc0ec212b}
State: [1] Stable
Last error: No error

Writer name: 'BITS Writer'
Writer Id: {4969d978-be47-48b0-b100-f328f07ac1e0}
Writer Instance Id: {94991e66-e5c7-47a4-a0c9-3771e4761262}
State: [1] Stable
Last error: No error

Writer name: 'Registry Writer'
Writer Id: {afbab4a2-367d-4d15-a586-71dbb18f8485}
Writer Instance Id: {73c66436-c2e8-4d46-b88a-d866617eb95d}
State: [1] Stable
Last error: No error

Writer name: 'NTDS'
Writer Id: {b2014c9e-8711-4c5c-a5a9-3cf384484757}
Writer Instance Id: {14cedc8b-4c51-4a12-85c4-8cf8aa3545b6}
State: [1] Stable

```



```
Last error: No error
```

```
Writer name: 'IIS Config Writer'
```

```
Writer Id: {2a40fd15-dfca-4aa8-a654-1f8c654603f6}
```

```
Writer Instance Id: {5939e29f-bf43-4a39-a6b7-e3a838e75e3e}
```

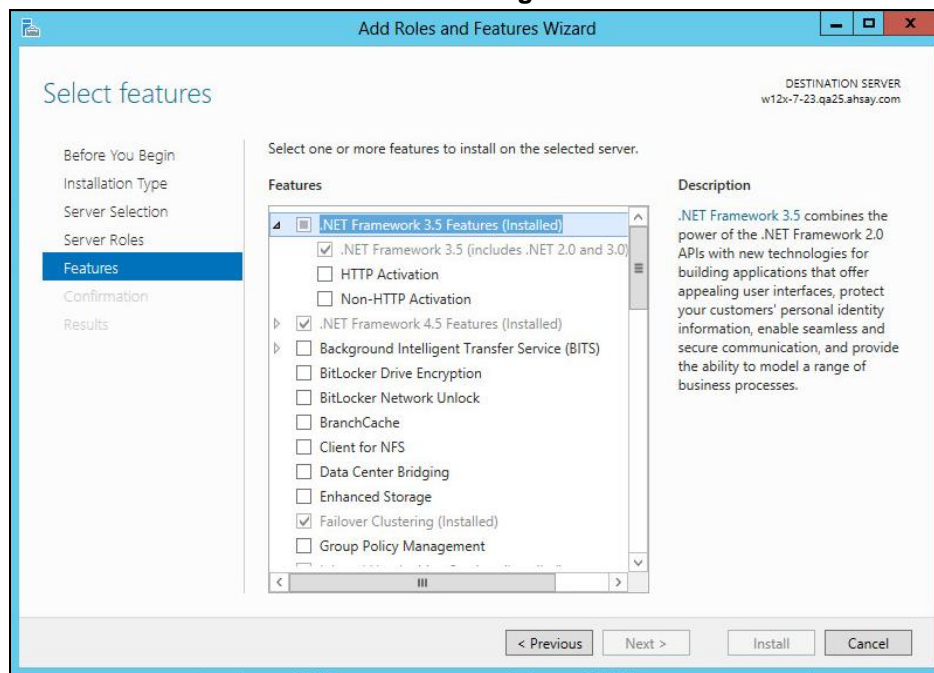
```
State: [1] Stable
```

```
Last error: No error
```

10. For Exchange server with Active Directory installed, a Windows System State backup must be performed regularly with the MS Exchange Server backup.

11. **(Applicable to Microsoft Exchange Server 2013/2016 only)**

If you are using Microsoft Exchange Server 2013/2016 on Windows Server 2012, please install **.Net Framework 3.5 Features** under **Server Manager > Dashboard > Add Roles and Features Wizard > Feature Page**.



1.4 Best Practices and Recommendations for Exchange Server in Data Availability Group (DAG) only

1. System State backup must be performed regularly for the domain controller of the Exchange DAG setup.
2. Scheduled backup is required if you choose to back up with DAG option, as AhsayOBM on all DAG members will base on the scheduled backup time to start backups on individual DAG member at the same time.

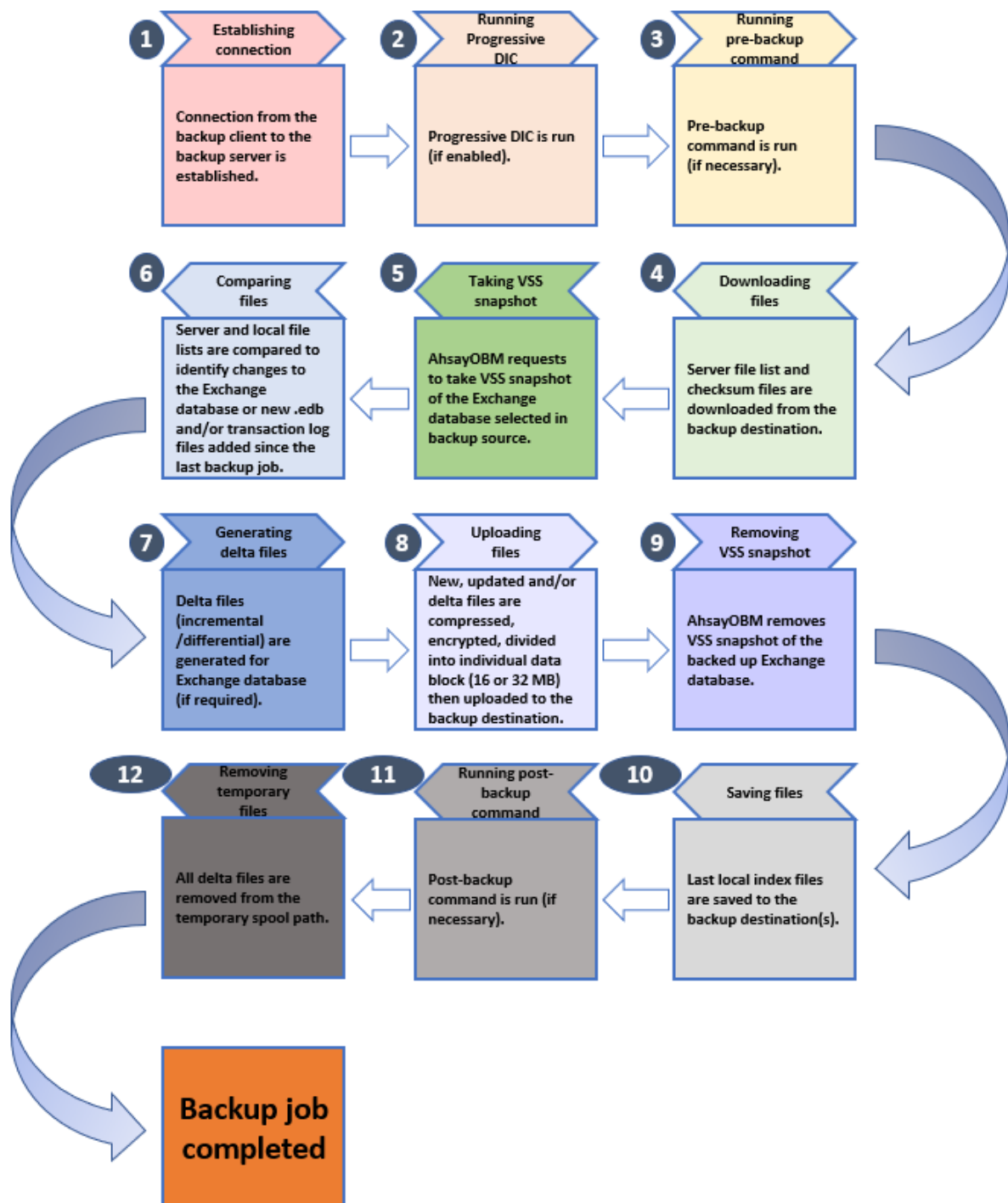
A DAG backup cycle is considered complete only when scheduled backup on all DAG members have been carried out. An email report will be generated when a complete DAG backup cycle has taken place.

Please keep in mind that manual backup will only be considered as individual mail-level backup, and therefore will not be counted as part of the DAG backup cycle.

3. The MS Exchange Server Backup module will protect the Exchange server at the database level. If a full system backup (for bare-metal recovery) is required, please consider setting up a MS System Backup for each DAG member server.
4. To back up mailbox database within an Exchange DAG, AhsayOBM is required to be installed on each DAG member with mailbox role (e.g. servers that are hosting the mailbox databases). It is not necessary to install AhsayOBM on Exchange server with CAS (Client Access Server) role only.

1.5 Overview of MS Exchange Database Backup Process

The following steps are performed during an Exchange Database backup job:



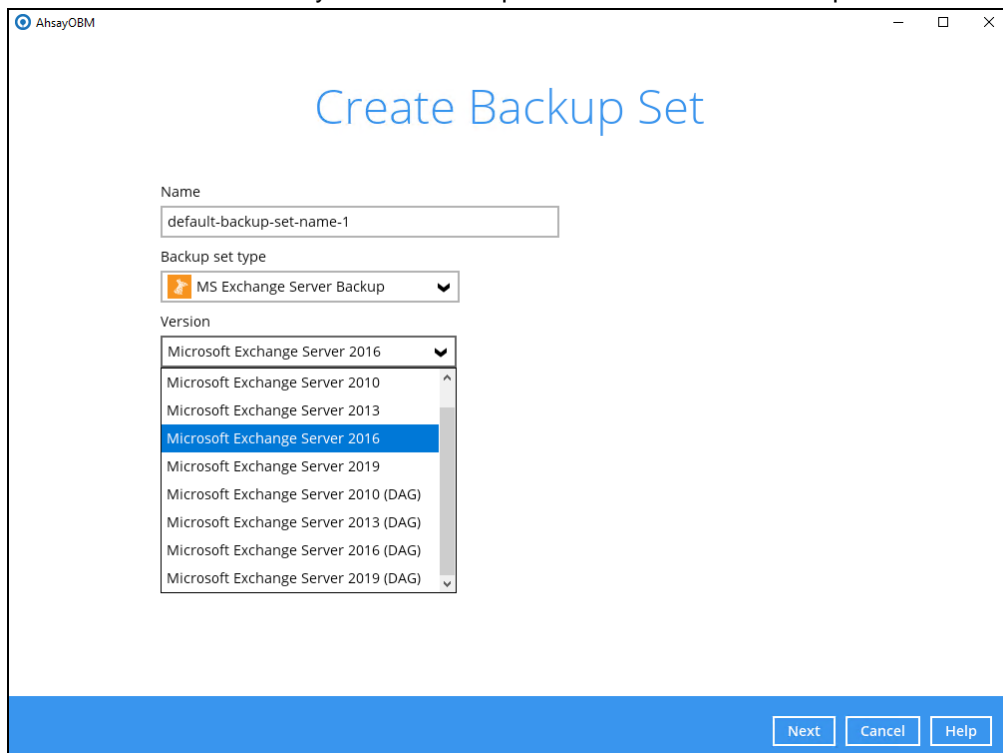
2 Backing up Microsoft Exchange Database 2007/2010/2013/2016

2.1 Creating a MS Exchange Server Backup Set for Exchange Server 2007/2010/2013/2016

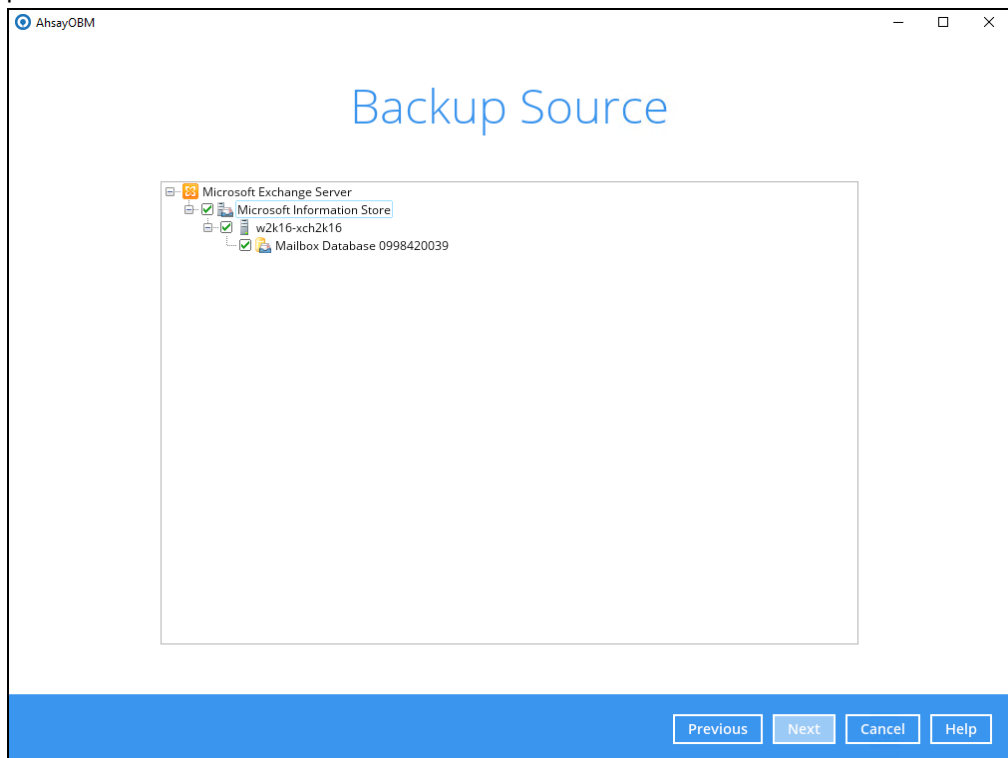
1. Click the **Backup Sets** icon on the main interface of AhsayOBM.



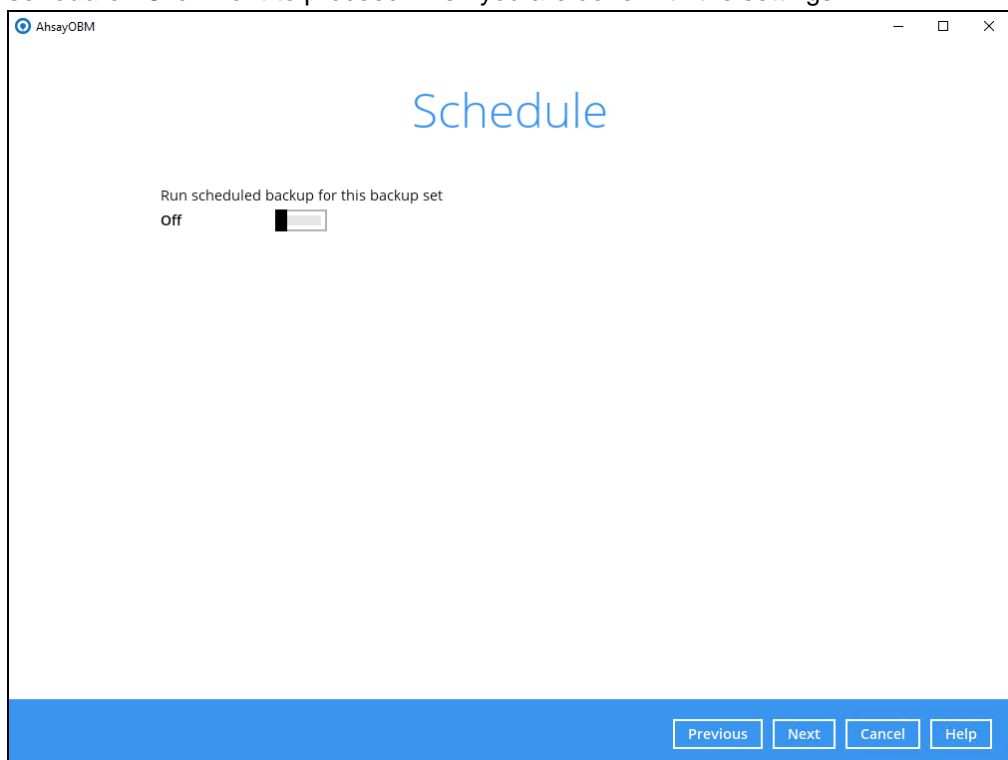
2. Create a new backup set by clicking the "+" icon next to **Add new backup set**.
3. Select the Backup set type as **MS Exchange Server Backup**. The system will automatically detect and select the Exchange Server version, make sure the version selected is correct. Name your new backup set and then click **Next** to proceed.

A screenshot of the "Create Backup Set" dialog box in AhsayOBM. The dialog has a title bar with "AhsayOBM" and standard window controls. The main title "Create Backup Set" is in large blue font. Below it, there are three fields: "Name" with a text input containing "default-backup-set-name-1", "Backup set type" with a dropdown menu showing "MS Exchange Server Backup" (with a folder icon), and "Version" with a list box showing various Microsoft Exchange Server versions. The "Version" list box is open, showing options like "Microsoft Exchange Server 2016", "Microsoft Exchange Server 2010", "Microsoft Exchange Server 2013", "Microsoft Exchange Server 2016", "Microsoft Exchange Server 2019", "Microsoft Exchange Server 2010 (DAG)", "Microsoft Exchange Server 2013 (DAG)", "Microsoft Exchange Server 2016 (DAG)", and "Microsoft Exchange Server 2019 (DAG)". At the bottom right, there are three buttons: "Next", "Cancel", and "Help".

4. In the **Backup Source** menu, select the Information Store for backup. Click **Next** to proceed.



5. In the **Schedule** menu, you can configure a backup schedule for backup job to run automatically at your specified time interval. By default the **Run scheduled backup for this backup set** option is disabled. Enable it then click the “+” icon next to **Add new schedule**. Click **Next** to proceed when you are done with the settings.



6. 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**.

AhsayOBM

Destination

Backup mode
Sequential ▼

Existing storage destinations
+ Add new storage destination / destination pool
^ v

Previous Next Cancel Help

7. Select the destination storage, then click **OK** to proceed.

AhsayOBM

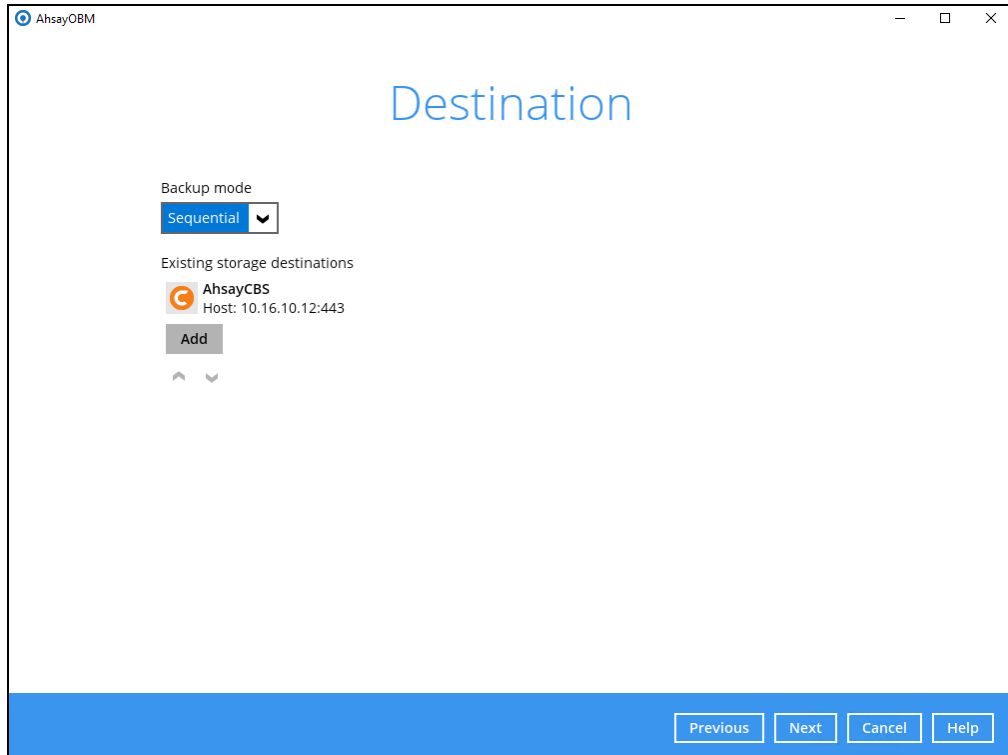
New Storage Destination / Destination Pool

Name
AhsayCBS

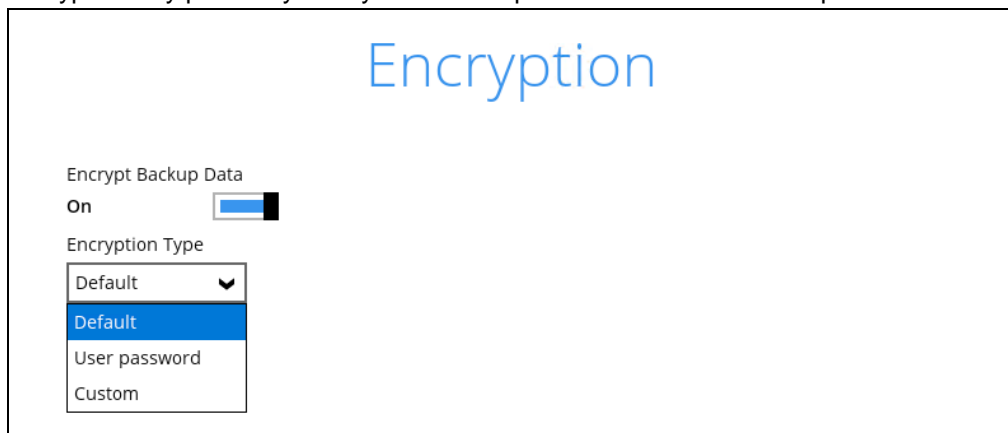
Destination storage
AhsayCBS ▼

OK Cancel Help

8. When you are done with settings, click **Next** on the **Destination** menu page to proceed.



9. 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.



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.

Encryption

Encrypt Backup Data
On

Encryption Type
Custom

Algorithm
AES

Encryption key

Re-enter encryption key

Method
☐ ECB ☒ CBC

Key length
☐ 128-bit ☒ 256-bit

Note: For best practice on managing your encryption key, refer to the following article.
http://wiki.ahsay.com/doku.php?id=public:8015_faq:best_practices_for_managing_encryption_key&s%5b%5d

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

10. If you have enabled the Encryption Key feature in the previous step, the following pop-up window shows, no matter which encryption type you have selected.

Encryption

Encrypt Backup Data
On

Encryption Type
Default

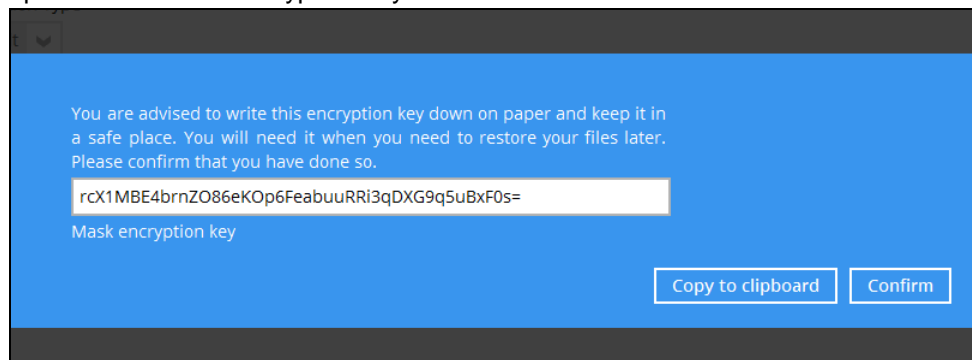
You are advised to write this encryption key down on paper and keep it in a safe place. You will need it when you need to restore your files later. Please confirm that you have done so.

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

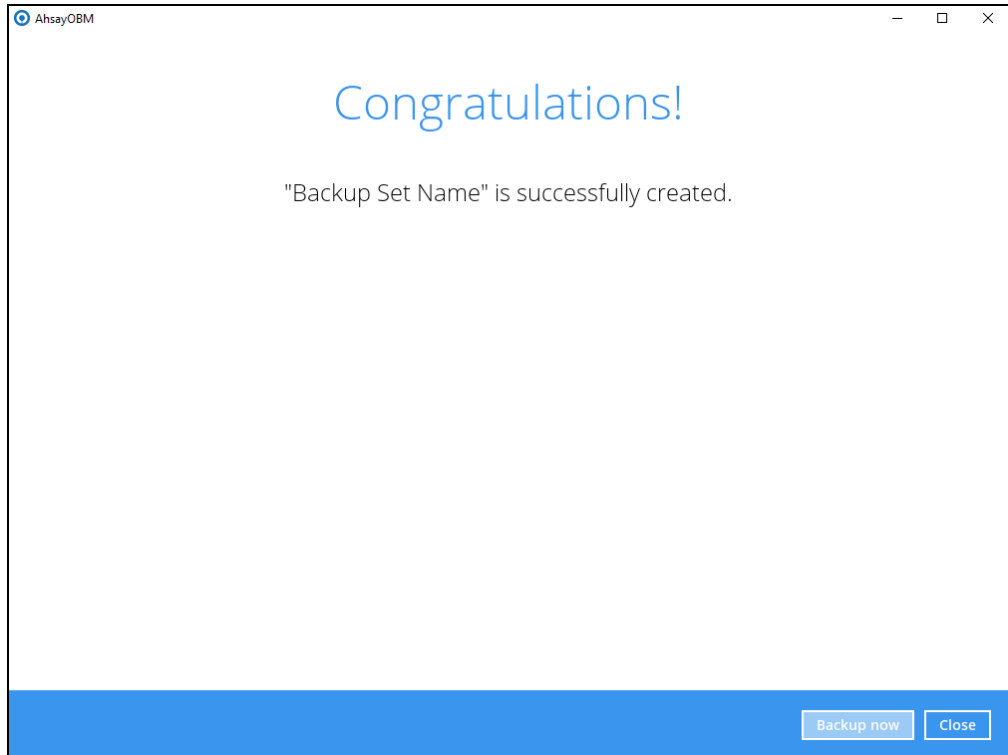
11. Enter the Windows login credentials for user authentication. Click **Next** to proceed.

A screenshot of a window titled "AhsayOBM" with standard Windows window controls (minimize, maximize, close). The main title is "Windows User Authentication" in blue. Below the title are three input fields: "Domain Name (e.g Ahsay.com) / Host Name" with the value "x2k16.local", "User name" with the value "Administrator", and "Password" which is empty. At the bottom of the window is a blue bar containing four buttons: "Previous", "Next", "Cancel", and "Help".

Note

The Windows User Authentication interface will show only if scheduled backup is enabled and set successfully.

12. The following screen shows when the new backup set is created successfully.



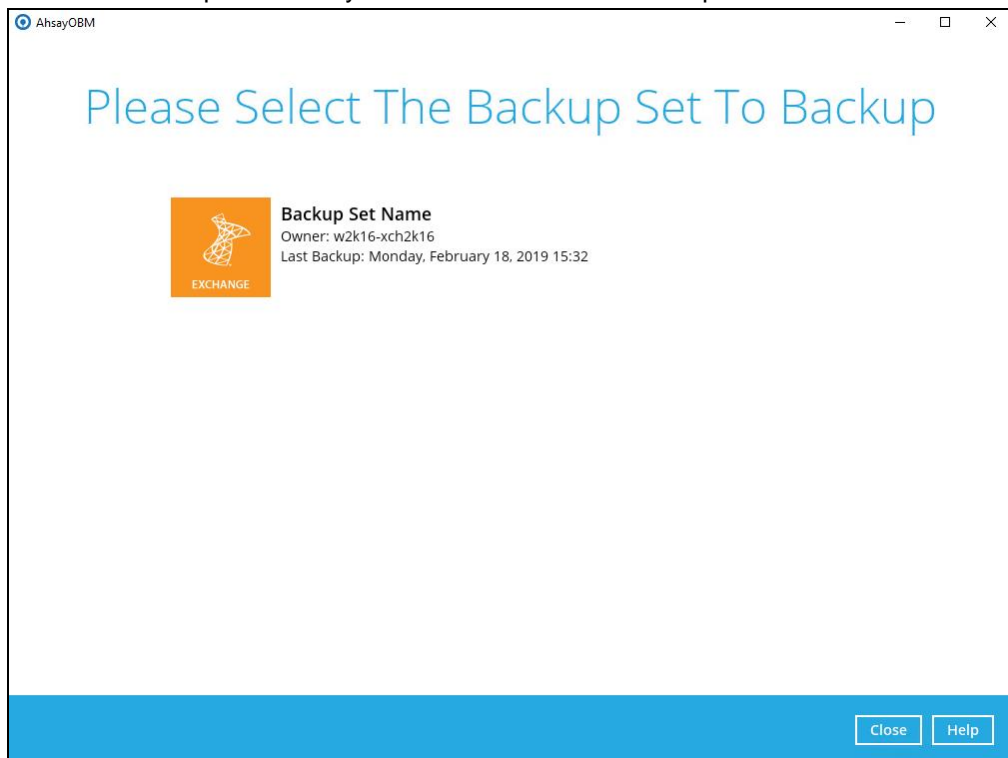
13. You can click **Backup now** to start a backup immediately, or you can run a backup job later by following the instructions in [Running Backup Job for Microsoft Exchange Server 2007/2010/2013/2016](#).

2.2 Running Backup Job for Microsoft Exchange Server 2007/2010/2013/2016

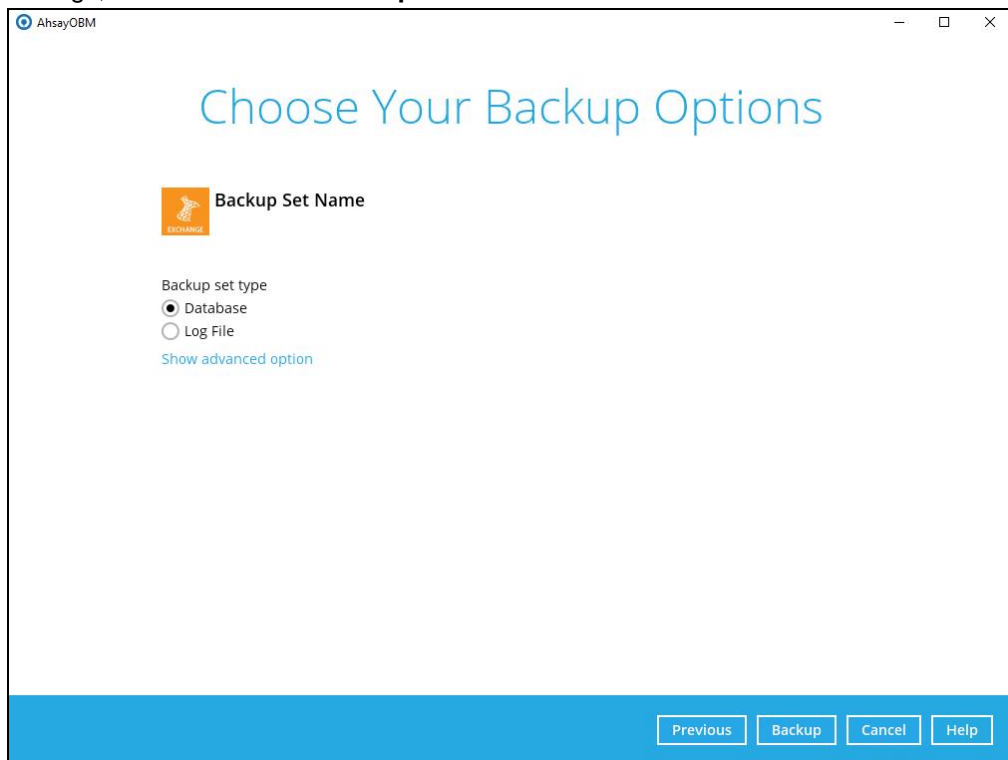
1. Log in to AhsayOBM.
2. Click the **Backup** icon on the main interface of AhsayOBM.



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




4. If you would like to modify the In-File Delta type, Destinations and Retention Policy settings, click **Show advanced option**.



AhsayOBM

Choose Your Backup Options

 **Backup Set Name**

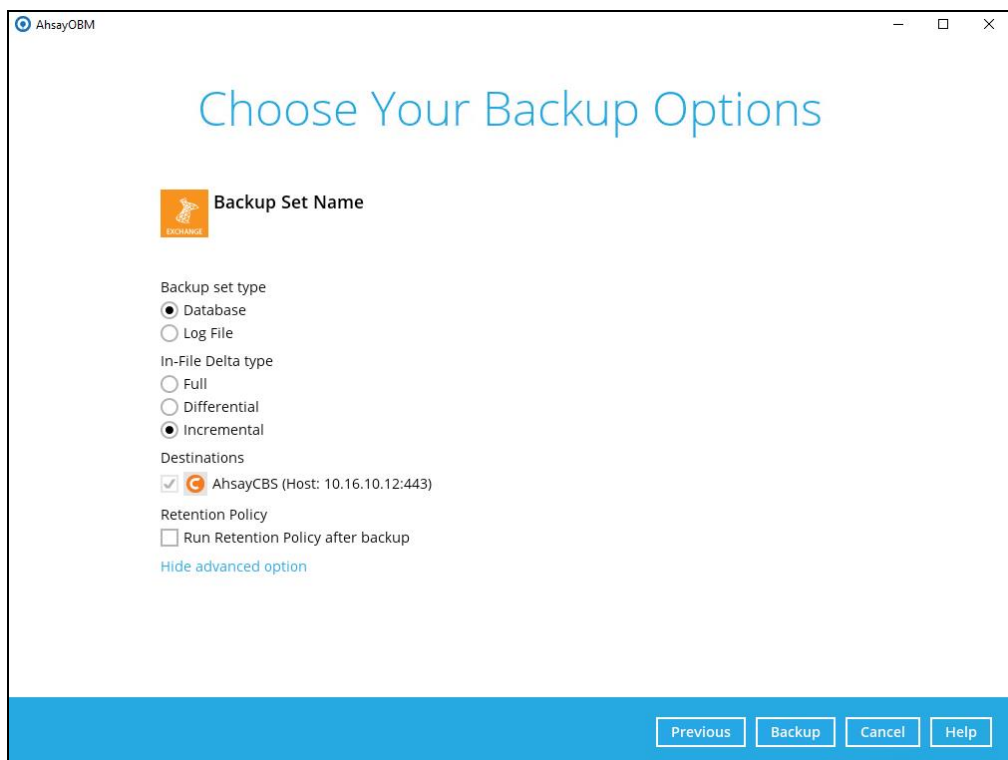
Backup set type

☒ Database

☐ Log File


[Show advanced option](#)

[Previous](#) [Backup](#) [Cancel](#) [Help](#)



AhsayOBM

Choose Your Backup Options

 **Backup Set Name**

Backup set type

☒ Database

☐ Log File


In-File Delta type

☐ Full

☐ Differential

☒ Incremental

Destinations

☒  AhsayCBS (Host: 10.16.10.12:443)

Retention Policy

☐ Run Retention Policy after backup

[Hide advanced option](#)

[Previous](#) [Backup](#) [Cancel](#) [Help](#)

Refer to [Appendix A Exchange Server Backup Type](#) for more information regarding the backup set type.

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

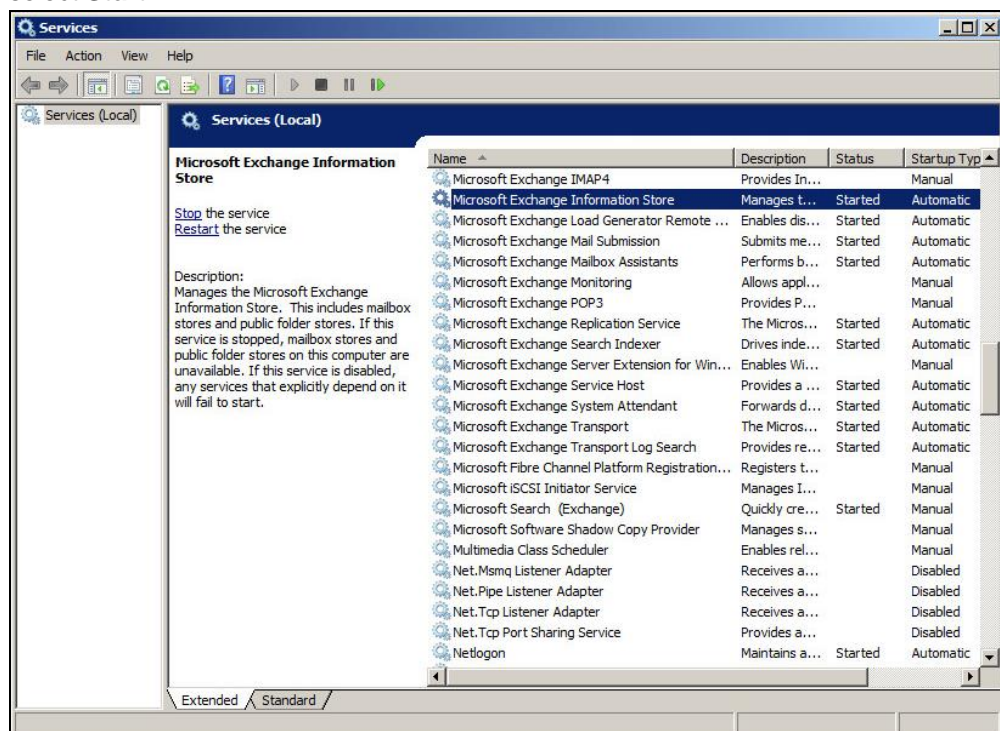
3 Restoring Microsoft Exchange Server 2007/2010/2013/2016

3.1 Pre-restoration Requirements

Before you get started with restoring your database using the AhsayOBM, there are a couple of steps you may need to perform first.

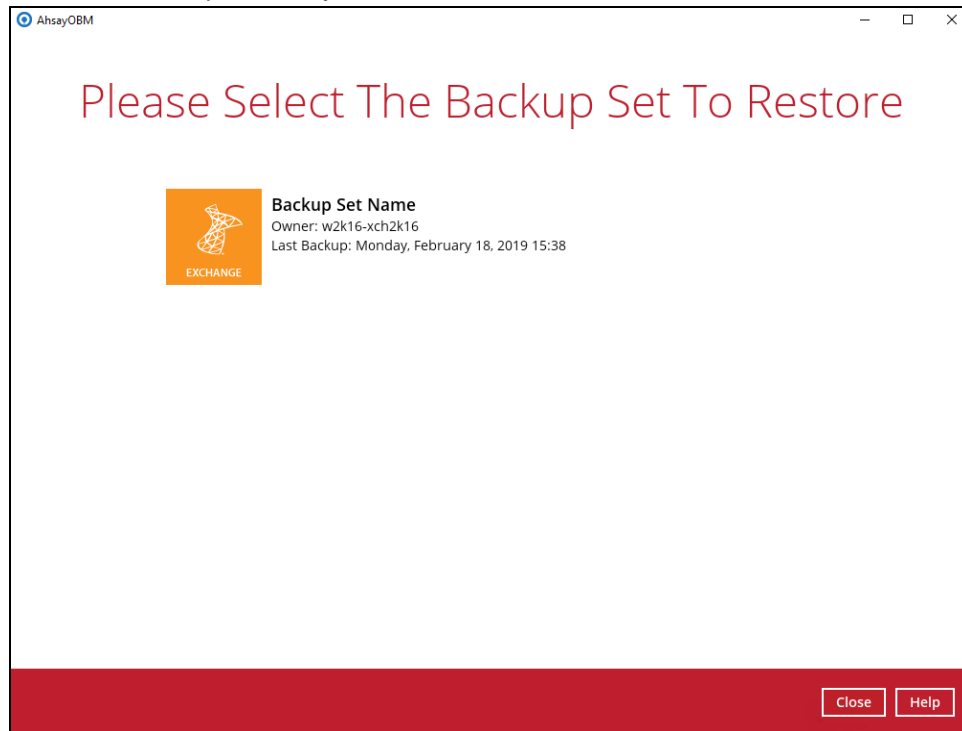
1. Prepare the operating system for the Exchange Server restore (if required). Install the original version of Windows and Exchange Server (with the same level of service pack installed as in the original system).
2. Restore Windows Active Directory (if required). Restore the System State data from the backup server, and then restore the System State using WBAdmin.exe.
3. Install AhsayOBM (if required). Refer to the Ahsay Online Backup Manager v8 Quick Start Guide for Windows via the URL below.
https://www.ahsay.com/download/download_document_v8_obm-quickstart-windows.jsp
4. Make sure the **Microsoft Exchange Information Store** services from Windows Services is started.

Launch **Services** in Windows by clicking **Start** then typing “Services” in the search box. After launching the Services window, look for **Microsoft Exchange Information Store** and check the Status column to confirm if it is started. If it is not, right click the item then select **Start**.



3.2 Restoring Exchange Database for Microsoft Exchange Server 2007/2010/2013/2016

1. Make sure you have followed the steps in Section 3.1 before proceeding to this section.
2. In the AhsayOBM main interface, click the **Restore** icon.
3. Select the backup set that you would like to restore database from.

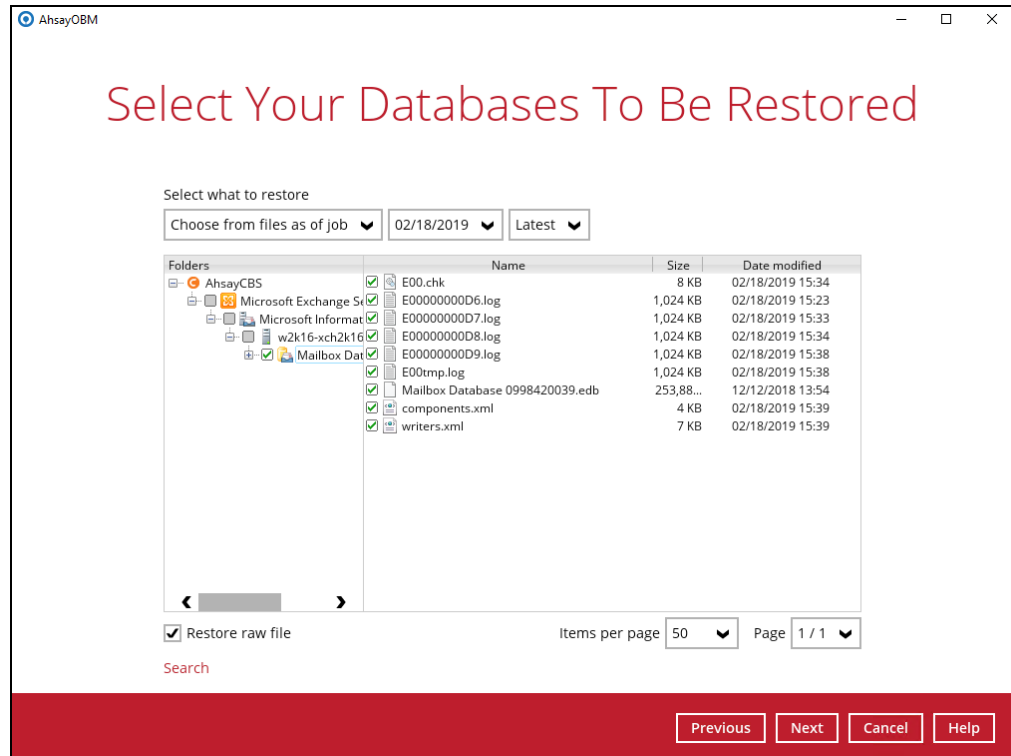


4. Select the backup destination that contains the database you would like to restore.



- Click to expand the menu tree to select which Information Store to restore. You can also select individual database file to restore by clicking the **Restore raw file** checkbox at the bottom left corner.

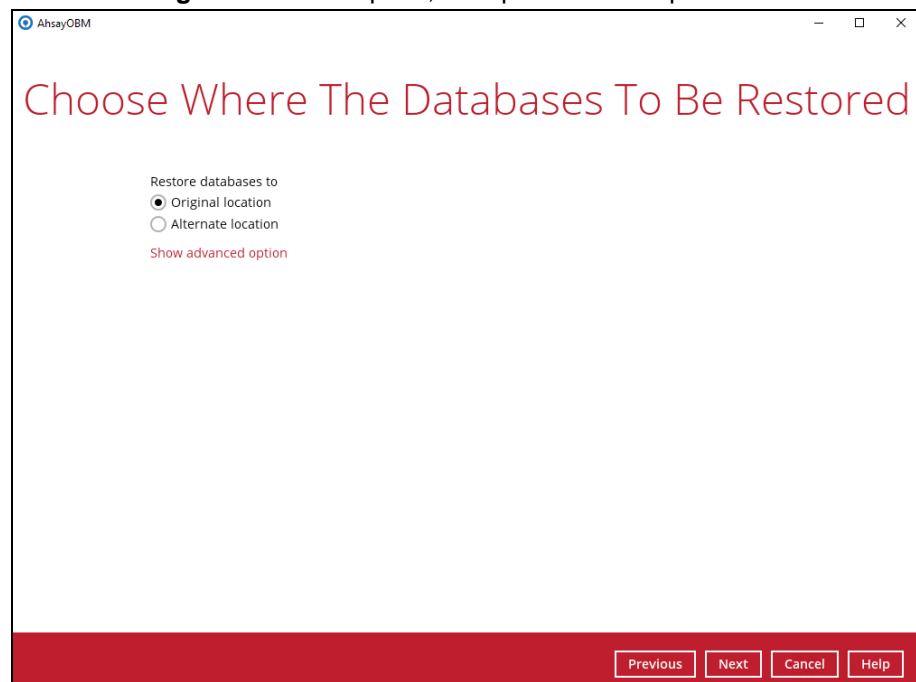
In addition, you can also choose to restore backup item(s) from a specific backup job using the drop-down menu at the top. Click **Next** to proceed when you are done with the selection.



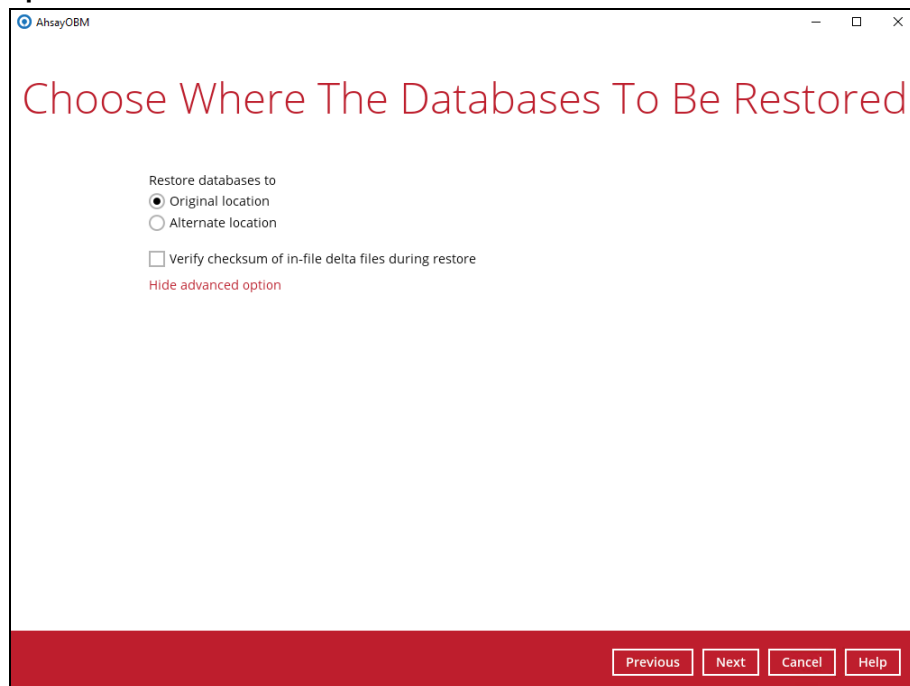
- Select to restore the database to its Original location, or to an Alternate location.

☒ **Restore to Original location**

Select the **Original location** option, then press **Next** to proceed.



If you would like to modify the Verify checksum settings, click **Show advanced option**.



AhsayOBM

Choose Where The Databases To Be Restored

Restore databases to

☒ Original location

☐ Alternate location

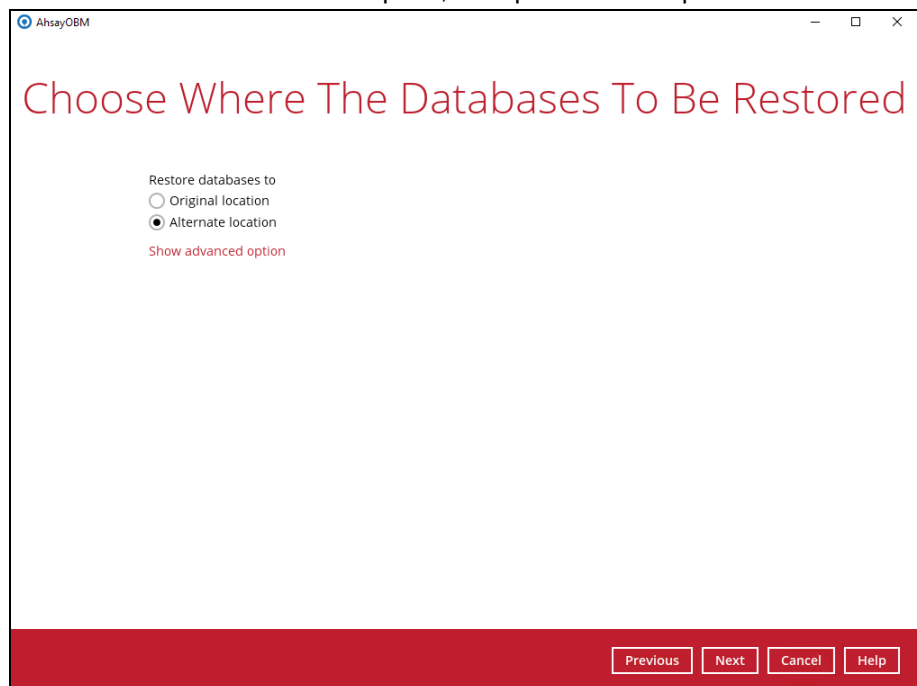
☐ Verify checksum of in-file delta files during restore

[Hide advanced option](#)

[Previous](#) [Next](#) [Cancel](#) [Help](#)

• **Restore to Alternate location**

a) Select the **Alternate location** option, then press **Next** to proceed.



AhsayOBM

Choose Where The Databases To Be Restored

Restore databases to

☐ Original location

☒ Alternate location

[Show advanced option](#)

[Previous](#) [Next](#) [Cancel](#) [Help](#)

- b) If you would like to modify the Verify checksum settings, click **Show advanced option**.

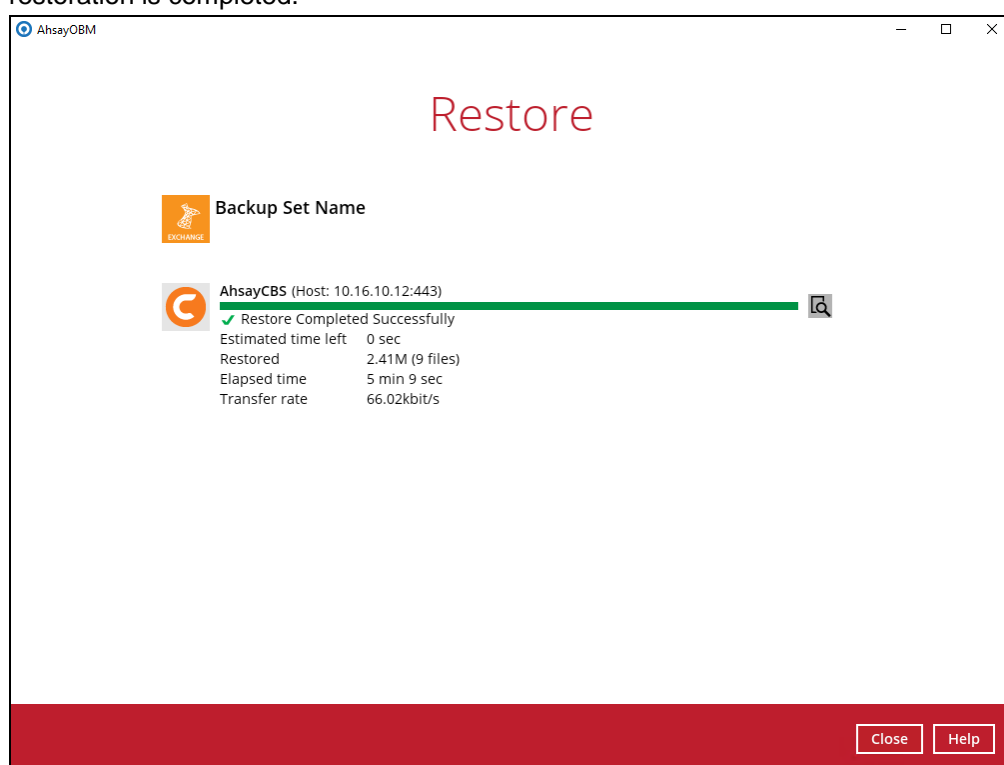
The screenshot shows a dialog box titled "Choose Where The Databases To Be Restored" from the application "AhsayOBM". It contains two radio buttons under the heading "Restore databases to": "Original location" (unselected) and "Alternate location" (selected). Below these is a checkbox labeled "Verify checksum of in-file delta files during restore" which is currently unchecked. A link "Hide advanced option" is visible below the checkbox. At the bottom right, there are four buttons: "Previous", "Next", "Cancel", and "Help".

- c) Select the locations where you would like to restore the database to. Name the new mailbox store, then click **Browse** to modify the database, log and checksum file location if necessary. Click **Next** to proceed when you are done with the settings.

The screenshot shows a dialog box titled "Alternate database" from the application "AhsayOBM". It features a text field for "Database name" containing "Mailbox Database 0998420039-1". Below this is a table with two columns: "Original Name" and "New Location". The table lists three items: "Mailbox Database 0998420039.edb", "E00*.log", and "E00.chk". Each item has a corresponding text field for the new location (all set to "C:\Program Files\Microsoft\Exchange Server\V15\Mai") and a "Browse" button to the right. At the bottom right, there are four buttons: "Previous", "Next", "Cancel", and "Help".

7. Select the temporary directory for storing temporary files, such as delta files when they are being merged, click **Restore** to start the restoration.

8. The following screen with the text **Restore Completed Successfully** shows when the restoration is completed.



For details regarding verifying the restoration activities log between AhsayOBM and the Exchange Server, refer to [Appendix B Restore Activities Log](#).

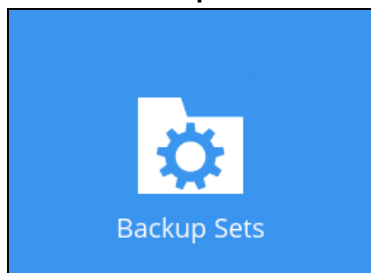
4 Backing up Microsoft Exchange Server in Database Availability Group (DAG)

4.1 License Requirement to Backup all Exchange Server 2010/2013/2016 in DAG environment

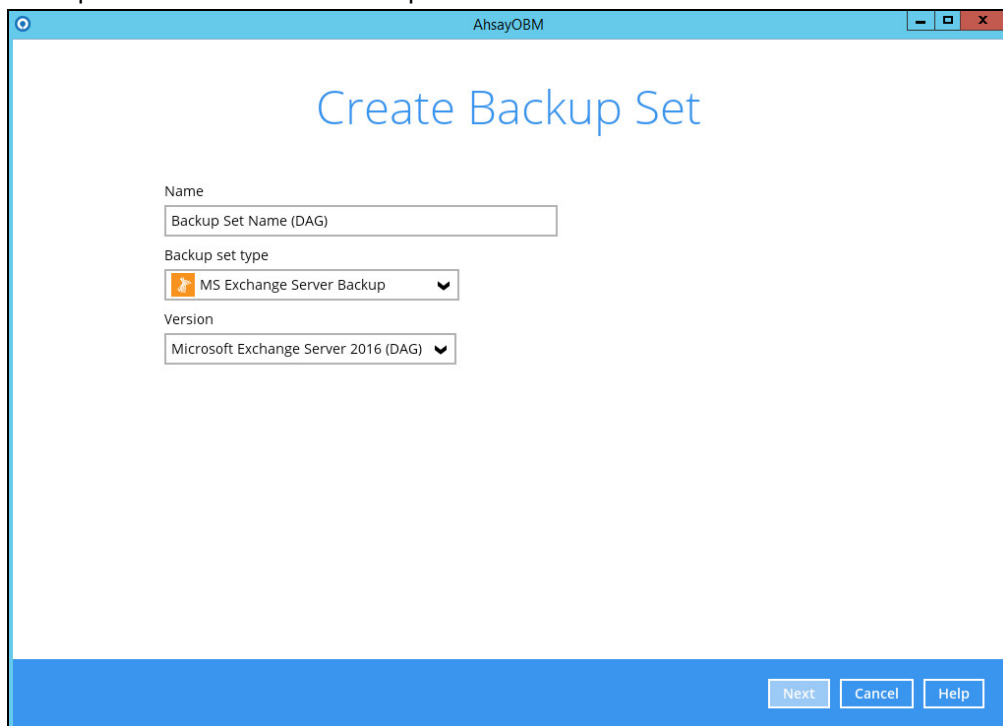
One AhsayOBM license CAL with one Exchange Server Add-on Module is deducted from each installation of the AhsayOBM on the DAG environment. Please check with your backup service provider if more AhsayOBM with Exchange backup is required.

4.2 Creating Backup Set for Microsoft Exchange Server 2010/2013/2016 (DAG)

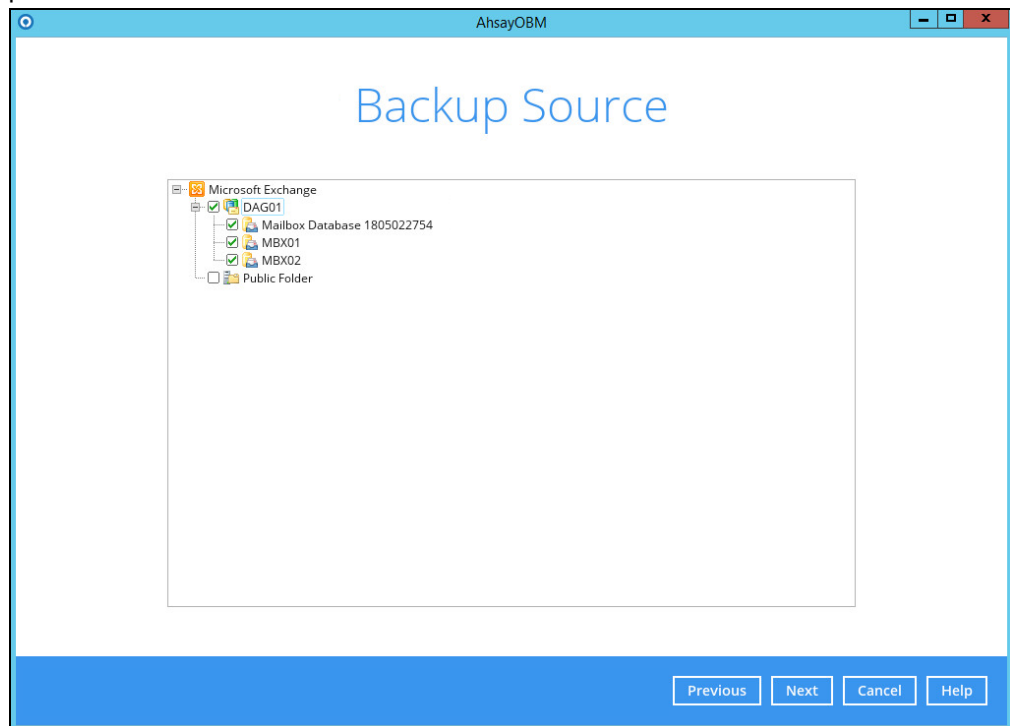
1. Click the **Backup Sets** icon on the main interface of AhsayOBM.



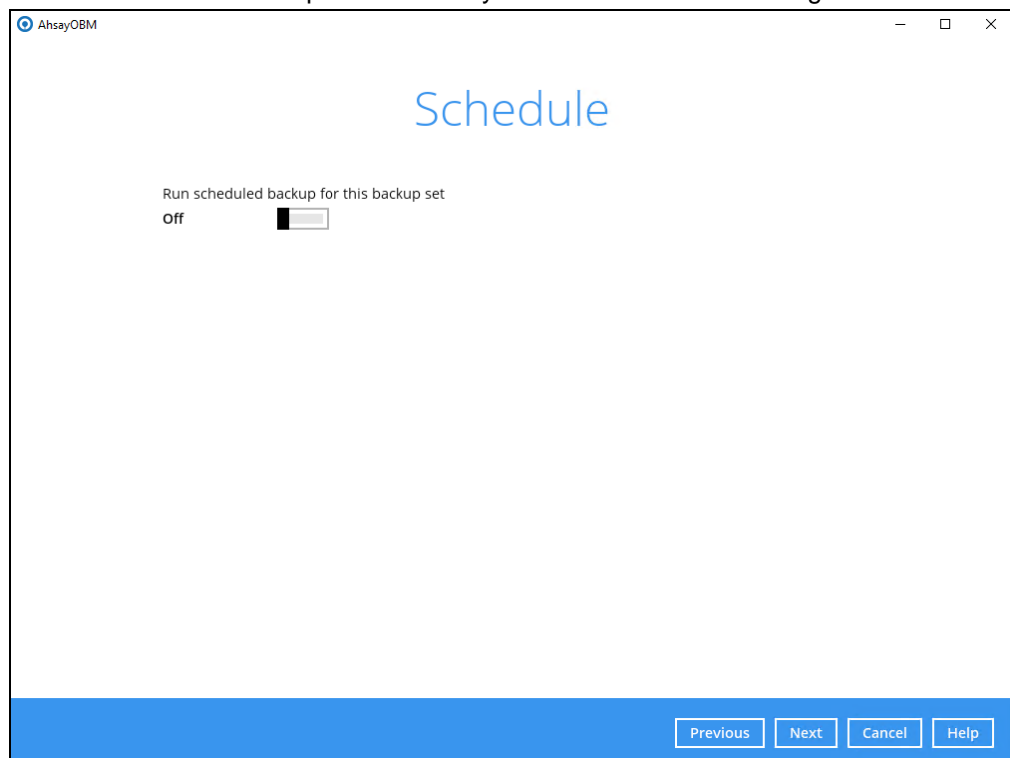
2. Create a new backup set by clicking the "+" icon next to **Add new backup set**.
3. Select the Backup set type as **MS Exchange Server Backup**. Make sure you choose the correct Exchange Server version with "Database Availability Group". Name your new backup set and then click **Next** to proceed.

A screenshot of the "Create Backup Set" dialog box in AhsayOBM. The dialog has a title bar with "AhsayOBM" and standard window controls. The main area is titled "Create Backup Set" in large blue font. Below the title, there are three input fields: "Name" with a text box containing "Backup Set Name (DAG)", "Backup set type" with a dropdown menu showing "MS Exchange Server Backup" and a question mark icon, and "Version" with a dropdown menu showing "Microsoft Exchange Server 2016 (DAG)". At the bottom right, there are three buttons: "Next", "Cancel", and "Help".

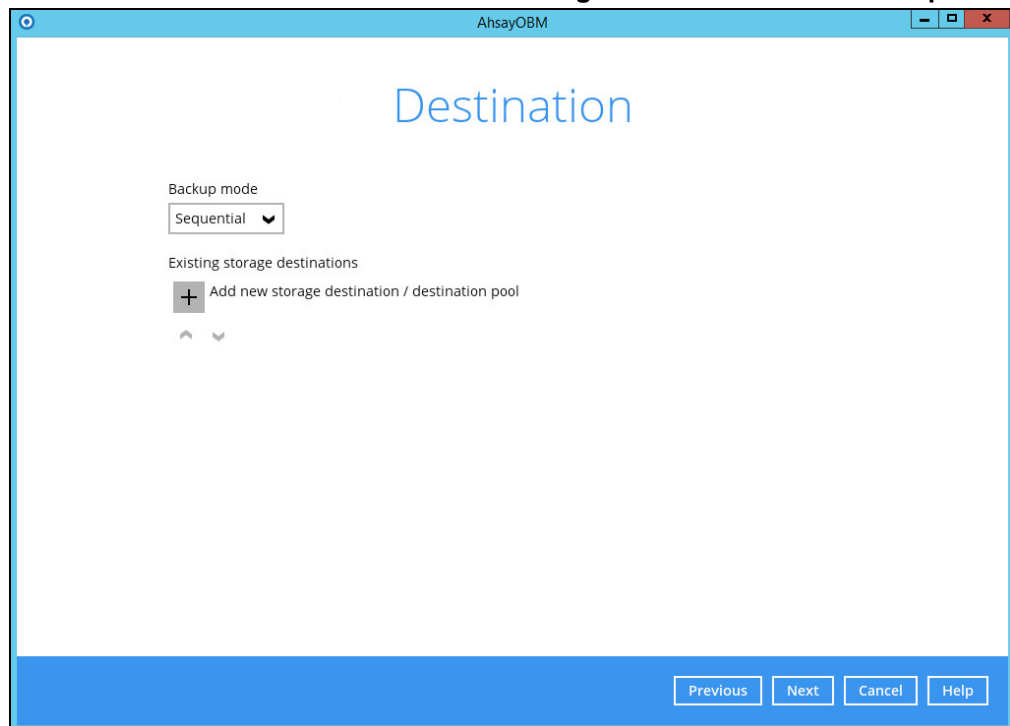
4. In the Backup Source menu, select the DAG / Public Folder for backup. Click **Next** to proceed.



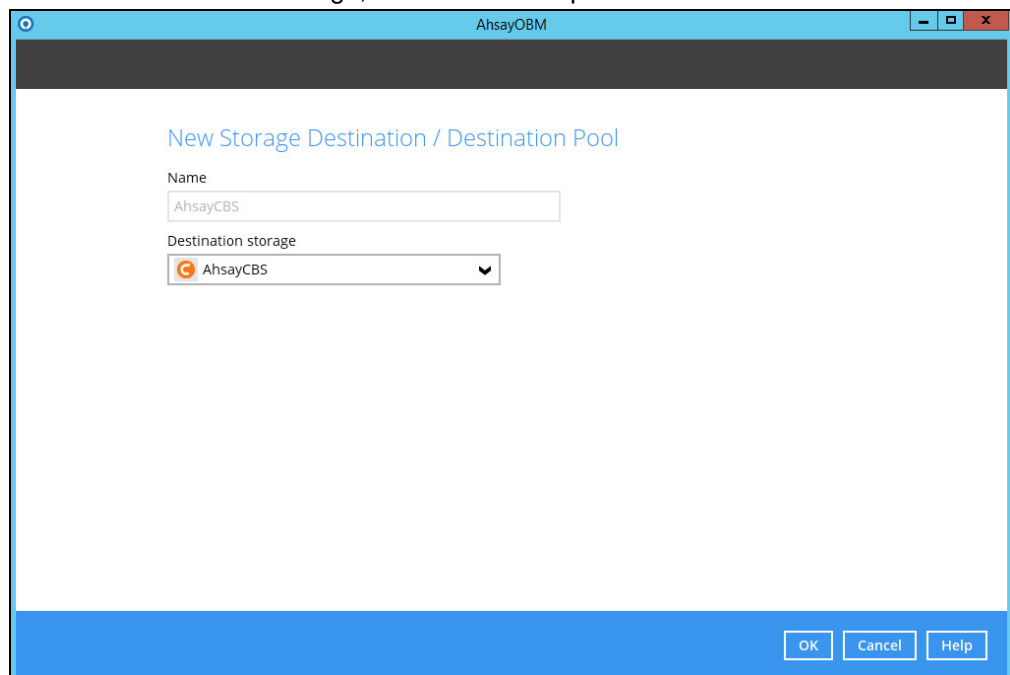
5. In the Schedule menu, you can configure a backup schedule for backup job to run automatically at your specified time interval. By default the **Run scheduled backup for this backup set** option is disabled. Enable it then click the “+” icon next to **Add new schedule**. Click **Next** to proceed when you are done with the settings.



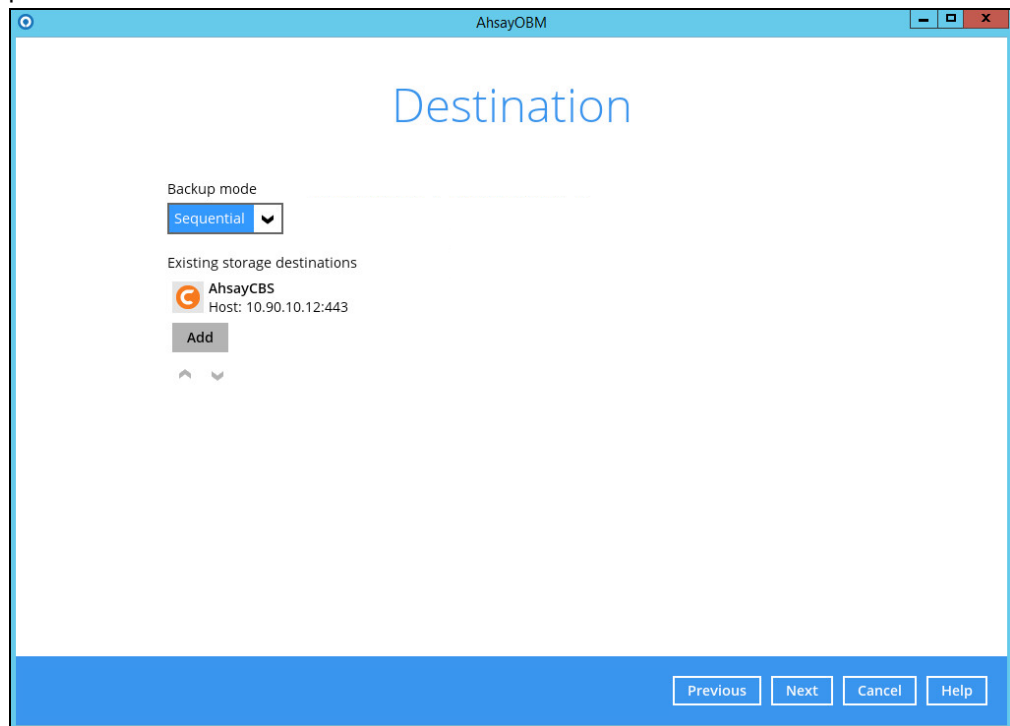
6. In the Destination menu, select a backup destination where the backup data will be stored. Click the “+” icon next to **Add new storage destination / destination pool**.



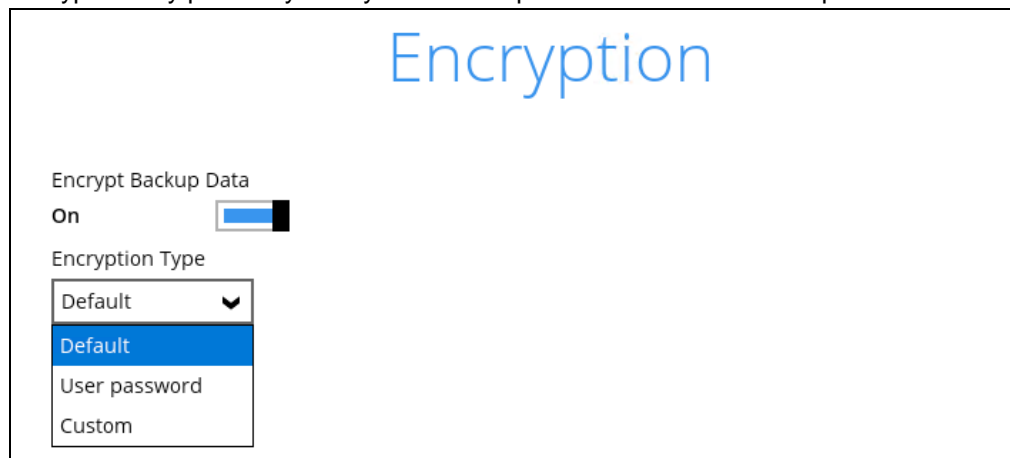
7. Select the destination storage, then click **OK** to proceed.



8. When you are done with the settings, click **Next** on the Destination menu page to proceed.



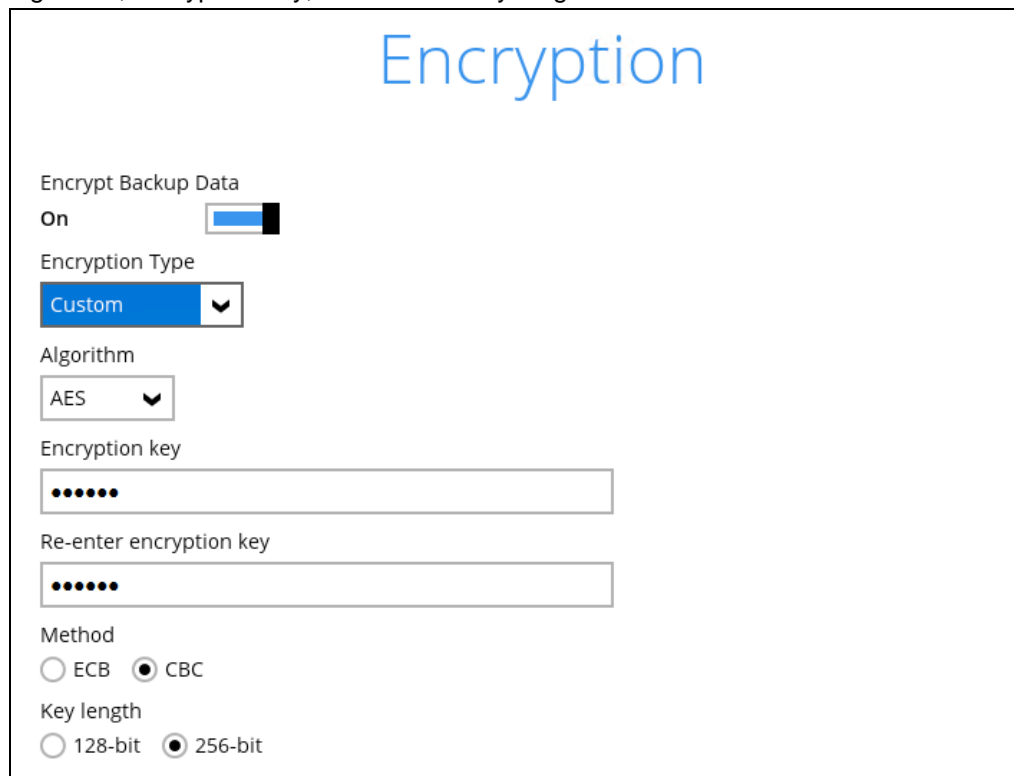
9. In the Encryption window, the default **Encrypt Backup Data** option is enabled with an encryption key preset by the system which provides the most secure protection.



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.

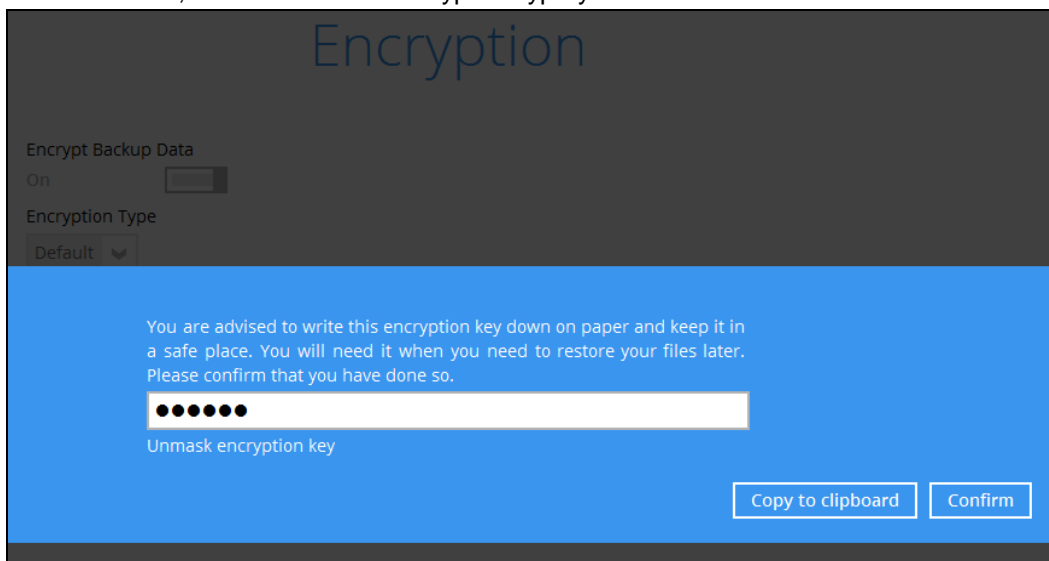


The screenshot shows the 'Encryption' settings window. At the top, the title 'Encryption' is displayed in blue. Below it, there are several settings: 'Encrypt Backup Data' is set to 'On' with a toggle switch; 'Encryption Type' is set to 'Custom' in a dropdown menu; 'Algorithm' is set to 'AES' in a dropdown menu; 'Encryption key' and 'Re-enter encryption key' are both shown as masked text fields with six dots each; 'Method' has two radio buttons, 'ECB' and 'CBC', with 'CBC' selected; and 'Key length' has two radio buttons, '128-bit' and '256-bit', with '256-bit' selected.

Note: For best practice on managing your encryption key, refer to the following article.
http://wiki.ahsay.com/doku.php?id=public:8015_faq:best_practices_for_managing_encryption_key&s%5b%5d

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

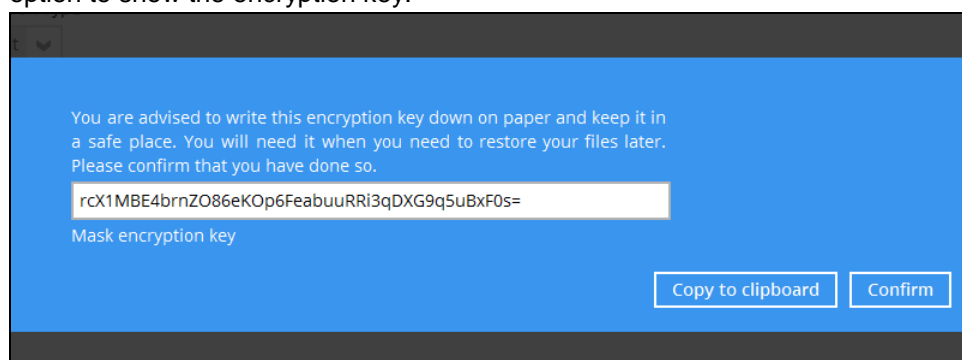
10. If you have enabled the Encryption Key feature in the previous step, the following pop-up window shows, no matter which encryption type you have selected.



The screenshot shows a pop-up window titled 'Encryption'. It has a dark grey header with the title in blue. Below the header, there are settings for 'Encrypt Backup Data' (set to 'On') and 'Encryption Type' (set to 'Default'). The main body of the window is blue and contains a message: 'You are advised to write this encryption key down on paper and keep it in a safe place. You will need it when you need to restore your files later. Please confirm that you have done so.' Below the message is a masked text field with six dots. At the bottom right, there are two buttons: 'Copy to clipboard' and 'Confirm'.

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

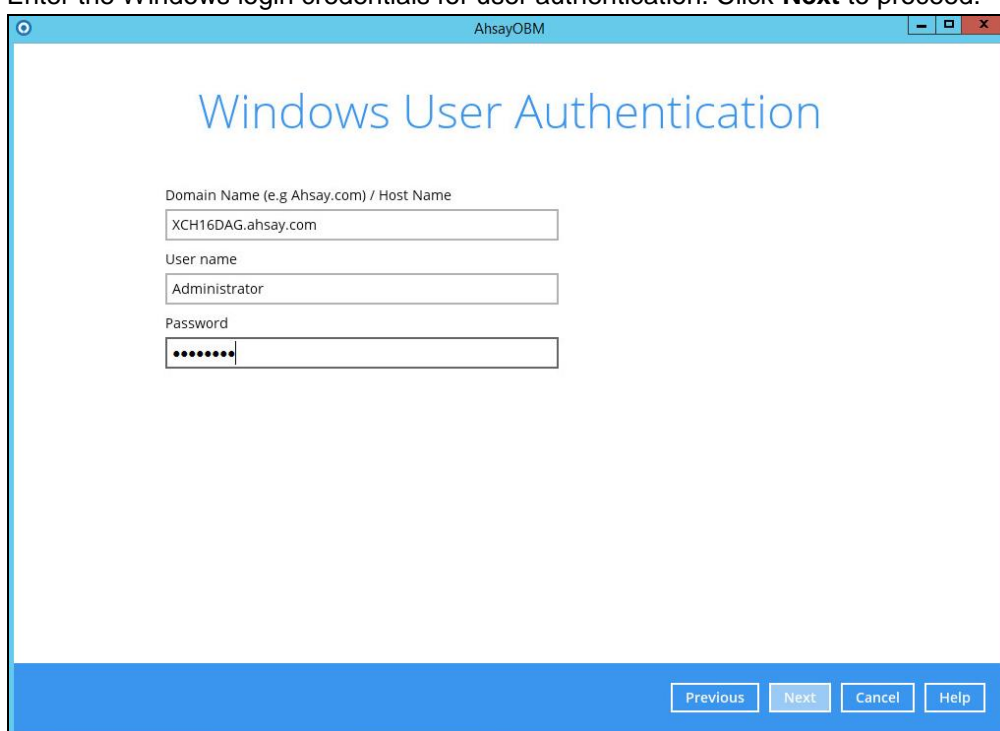
- **Unmask encryption key** – The encryption key is masked by default. Click this option to show the encryption key.



A screenshot of a blue pop-up window with a dark grey header and footer. The main content area is blue and contains the following text: "You are advised to write this encryption key down on paper and keep it in a safe place. You will need it when you need to restore your files later. Please confirm that you have done so." Below this text is a text input field containing the encryption key: "rcX1MBE4brnZO86eKOp6FeabuuRRi3qDXG9q5uBxF0s=". Below the input field is the label "Mask encryption key". At the bottom right of the window are two buttons: "Copy to clipboard" and "Confirm".

- **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

11. Enter the Windows login credentials for user authentication. Click **Next** to proceed.

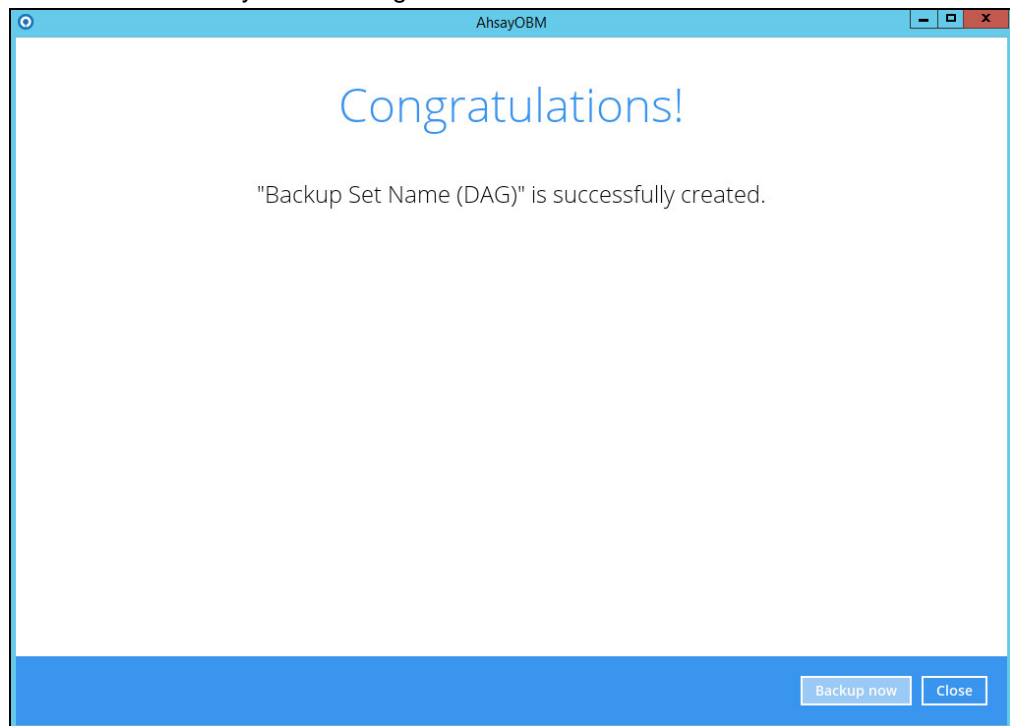


A screenshot of a Windows User Authentication window titled "AhsayOBM". The window has a light blue header and a white main area. The title "Windows User Authentication" is displayed in a large blue font. Below the title are three input fields: "Domain Name (e.g Ahsay.com) / Host Name" with the value "XCH16DAG.ahsay.com", "User name" with the value "Administrator", and "Password" with masked characters "••••••". At the bottom of the window is a blue bar containing four buttons: "Previous", "Next", "Cancel", and "Help".

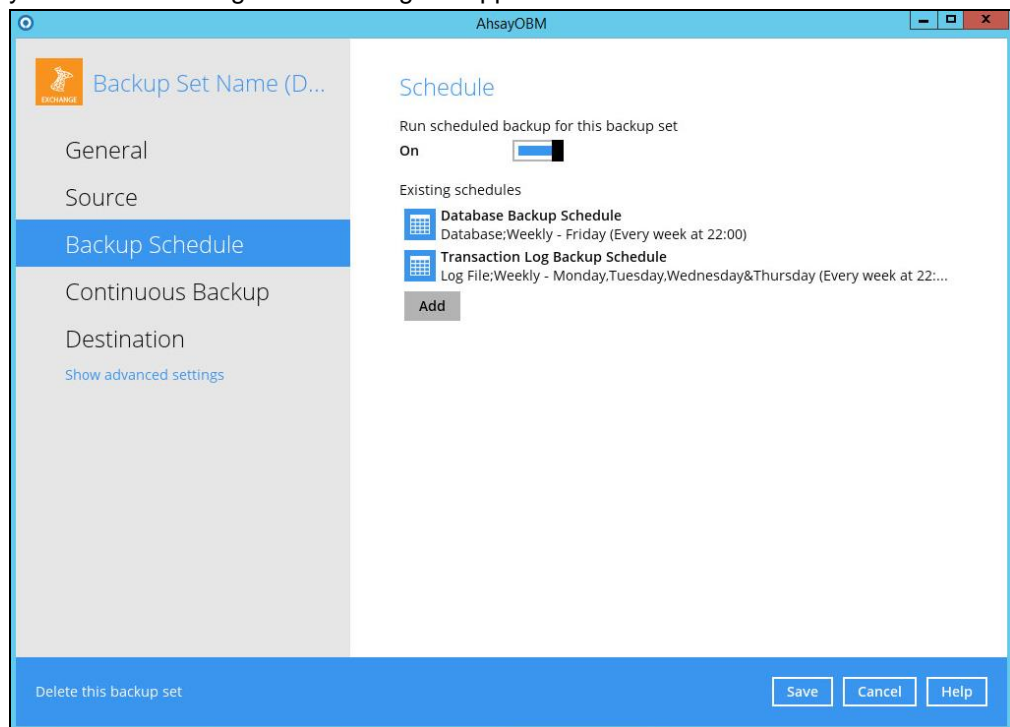
Note

The Windows User Authentication interface will show only if scheduled backup is enabled and set successfully.

12. The following screen shows when the new backup set is created successfully. Backup will run automatically at the configured scheduled time.



13. On all other Exchange Servers within the same DAG, logon to AhsayOBM using the same login account. Click the same backup set, and make sure the **Run scheduled backup for this backup set** is turned on the **Backup Schedule** menu page. Make sure you save the setting before exiting the application.



5 Restore Microsoft Exchange Server 2010/2013/2016 in Database Availability Group (DAG)

5.1 Pre-restoration requirements

Refer to the following instructions to restore your Exchange database in Database Availability Group (DAG).

The database restoration is required to restore on the active database only. You can identify the Exchange server with the active database from the Exchange Management Shell.

Type the following command in the Exchange Management Shell.

```
Get-MailboxDatabase | ft name, server
```

It will show which Exchange server is hosting the active mailbox database, i.e. Mailbox Database 01 and 03 are hosted on EX1, while Mailbox Database 02 and 04 are hosted on EX2.

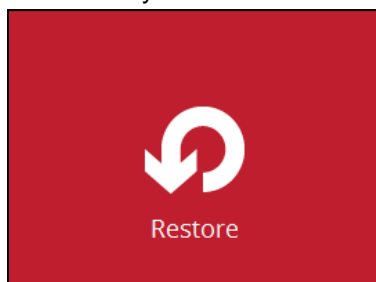
```
[PS] C:\>Get-MailboxDatabase | ft name, server
```

Name	Server
Mailbox Database 02	EX2
Mailbox Database 01	EX1
Mailbox Database 03	EX1
Mailbox Database 04	EX2

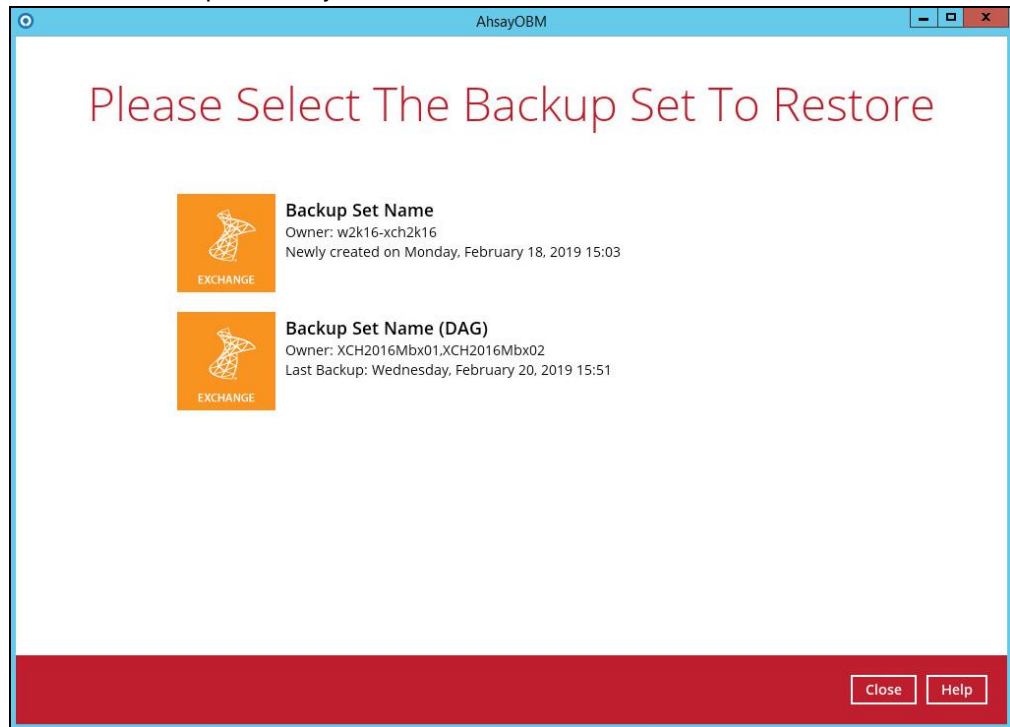
When you can identify which Exchange server is hosting the active database, you can logon to that Exchange server to restore the database.

5.2 Restore Exchange Database to the Exchange with the active database

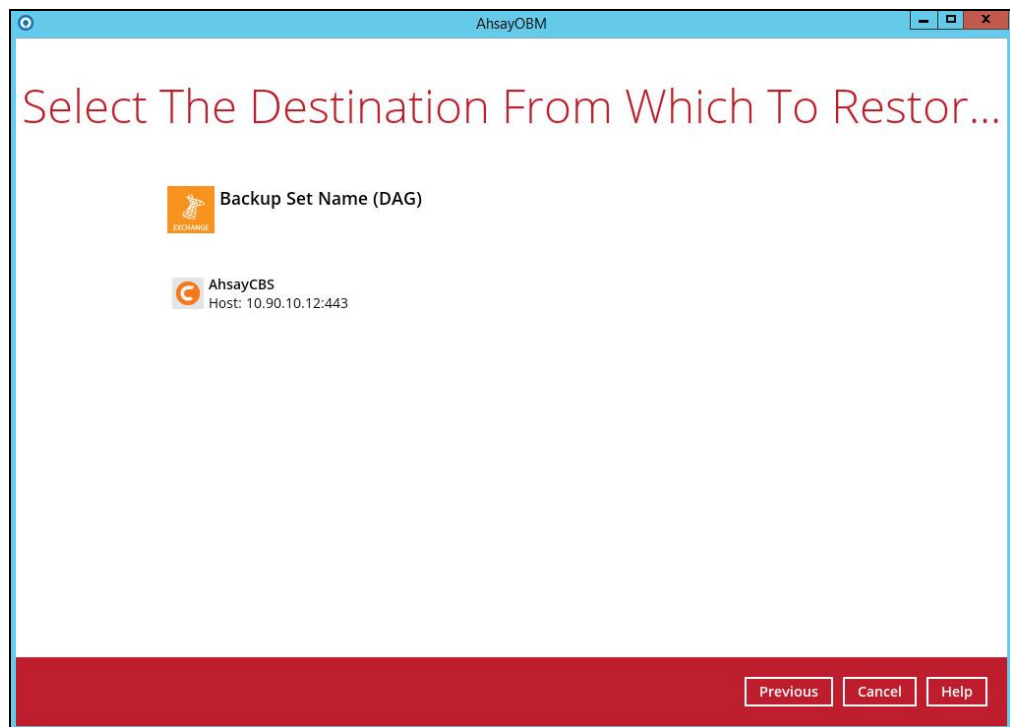
1. In the AhsayOBM main interface, click **Restore**.



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

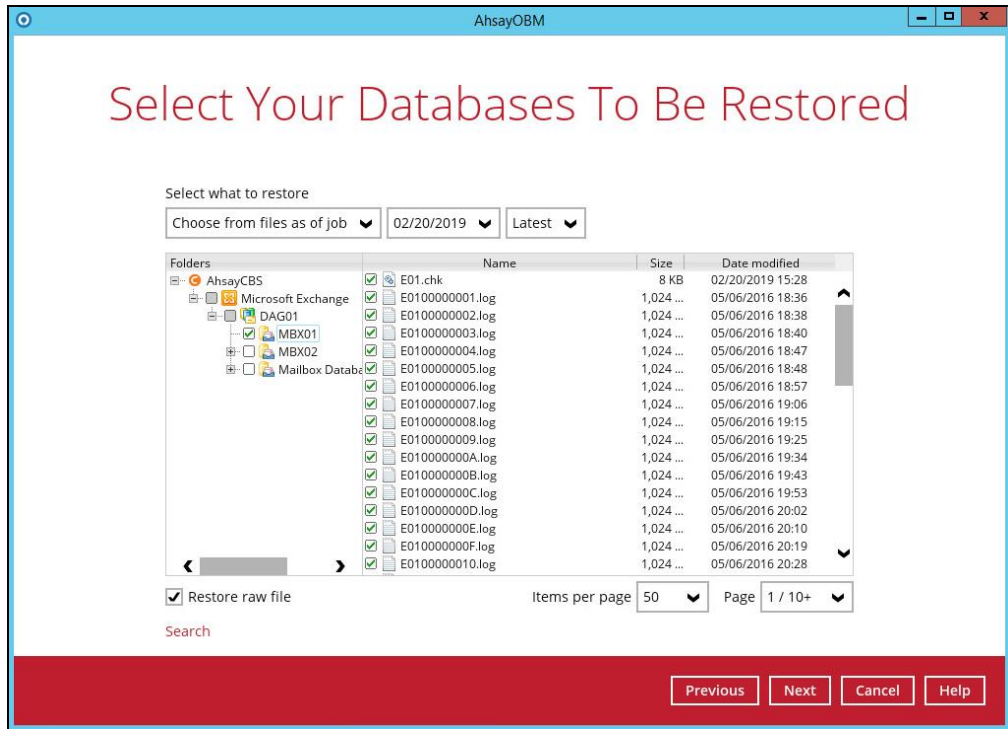


3. Select the backup destination that contains the files or folders that you would like to restore.

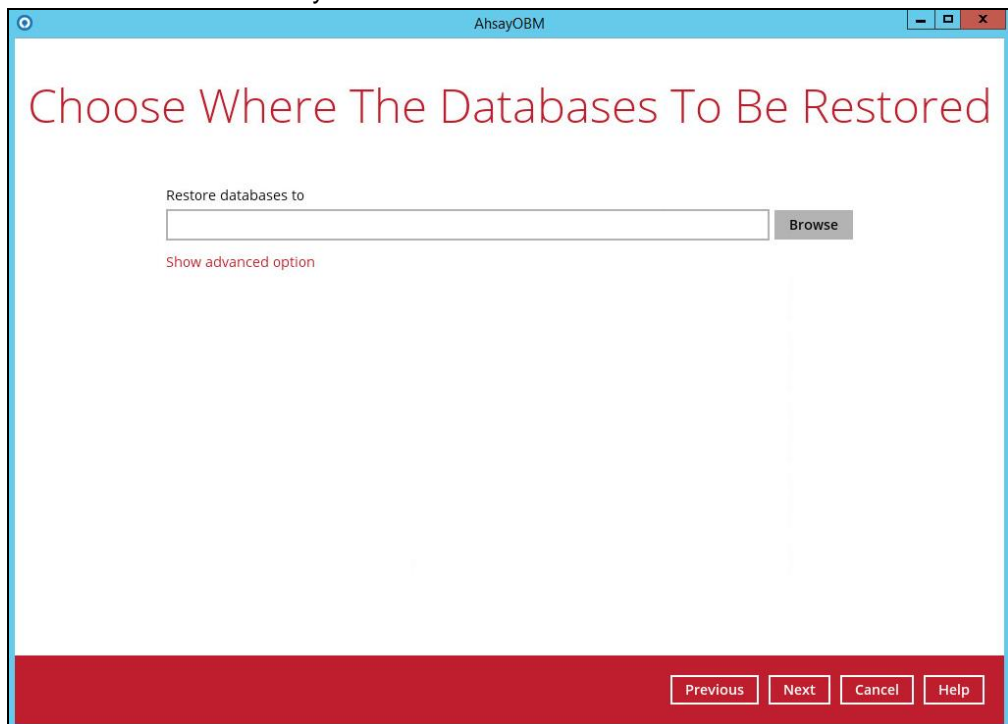


4. Click to expand the menu tree to select which DAG to restore. You can also select individual database file to restore by clicking the **Restore raw file** checkbox at the bottom left corner.

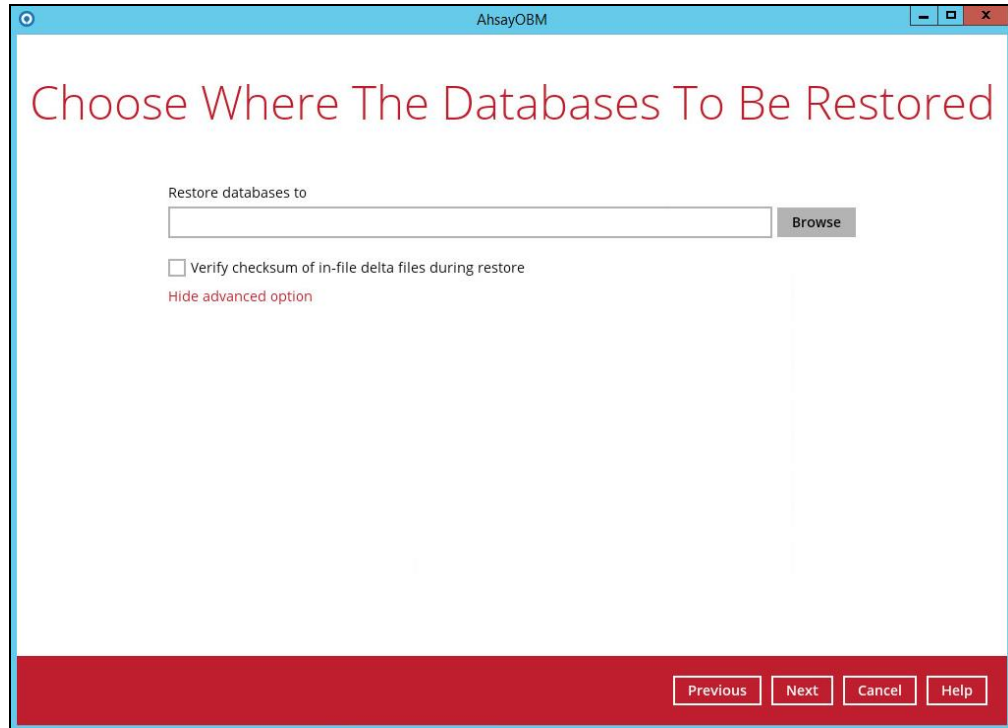
In addition, you can also choose to restore backup item(s) from a specific backup job using the drop-down menu at the top. Click **Next** to proceed when you are done with the settings.



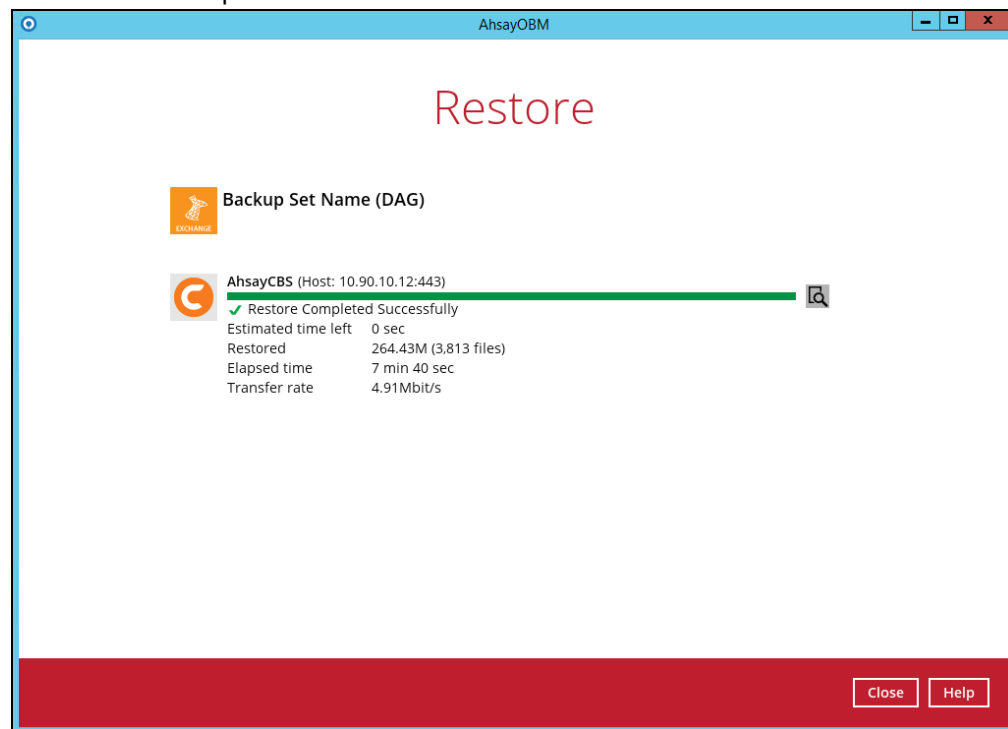
5. Select the location where you would like to restore the database.



If you would like to modify the Verify checksum settings, click **Show advanced option**.



6. Select the temporary directory for storing temporary files, such as delta files when they are being merged, then click **Restore** to start the restoration.
7. The following screen with the text **Restore Completed Successfully** shows when the restoration is completed.



For details regarding verifying the restoration activities log between AhsayOBM and the Exchange Server, refer to [Appendix B Restore Activities Log](#).

6 Technical Assistance

To contact Ahsay support representatives for technical assistance, visit the following website:

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

Also use the Ahsay Wikipedia for resource such as Hardware Compatibility List, Software Compatibility List, and other product information:

<https://wiki.ahsay.com/>

7 Documentation

Documentations for all Ahsay products are available at:

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

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

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

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

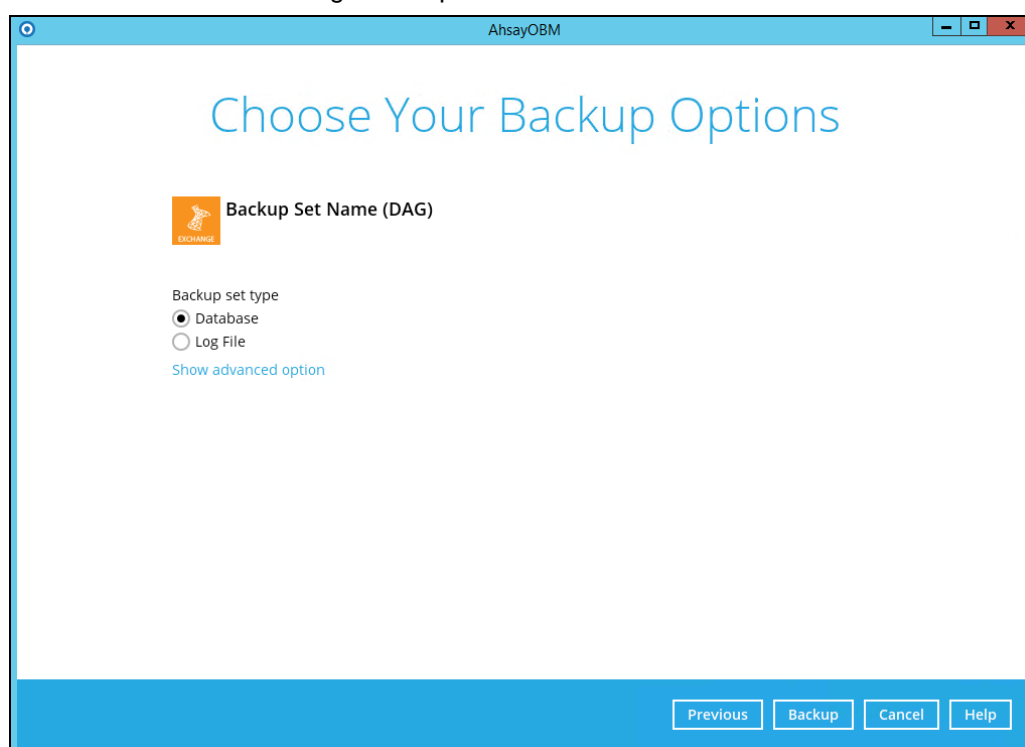
Appendix

Appendix A Exchange Server Backup Type

AhsayOBM utilizes the Volume Shadow Copy Service and the Microsoft Exchange Server 2010 Writers for backup of MS Exchange 2010/2013/2016 databases. It offers the following types of backup options:

Database backup

Backs up the databases (EDB), transaction logs (LOG), checkpoint files (CHK), and then truncates the transaction logs for a specific database.



A full backup of an Exchange database creates and stores a complete copy of the database file, transaction logs, and checkpoint files. A Microsoft Exchange Server 2010/2013/2016 database has one set of transaction log files dedicated to that one database.

After the database has been backed up, the transaction log files on the disk are truncated so that only database changes that occur after the backup was made will remain. During this process, either the Store Writer or the Replication Service deletes all log entries up to the checkpoint, based on the assumption that the databases have now been backed up in a consistent state that contains all changes up to the most recent checkpoint.

If the database being backed up is dismounted during the backup operation, Exchange Server 2010 will not truncate the transaction logs and the result will be the equivalent of a copy backup operation, not a Full backup operation.

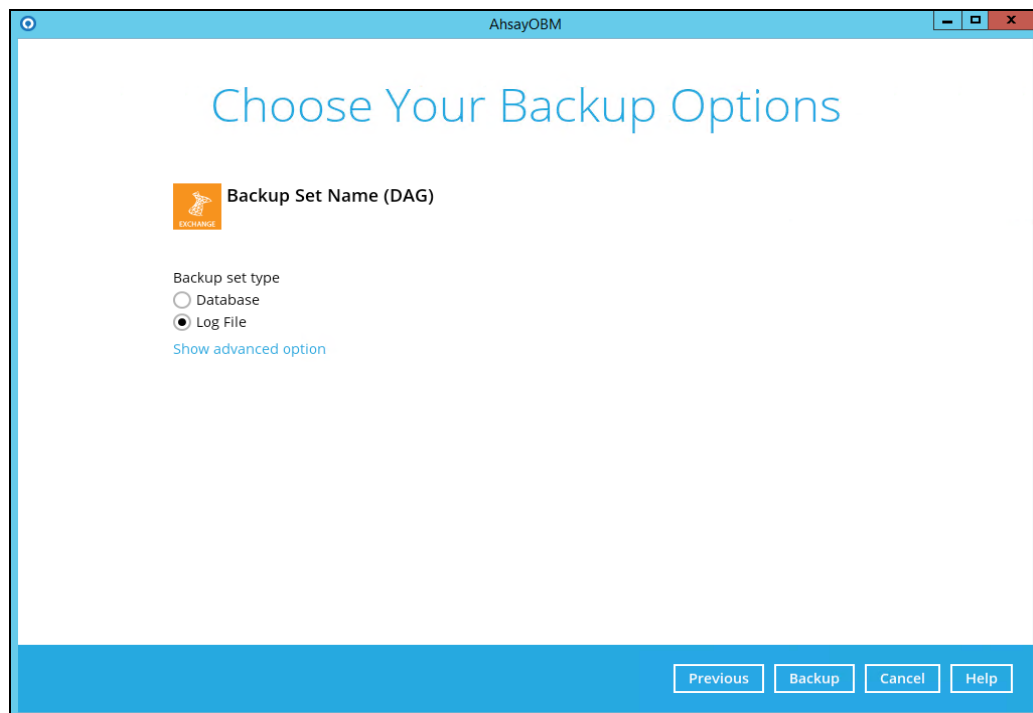
At the completion of Full or Incremental backups, the headers of the active mounted database get updated with the current backup information. A Full backup is required in order to run Incremental or Differential backups. There is no restriction as to which copy the Full backups are taken from as long as it is a backup.

Full backups are used in the following restoration scenarios:

- A database becomes corrupted or is lost, but the transaction log files on disk are intact. In this scenario, the affected database files can be restored from the Full backup, and then recovered by replaying the transaction logs that are still on disk.
- Transaction log files, as well as the database file on disk, are lost. In this scenario, the transaction log files that were backed up at the time of the Full backup are restored together with the database.

• Log File backup

Backs up the transaction logs (LOG) to record changes since the last full or incremental backup, and then truncates the transaction logs.



An Incremental backup of Microsoft Exchange Server 2010 database saves changes to the database that have occurred since the last Full or Incremental backup. When all the database files and log files are restored to the system, they can be recovered to the state they were in at the time of the last Incremental backup. The data stored in an Incremental backup includes only the transaction log files up to the current time.

When the backup is completed, the Exchange Server truncates the log files and marks the backup time in the database headers. Using an Incremental backup to recover a database requires the restoration of at least two data sets: the last Full backup, and then every Incremental backup taken after the last Full backup. The benefit of using Incremental backup is that an individual Incremental backup is much smaller than a Full backup and an individual Incremental backup is often smaller than an individual Differential backup.

The disadvantage of using Incremental backups is that if there are many Incremental backups made between Full backups, recovering the storage group may involve recovering many Incremental backups. Exchange does not allow an Incremental backup to occur when there has been no previous Full backup to establish the starting point for the incremental changes.

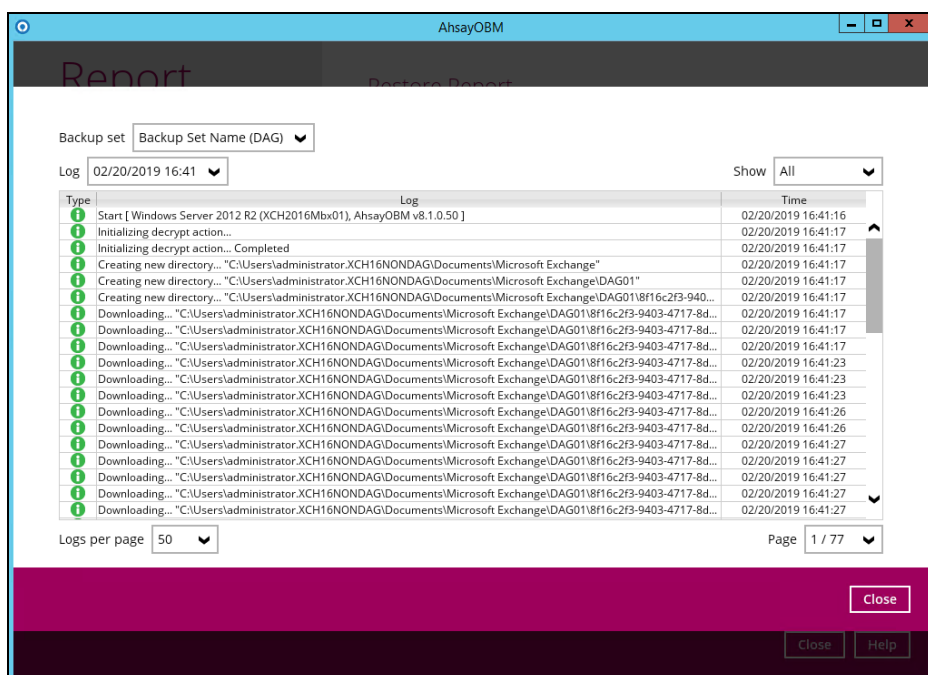
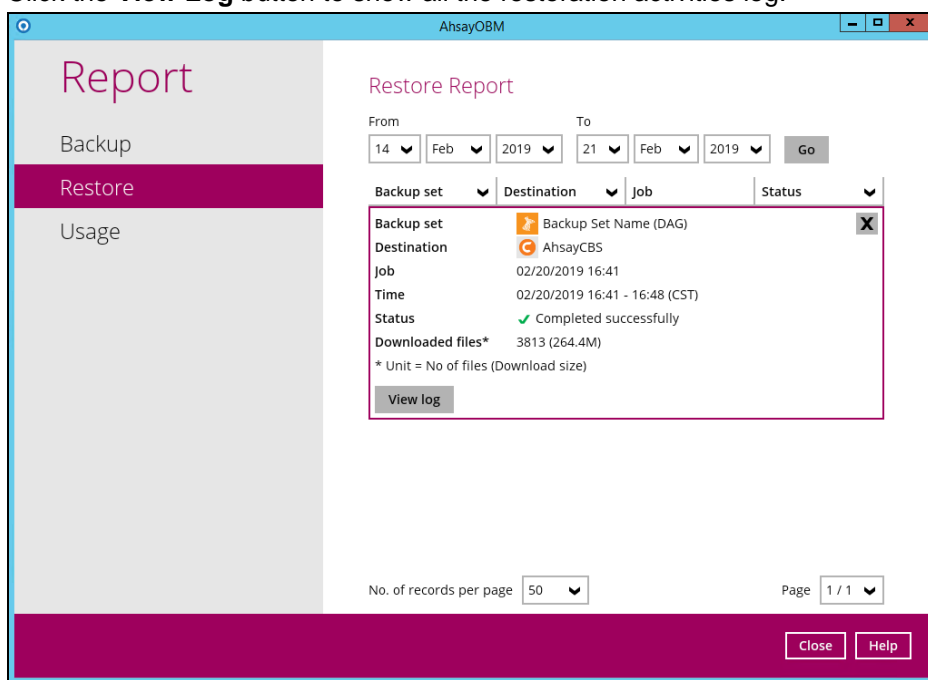
Appendix B Restore Activities Log

The information below demonstrates how you can verify the restoration activities log between the AhsayOBM and the Microsoft Exchange Server.

To verify the restoration activities log, open both the Restore Report in AhsayOBM and the Event Viewer in the Microsoft Exchange Server.

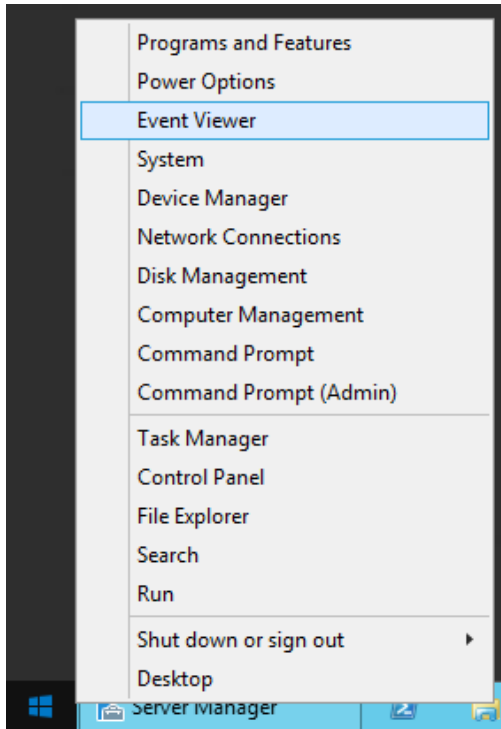
Opening Restore Report in AhsayOBM

1. Open AhsayOBM, then click the **Report** icon on the main interface page.
2. Click the Restore option on the left, then click the restore report you want to verify on the right. Click the **View Log** button to show all the restoration activities log.

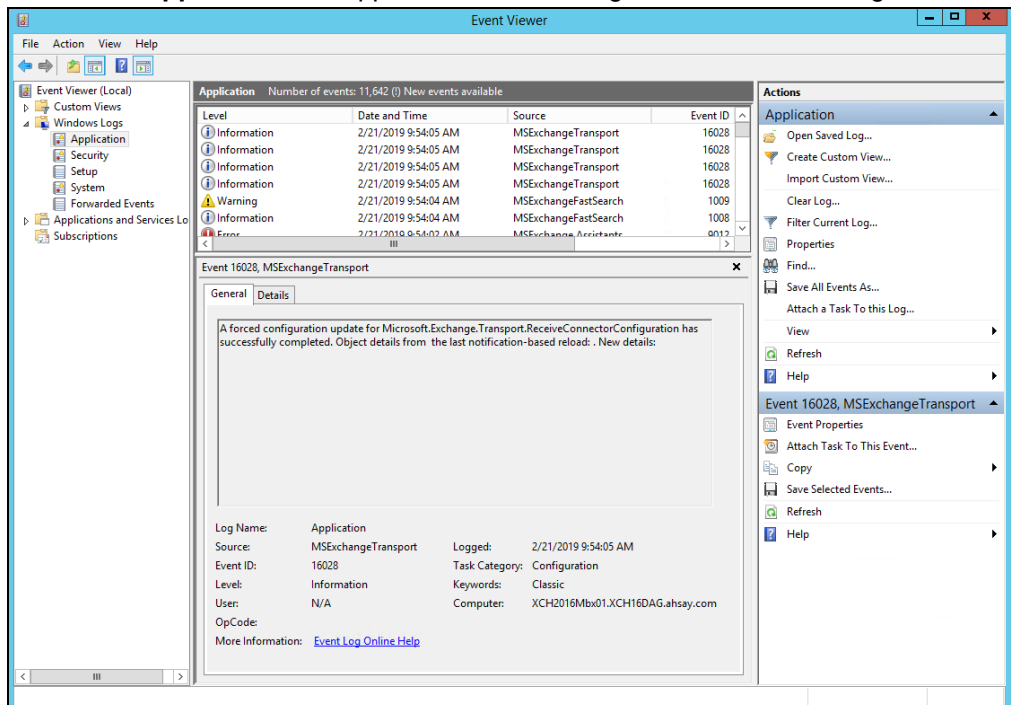


Opening Event Viewer in Microsoft Exchange Server

1. Right-click the Start menu button on the bottom left corner in the Exchange Server, then click on Event Viewer.



2. When the Event Viewer is opened, click **Windows Log** on the left to expand the menu tree, then select **Application**. All Application activities logs are shown on the right now.




Cross-checking activities log on AhsayOBM Restore Report and Exchange Server Event Viewer

Each restoration action item initiated by AhsayOBM represented by individual activity log in the Restore Report in AhsayOBM, and the corresponding action taken place in the Exchange Server is shown in the Event Viewer as well.

There are 5 major parts to take place during the database restoration progress as shown below.


1. Download files from AhsayCBS to Temp Folder

AhsayOBM Restore Report


	Downloading... "C:\Users\Administrator\temp\RestoreSet\1550473417612\RestoreDatabase\Microsof...
	Downloading... "C:\Users\Administrator\temp\RestoreSet\1550473417612\RestoreDatabase\Microsof...

2. Dismount Exchange Server Database

AhsayOBM Restore Report



	Dismount Microsoft Exchange Server Database... "Mailbox Database 0998420039"
---	--

Event Viewer in Exchange Server


	Information	2/18/2019 4:02:25 PM	MSExchangeRepl	3161	Service
General Details					
Active Manager dismounted database Mailbox Database 0998420039 on server w2k16-xch2k16.x2k16.local.					

3. Restore files to Exchange Server Database

AhsayOBM Restore Report

	Restoring files to Microsoft Exchange Server Database... "C:\Program Files\Microsoft\Exchange Server..."
	Restoring files to Microsoft Exchange Server Database... "C:\Program Files\Microsoft\Exchange Server..."

Event Viewer in Exchange Server


	Information	2/18/2019 4:03:00 PM	ESE (ESE)	302	Logging/Reco...
General Details					
msexchangerepl (9076,U,0,15.01.1591.008) Mailbox Database 0998420039\W2K16-XCH2K16: The database engine has successfully completed recovery steps.					

4. Remount Exchange Server Database

AhsayOBM Restore Report

 Re-mount Microsoft Exchange Server Database... "Mailbox Database 0998420039"

Event Viewer in Exchange Server

 Information		2/18/2019 4:04:12 PM	MSExchangeRepl	3156	Service
General		Details			
<div>Active Manager successfully mounted database Mailbox Database 0998420039 on server w2k16-xch2k16.x2k16.local.</div>					

5. Delete files from Temp Folder

By default, temporary files will be deleted from the temp folder after backup. This feature can be turned on or off by following the steps below:

1. Open AhsayOBM, then click the Backup Set icon on the main interface.
2. Select the backup set you would like to change this setting.
3. Click "Show advanced settings" on the left, then select "Others".
4. Use the "Remove temporary files after backup" checkbox to enable or disable this feature.

