CloudBerry Backup

Installation and Configuration Guide

Getting Started with CloudBerry Backup

CloudBerry Backup (CBB) solution was designed to facilitate PC and server data backup operations to multiple remote locations. It is integrated with top Cloud storage providers, allowing you to access each of your storage or start a sign up to a Cloud platform directly from CBB. It also works fine with network destinations like NAS (Network Attached Storage) or directly connected drives.

This document is the complete guide to the CloudBerry Backup deployment, configuration, and usage.

Product Editions & Licensing

The CBB can be downloaded directly from CloudBerry website with several editions.

- Windows Desktop (including FREE Edition) / Server.
- Microsoft SQL Server.
- Microsoft Exchange Server.
- Oracle Database.
- Ultimate (former Enterprise).
- CloudBerry Backup for NAS (QNAP and Synology).

They differ in functionality, storage limits and individual solutions availability. We accomplished a chart with basic editions to give a clear perspective.

CBB Edition	Desktop Free	Desktop Pro	Server	MS SQL	MS Exchange	Ultimate
File-level Backup	+	+	+	+	+	+
Image	-	-	+	+	+	+

Based Backup						
MS SQL Server Backup	-	-	-	+	-	+
MS Exchange Server Backup	-	-	-	-	+	+
Encryption and Compression	-	-	+	+	+	+
Storage Limits (for one account)	200GB	1TB	1TB	1TB	1TB	Unlimited
Network Shares for Backup	1	1	5	5	5	Unlimited
Support Type	Superuser.com forum Only	Email, 48 hours response	Email, 48 hours response	Email, 48 hours response	Email, 48 hours response	Email, 48 hours response

On the download page, there are also links for Mac and Linux Editions. For Windows, CBB is distributed within Universal Installer so that you can choose the desired edition after the download.

The license of a CloudBerry Lab products is permanent and can be moved over, in case you recover the computer as a virtual machine (VM) or using the new hardware. There is also a volume discount – the more copies you buy, the cheaper they are. Estimated personal price is available on the Cost Calculator page.

CloudBerry Backup has free 15-days trial without limitations so that you can test any backup and recovery scenario before purchase. An upgrade to the advanced edition can be done just paying the difference and activating the new license in the GUI. Please find the License Upgrade Wizard on the separate page.

System Requirements

CloudBerry Backup is a cross-platform product, which follows the diversity of modern business IT-solutions. You can run CBB on:

- Windows Server 2003/ 2008/2008 R2/2012/2012 R2 (including Core option), Windows 7/8/10.
- Ubuntu 12/14; Suse 11/12; Red Hat 6.x/7.x; Fedora 12/21; CentOS 6/7; Oracle Linux 6.x/7.x.
- Mac OS 10.8 or newer.
- Synology or QNAP device with an Intel or ARM processor (for NAS editions respectively).

There are also special requirements for successful operation:

- Microsoft .NET Framework 4.0 (For Windows Edition).
- 1.4 GHz 64-bit processor.
- 512 MB RAM.
- 100 Mbps of network bandwidth (1Gbps is better).

To maintain a dedicated backup of Microsoft SQL Server and Exchange with CloudBerry Backup, you need to have such versions as:

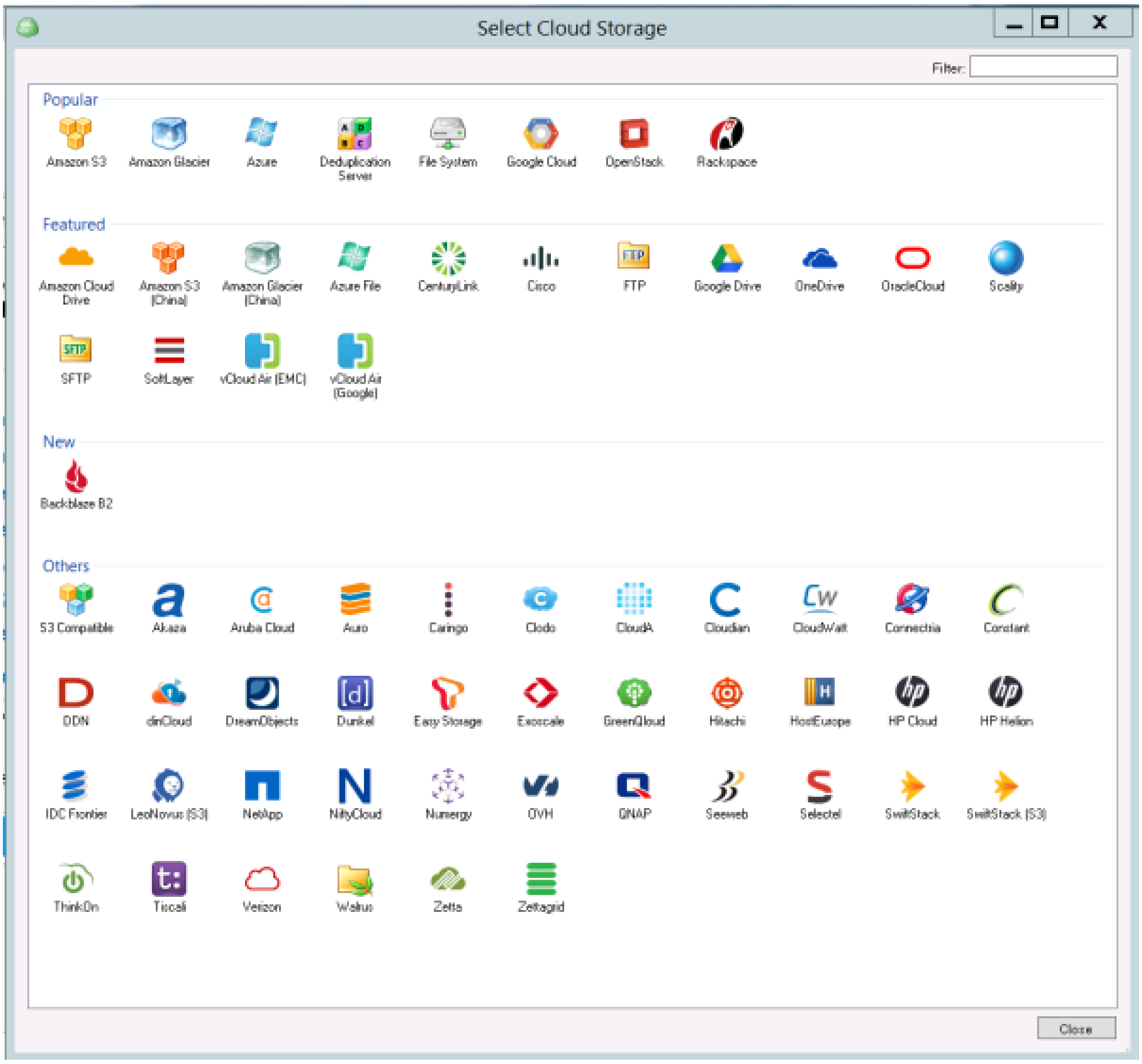
- Microsoft SQL Server 2000/2003/2005/2008/2012/2014/2016 (including **Express** edition).
- Microsoft Exchange 2007/2010/2013.

Supported Cloud Services

CBB can backup data to 59 different cloud storage facilities, which are listed on CloudBerry Lab Partners page. All supported providers for the current license are available under **Add Account** tab of CBB **Main Menu**.

The most popular destinations are:

- Amazon S3.
- Amazon Glacier.
- Azure.
- Google Cloud.
- OpenStack.
- Rackspace.
- Backblaze B2.
- Oracle Cloud.
- ...and others.



Architecture

CloudBerry Lab uses the "one machine – one instance" principle of the backup system deployment, which means that every maintained computer needs an individual copy of CBB installed. Nevertheless, with Ultimate you can backup data from multiple computers using network paths such as \\PC1\share\.

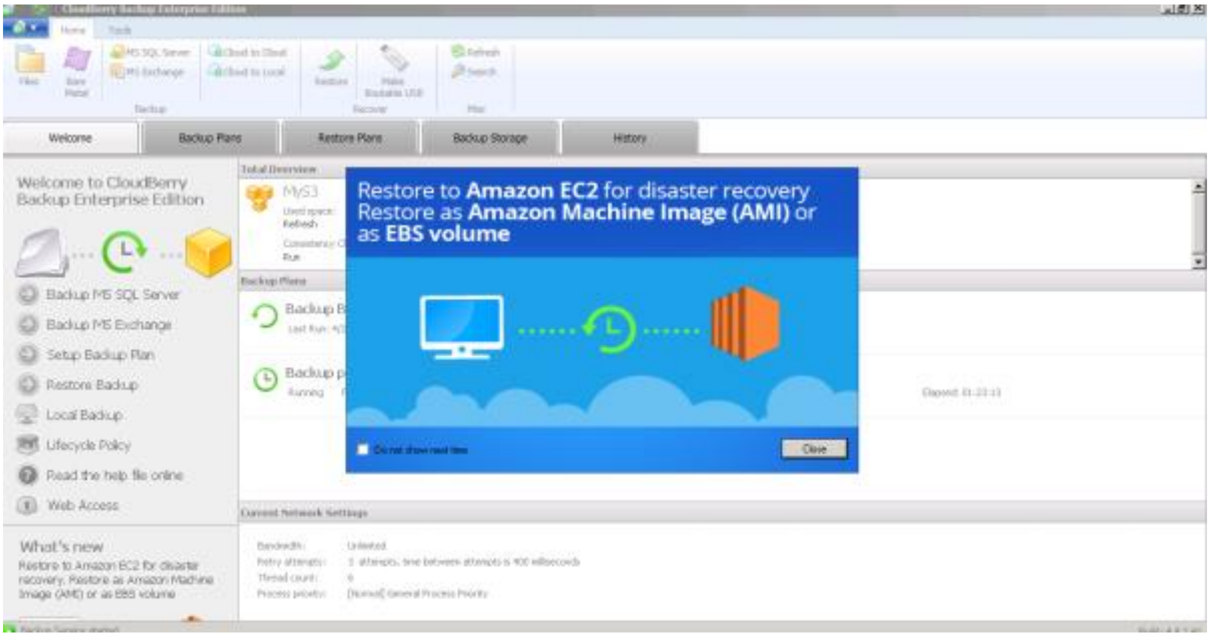
All backups of the computer identified by the individual **Backup Prefix**. If you specify the old prefix on the new machine, CBB will access all previously saved data on the storage. One backup prefix can be assigned to several computers to create a shared storage. It's useful with user workstations, which have almost similar OS and software bundlings. Find out more on the **How to Recover Jobs and Presets on the New Server** section of this document.

Backup with CBB is highly customizable. You can use any number of cloud or local storage facilities simultaneously. Moreover, the data can be freely moved between a cloud or a local storage systems using built-in Wizard. Even if the backups are transferred manually to another storage, CBB can recognize them by the backup prefix.

How to Install

***Note**: in this example, we use Windows Server 2012 as a platform. The process is quite the same on the other systems, so find out more on Mac and Linux download pages.*

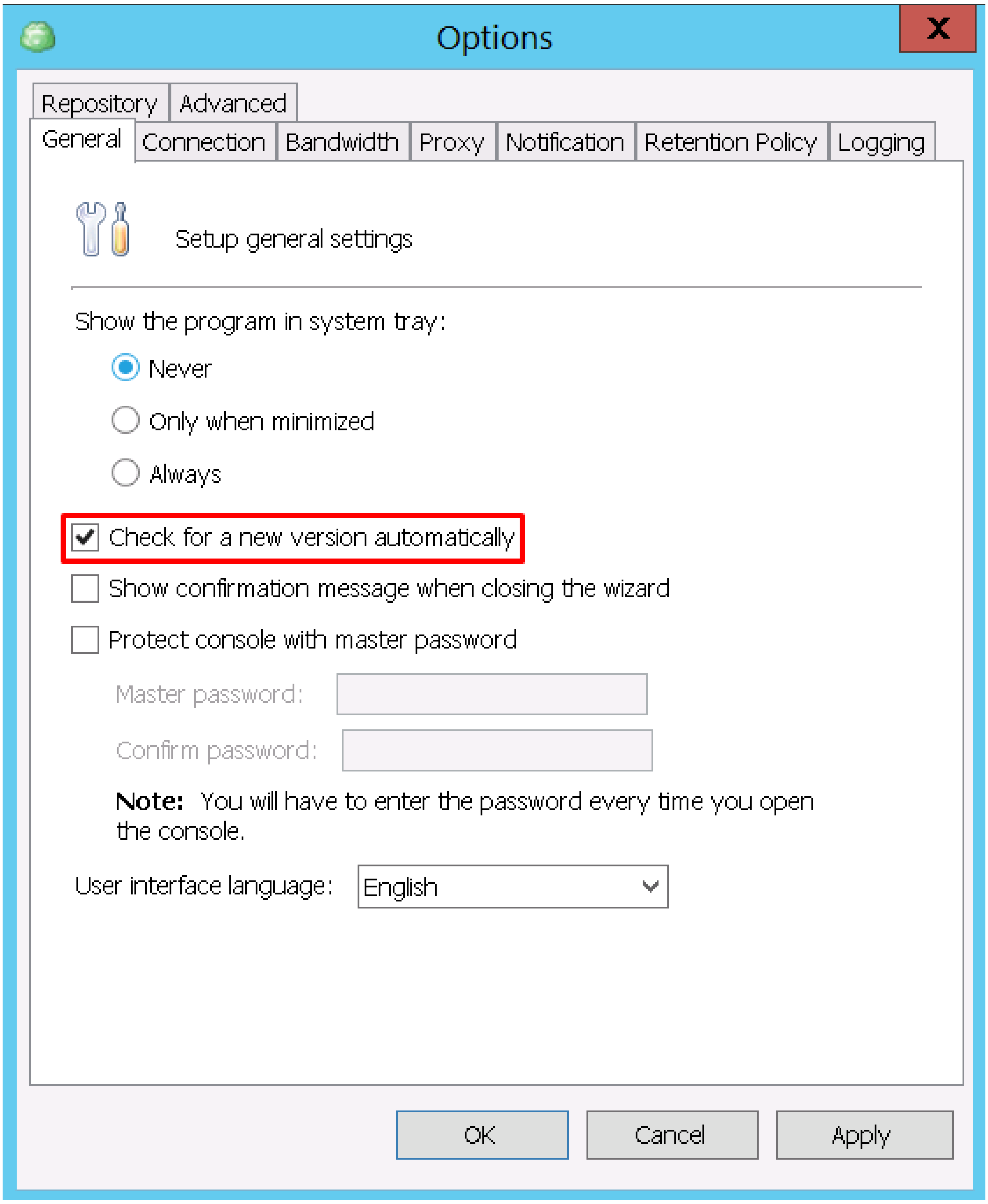
1. Get the universal installer on the CloudBerry Backup download page.
2. Double-click on the **.exe** file to launch the Windows installer. If the system needs the update or required software frameworks are missing, the installer will prompt to fix it.
3. On the first launch, choose licensing option to start CBB. It described in detail in **Activation** section below.
4. After starting the software, the home page with main options opens. They are gathered into a few groups: **Backup Plans**, **Restore Plans, Backup Storage, History,** and **Welcome**. We shall come back to them later.



Version Update

During the first year, all the updates are free. You can check for the new releases in **Help – Check for Updates** section of CBB Main Menu, or enable the automatic update in the **General** tab of CBB **Options Menu**.

After the first year, updates are available only for customers with a support subscription. CloudBerry Backup Maintenance plan costs 20% of product price and includes annual updates and email-based technical support. You need only one support subscription for any number of CBB copies. Check the price and calculate the bill on the special page.



Setup general settings

Show the program in system tray:

● Never

○ Only when minimized

○ Always

☑ Check for a new version automatically

□ Show confirmation message when closing the wizard

□ Protect console with master password

Master password:

Confirm password:

Note: You will have to enter the password every time you open the console.

User interface language: English

Silent Mode Installation

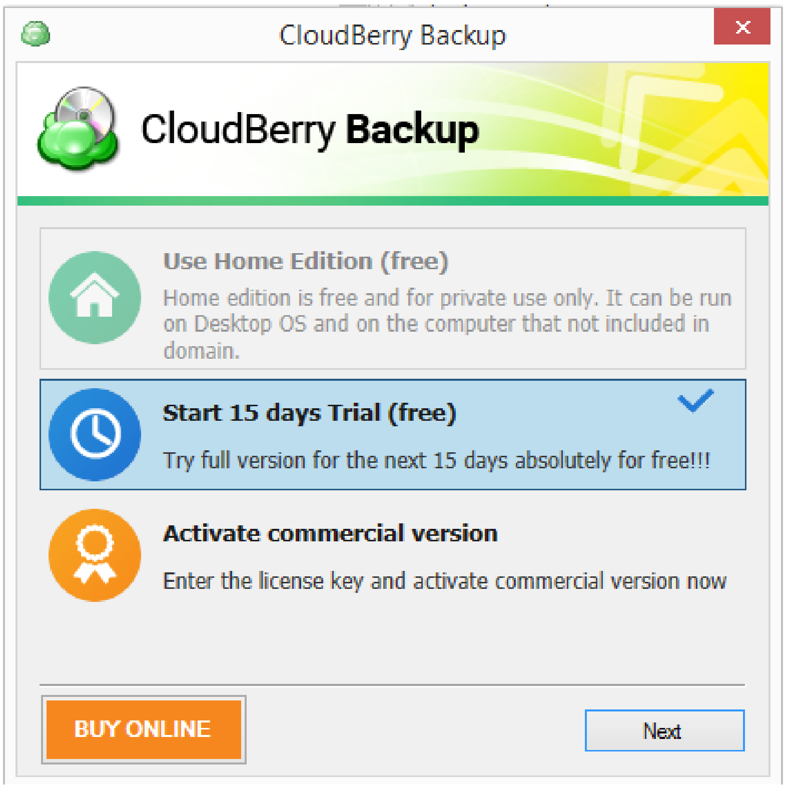
You can also launch Installation in the silent mode by running the next command in the Windows Command Line:

CloudBerryBackup_vx.x.x.xULTIMATE.exe /S [/D=C:\custom installation folder]

Where **vx.x.x.x** is the version of CBB, and **ULTIMATE** is the edition.

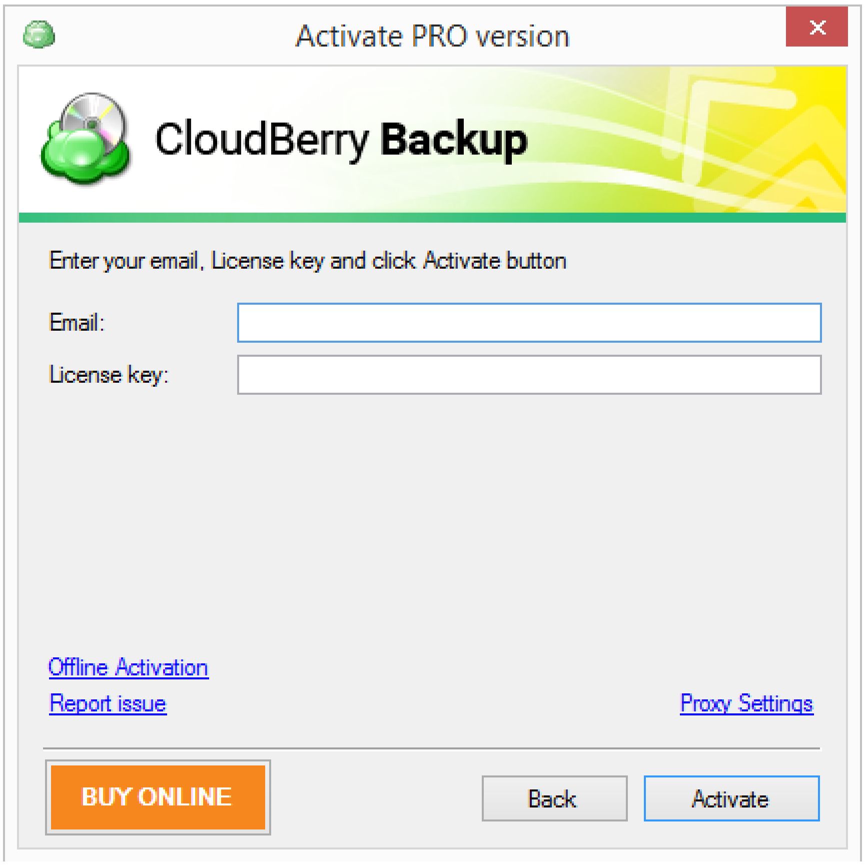
Activation using GUI

There is a trial available in case you would like to try CBB first. Click the **Start Trial** button at the bottom left of the window and you'll get 15 days of free usage of the CloudBerry Backup. The activation procedure is explained in detail next.


CloudBerry Backup
CloudBerry Backup
Use Home Edition (free)
Home edition is free and for private use only. It can be run on Desktop OS and on the computer that not included in domain.
Start 15 days Trial (free)
Try full version for the next 15 days absolutely for free!!!
Activate commercial version
Enter the license key and activate commercial version now
BUY ONLINE
Next

1. You can activate the product at any time – during the trial period or when it is expired. Get the license on the separate page (same to **Buy Online** button) and click on **Activate commercial version** button on the main CloudBerry Backup start screen.

2. Enter the e-mail and license key received by email into the relevant fields, press **Activate.**



The program will verify the key and activate the acquired edition.

***Note:** if you want to change the product edition, e.g. you use Server Edition and want to upgrade to Ultimate, release the Server Edition license in the product and activate an Ultimate Edition. Press on the **Main Menu** button, and select **Help** – **Release Licence**.*

If there is no internet connection on the computer, the key won’t be verified. In this case, you can activate the product offline.

Activation using Command Line

You can also use console commands to activate the CBB. To activate the trial, change the current path to the CBB installation folder:

cd “C:\Program Files\CloudBerryLab\CloudBerry Backup”

Then run the next command:

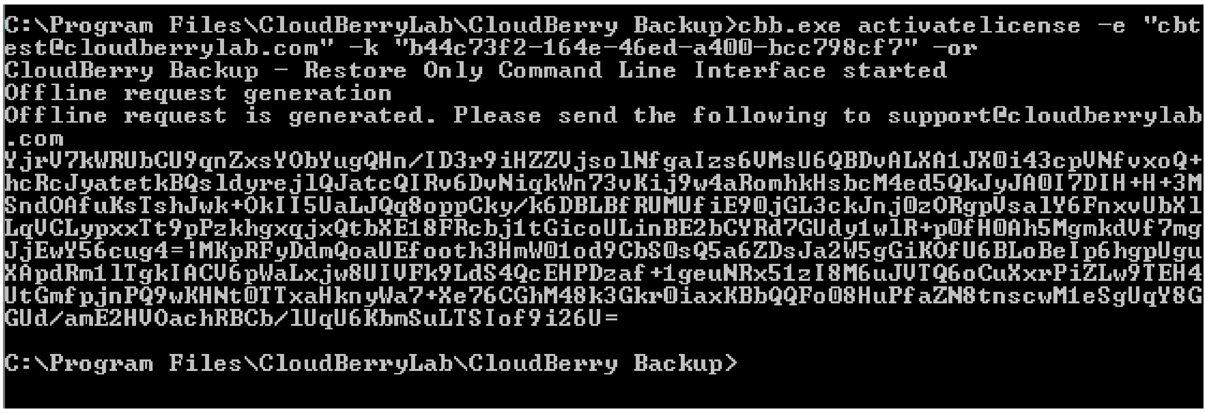
cbb.exe activatelicense -e "your_email_adress" -edition "ultimate" -t

Specify the desired edition instead of **ultimate**. To activate the commercial license, run the next command:

cbb.exe activatelicense -e "your_email_adress" -k "license_key" -or

Where **license_key** is the key received.

If you don’t have the Internet connection at the moment, use the same command to request offline activation. In the output, you get a service key, which has to be sent to support@cloudberrylab.com.



```
C:\Program Files\CloudBerryLab\CloudBerry Backup>cbb.exe activatelicense -e "cbt
est@cloudberrylab.com" -k "b44c73f2-164e-46ed-a400-bcc798cf7" -or
CloudBerry Backup - Restore Only Command Line Interface started
Offline request generation
Offline request is generated. Please send the following to support@cloudberrylab
.com
YjrV7kWRUbCU9qnZxsYObYugQHn/ID3r9iHZZVjsolNfgaIzs6VMsU6QBDvALXA1JX0i43cpVNfvxoQ+
hcRcJyatetkBQsldyrejlQJatcQIRv6DvNiqkWn73vKij9w4aRomhkHsbcM4ed5QkJyJA0I7DIH+H+3M
SndOAfuKsTshJwk+OkII5UaLJQq8oppCky/k6DBLBfRUMUfiE90jGL3ckJnj0zORgpVsalY6FnxvUbXl
LqVCLypxxTt9pPzkhgxqjxQtbXE18FRcbj1tGicoULinBE2bCYRd7GUdy1wlR+p0fH0Ah5MgmkdVf7mg
JjEwY56cug4=¦MKpRFyDdmQoaUEfooth3HmW01od9CbS0sQ5a6ZDsJa2W5gGiKOfU6BLoBeIp6hgpUgu
XApdRm1lTgkIACV6pWaLxjw8UIVFk9LdS4QcEHPDzaf+1geuNRx51zI8M6uJVTQ6oCuXxrPiZLw9TEH4
UtGmfpjnPQ9wKHNt0TTxaHknyWa7+Xe76CGhM48k3Gkr0iaxKBbQQFo08HuPfaZN8tnscwM1eSgUqY8G
GUd/amE2HVOachRBCb/lUqU6KbmSuLTSIof9i26U=

C:\Program Files\CloudBerryLab\CloudBerry Backup>
```

Support will give the activation key. Use key as follows to activate the CBB:

cbb.exe activatelicense -e "email" -k "license_key" -oa "activation_key_received"

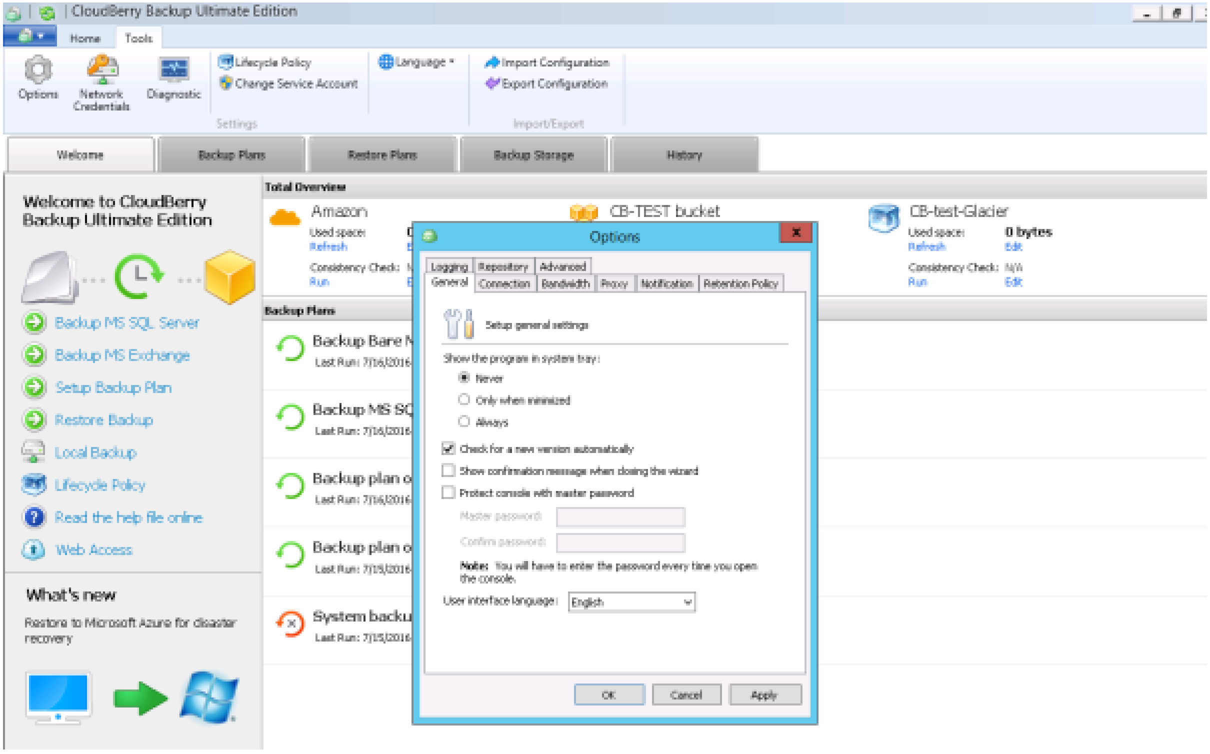
For more information, see the **Command Line Interface** section of this document.

How to Backup

Before starting a backup, you may want to tune up CloudBerry Backup settings:set a proxy, limit bandwidth, set default settings for new backup plans, etc.

CloudBerry Backup Configuration

Click **Options** on the **Tools** tab to access application settings. Here you can change CloudBerry Backup parameters.



Setup general settings

Show the program in system tray:

- ● Never
- ○ Only when minimized
- ○ Always

☑ Check for a new version automatically

□ Show confirmation message when closing the wizard

□ Protect console with master password

Master password:

Confirm password:

Note: You will have to enter the password every time you open the console.

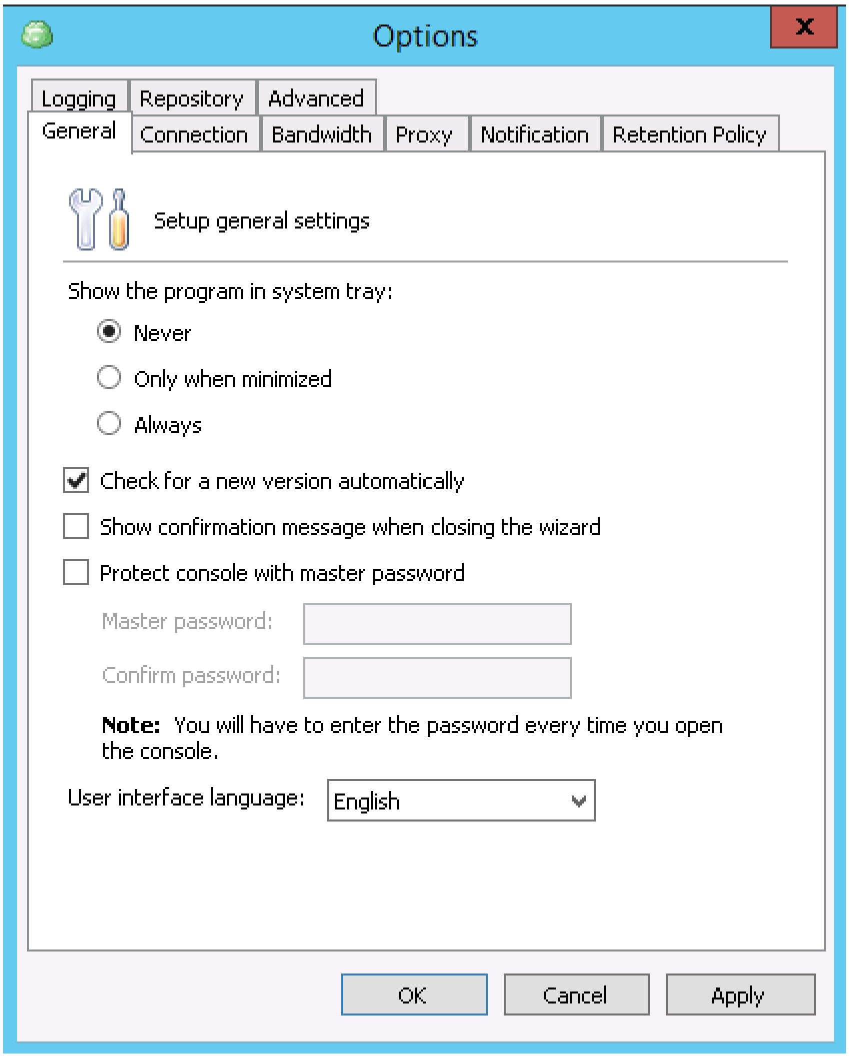
User interface language: English

General

On the **General** tab of **Options**, you can do the following:

- Specify if the CBB icon appears in the system tray.
- Enable automatic version update.
- Prevent accidental Wizard closing with the confirmation window.
- Protect **Options** console with the password.

- Change interface language (15 languages including Chinese are available).



Setup general settings

Show the program in system tray:

- ● Never
- ○ Only when minimized
- ○ Always

☑ Check for a new version automatically

□ Show confirmation message when closing the wizard

□ Protect console with master password

Master password:

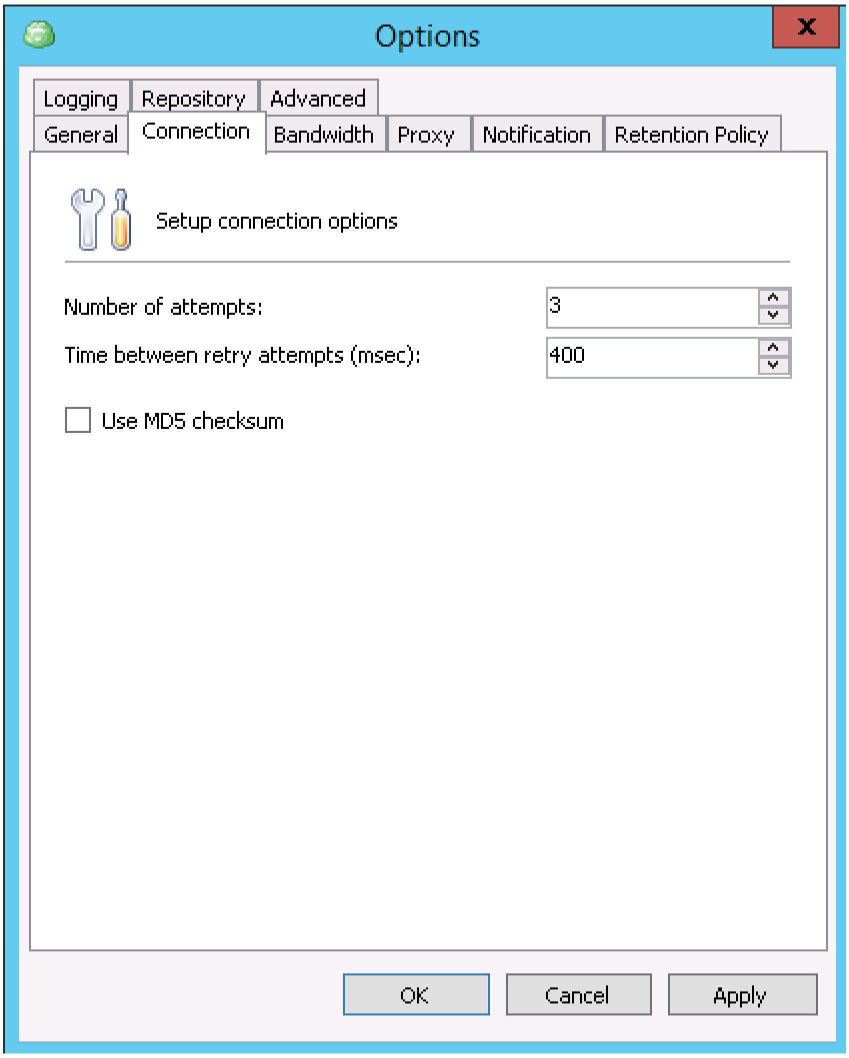
Confirm password:

Note: You will have to enter the password every time you open the console.

User interface language: English

Connection

If CBB can't reach network destination, it makes several attempts to reestablish the connection before reporting an issue.



Setup connection options

Number of attempts: 3

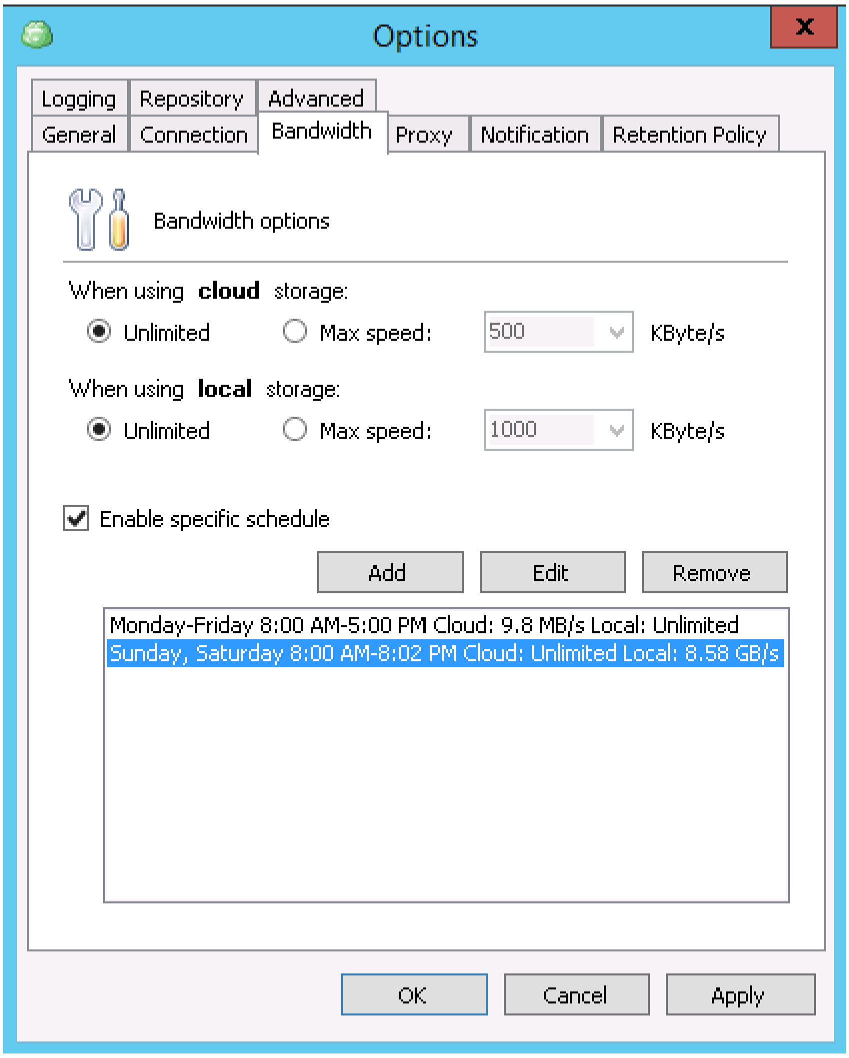
Time between retry attempts (msec): 400

□ Use MD5 checksum

At the **Connection** tab, the options define the number of attempts and the timeout period.

Bandwidth

The **Bandwidth** group controls CBB network utilization. It can specify the maximum speed for cloud or local destinations.



When using **cloud** storage:

● Unlimited ○ Max speed: 500 KByte/s

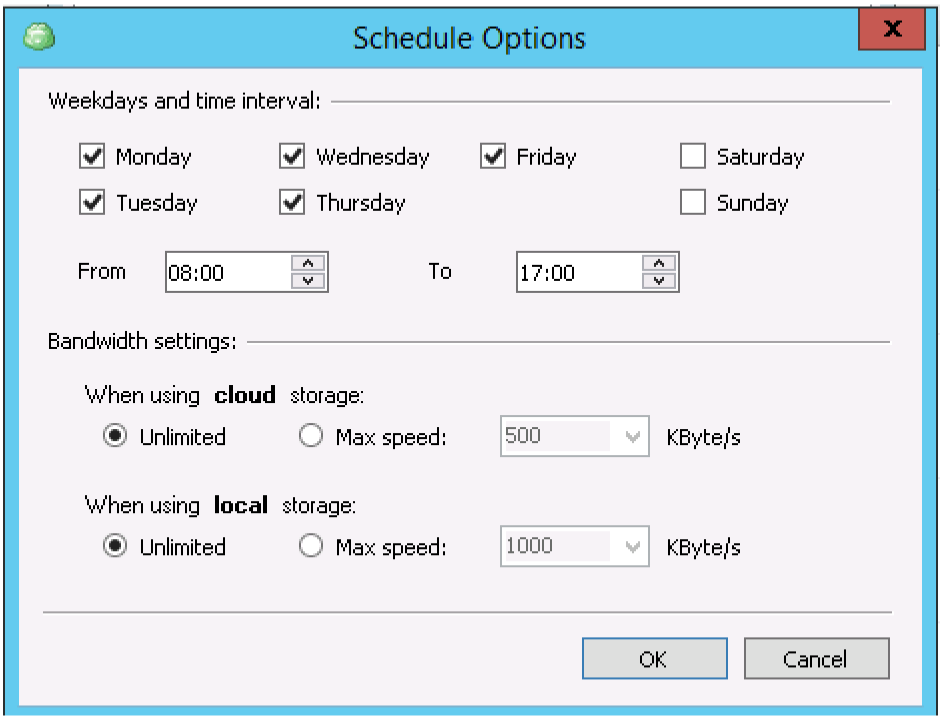
When using **local** storage:

● Unlimited ○ Max speed: 1000 KByte/s

☑ Enable specific schedule

Monday-Friday 8:00 AM-5:00 PM Cloud: 9.8 MB/s Local: Unlimited
Sunday, Saturday 8:00 AM-8:02 PM Cloud: Unlimited Local: 8.58 GB/s

Enable specific schedule feature assigns network usage limits for each day of the week.



Weekdays and time interval:

☑ Monday ☑ Wednesday ☑ Friday □ Saturday

☑ Tuesday ☑ Thursday □ Sunday

From 08:00 To 17:00

Bandwidth settings:

When using **cloud** storage:

● Unlimited ○ Max speed: 500 KByte/s

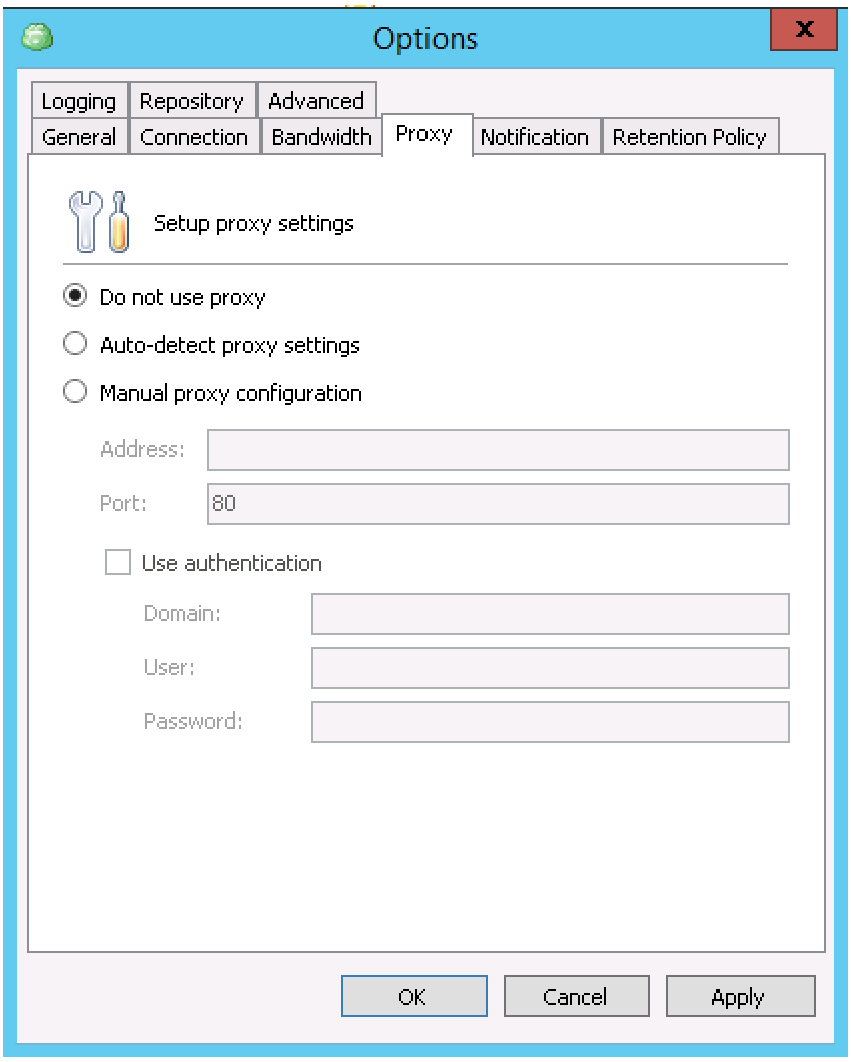
When using **local** storage:

● Unlimited ○ Max speed: 1000 KByte/s

For time periods not covered by schedule, global settings are applied.

Proxy

At the **Proxy tab,** you can specify the intermediate server for the Internet access. With the **Auto-detect proxy settings** enabled, CloudBerry Backup will use operating system defaults.



Setup proxy settings

● Do not use proxy

○ Auto-detect proxy settings

○ Manual proxy configuration

Address:

Port: 80

□ Use authentication

Domain:

User:

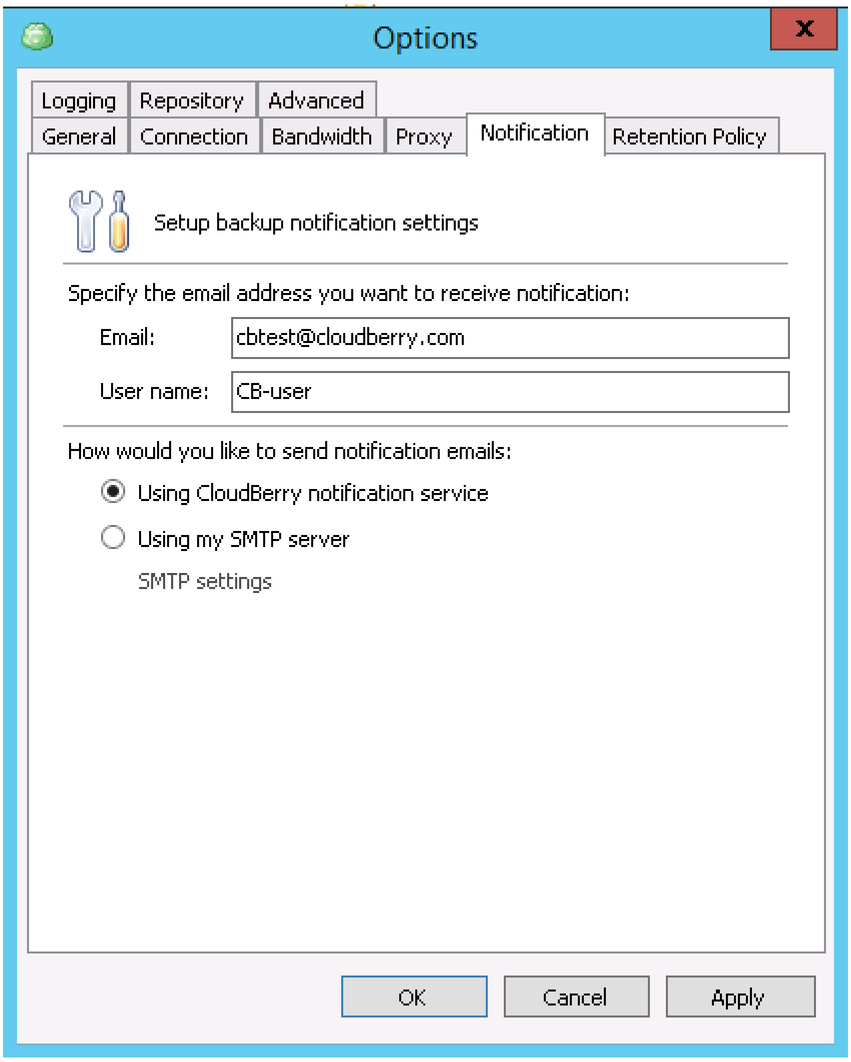
Password:

We recommend testing of the new configurations by creating a backup plan.

Notification

CBB can notice about backup or restoration process completion status via an email.The application will use the email and username specified as the default on the **Notification** step of any Backup and

Restore Wizard.



Setup backup notification settings

Specify the email address you want to receive notification:

Email: cbtest@cloudberry.com

User name: CB-user

How would you like to send notification emails:

● Using CloudBerry notification service

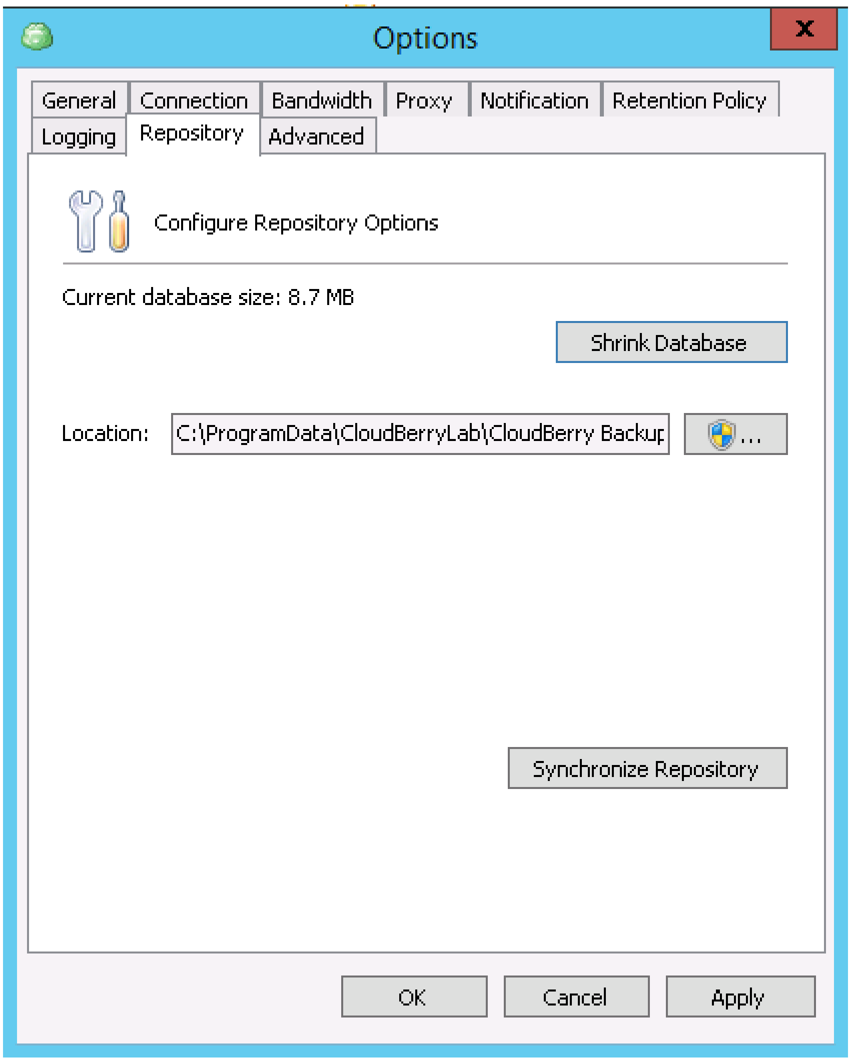
○ Using my SMTP server

SMTP settings

You may also connect own mail server by selecting of **Using my SMTP server** option

Repository

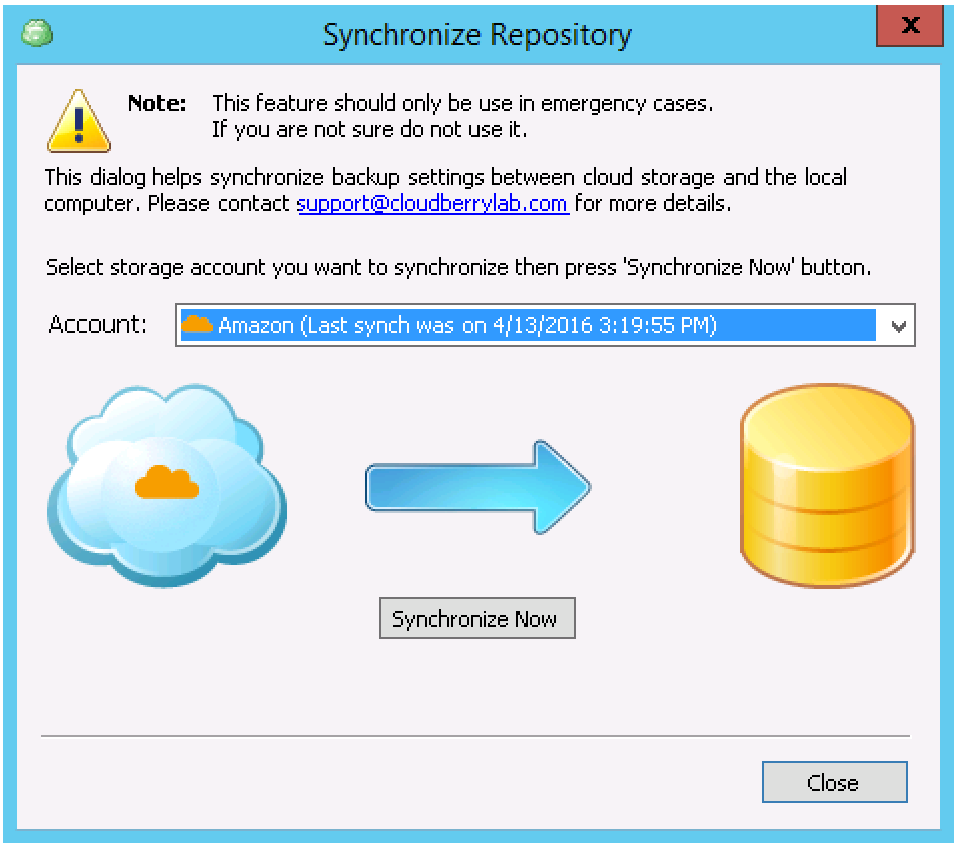
CBB uses the database to monitor the contents of the connected storage and track down modifications. File deletion, storage operation by third-party software and backup migration may increase its size, as CBB keeps the old records in case the user will restore data manually. Clicking on the **Shrink Database** option will delete redundant records and decrease the database size.



Current database size: 8.7 MB

Location: C:\ProgramData\CloudBerryLab\CloudBerry Backup

Synchronize Repository feature force the update of backup storage database.



Synchronize Repository

Note: This feature should only be use in emergency cases.
If you are not sure do not use it.

This dialog helps synchronize backup settings between cloud storage and the local computer. Please contact support@cloudberrylab.com for more details.

Select storage account you want to synchronize then press 'Synchronize Now' button.

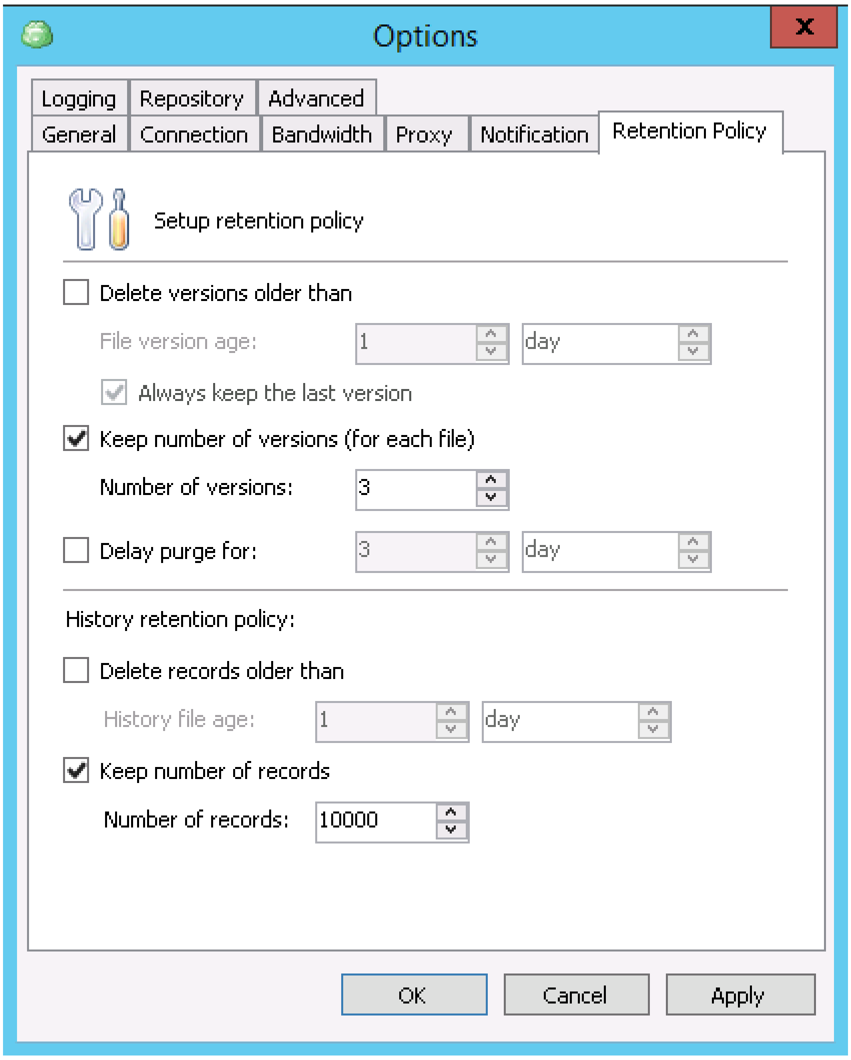
Account: Amazon (Last synch was on 4/13/2016 3:19:55 PM)

As the cloud providers usually charge for the data requests, you should use this features only in particular cases such as described in **Advanced Solutions – Glacier Restore** section of this document.

Retention Policy

Retention Policy defines the number of versions stored for each of backed up files, including their maximum age and the deleting delay time. You can establish custom retention policies for new backup plans, but keep in mind that larger versions history requires more storage space. Find out more in

Additional Features – History section of this document.



Setup retention policy

☐ Delete versions older than

File version age: 1 day

☑ Always keep the last version

☑ Keep number of versions (for each file)

Number of versions: 3

☐ Delay purge for: 3 day

History retention policy:

☐ Delete records older than

History file age: 1 day

☑ Keep number of records

Number of records: 10000

Other Options

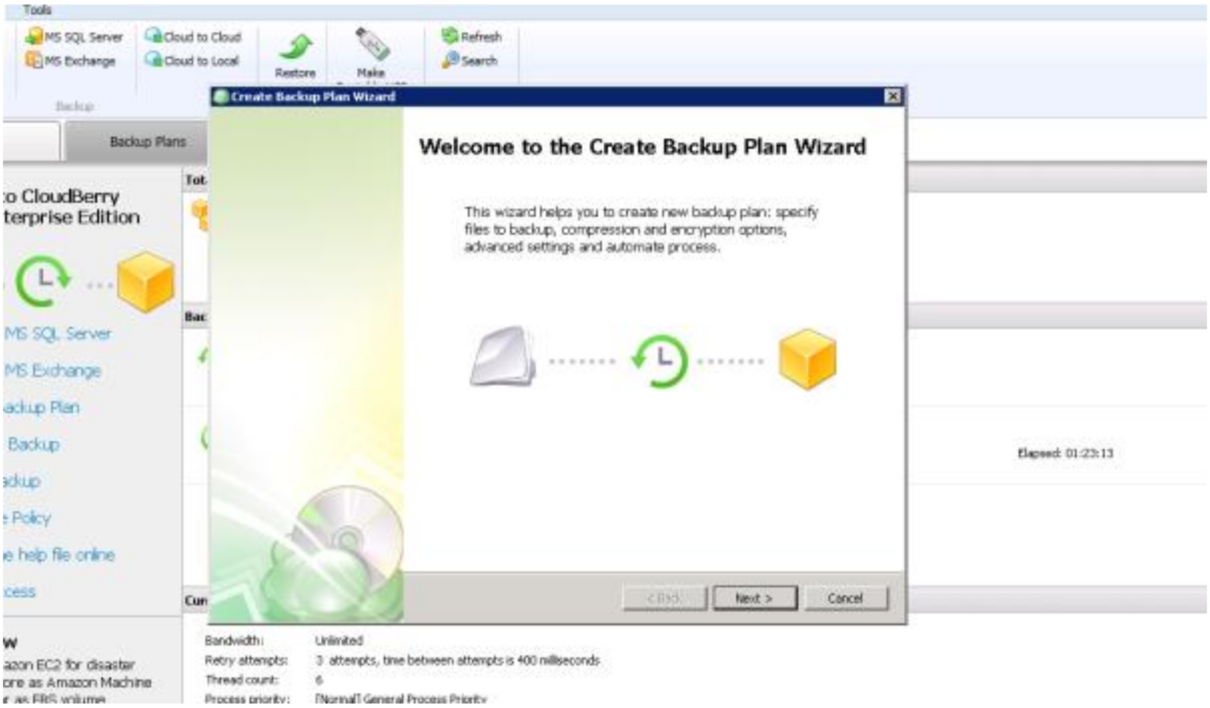
Logging and **Advanced** options tabs are described in detail in **Troubleshooting** and **Advanced Solutions – CloudBerry Backup Advanced Options** sections of the document.

Backup Types

The **Backup** group of options provides the following data backup services:

- **File-level;**
- **Image-level;**
- **Synthetic;**
- **Microsoft SQL Server backup;**
- **Backup of a Microsoft Exchange Server;**
- **Cloud to Cloud and Cloud to Local transfers.**

If you click on any of these options, the **Backup Plan Wizard** launches, helping you to create the first Backup Plan (it is similar to Backup Job in third-party apps).



Create Backup Plan Wizard

Welcome to the Create Backup Plan Wizard

This wizard helps you to create new backup plan: specify files to backup, compression and encryption options, advanced settings and automate process.

Elapsed: 01:23:13

Bandwidth: Unlimited
Retry attempts: 3 attempts, time between attempts is 400 milliseconds
Thread count: 6
Process priority: [Normal] General Process Priority

The Wizard will guide you through all required parameters of a backup plan you have chosen.

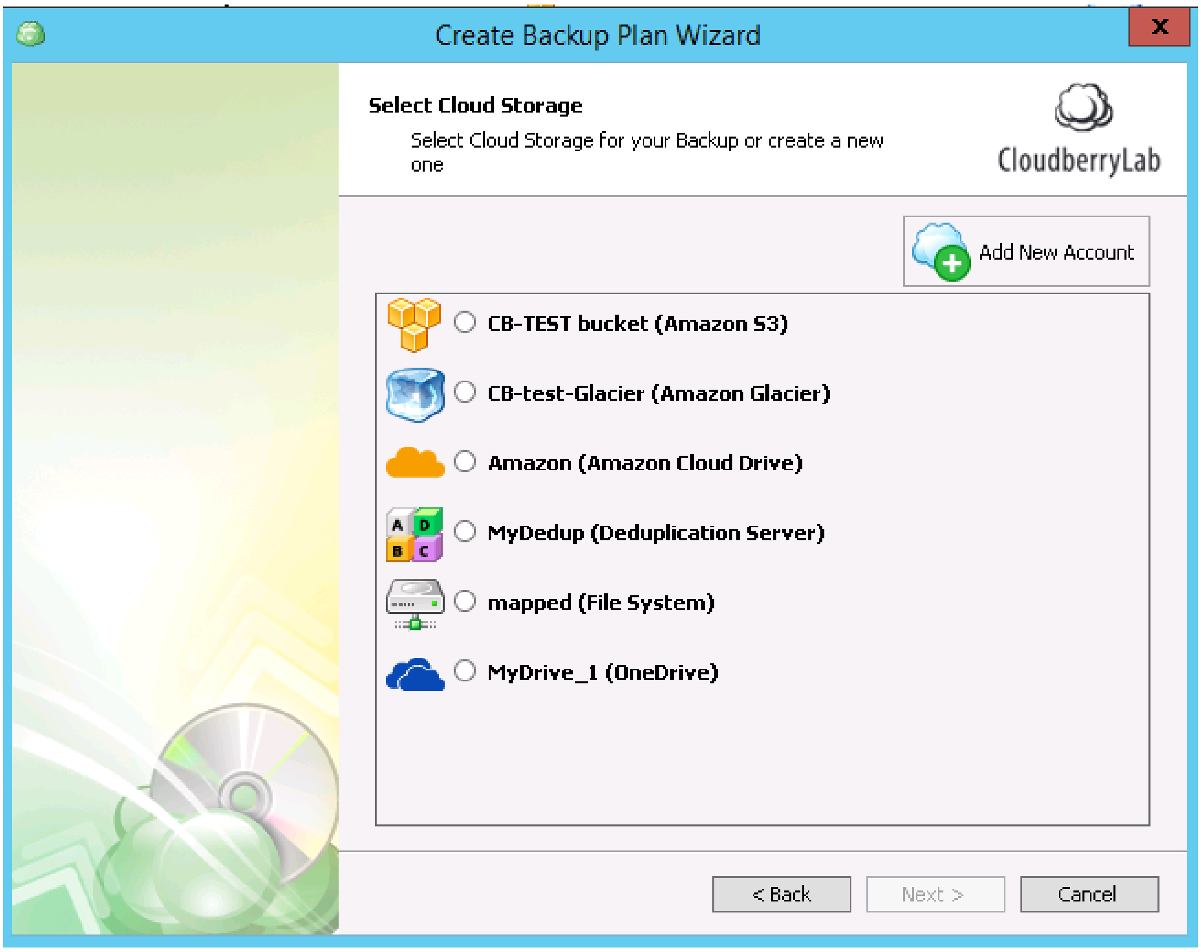
File-level Backup

File-level Backup helps to save various files and folders on the computer. It is the best way to protect a user data since it doesn't require as much space as other backup types and performs generally faster. If you also need to protect OS system partitions, we recommend using Image-level backups.

To start protecting files and folders on the computer do the following:

1. Click the **Files** button on the **Home** tab to launch the Wizard.

2. Click **Next** and select a storage for your backups.



Select Cloud Storage

Select Cloud Storage for your Backup or create a new one

○ CB-TEST bucket (Amazon S3)

○ CB-test-Glacier (Amazon Glacier)

○ Amazon (Amazon Cloud Drive)

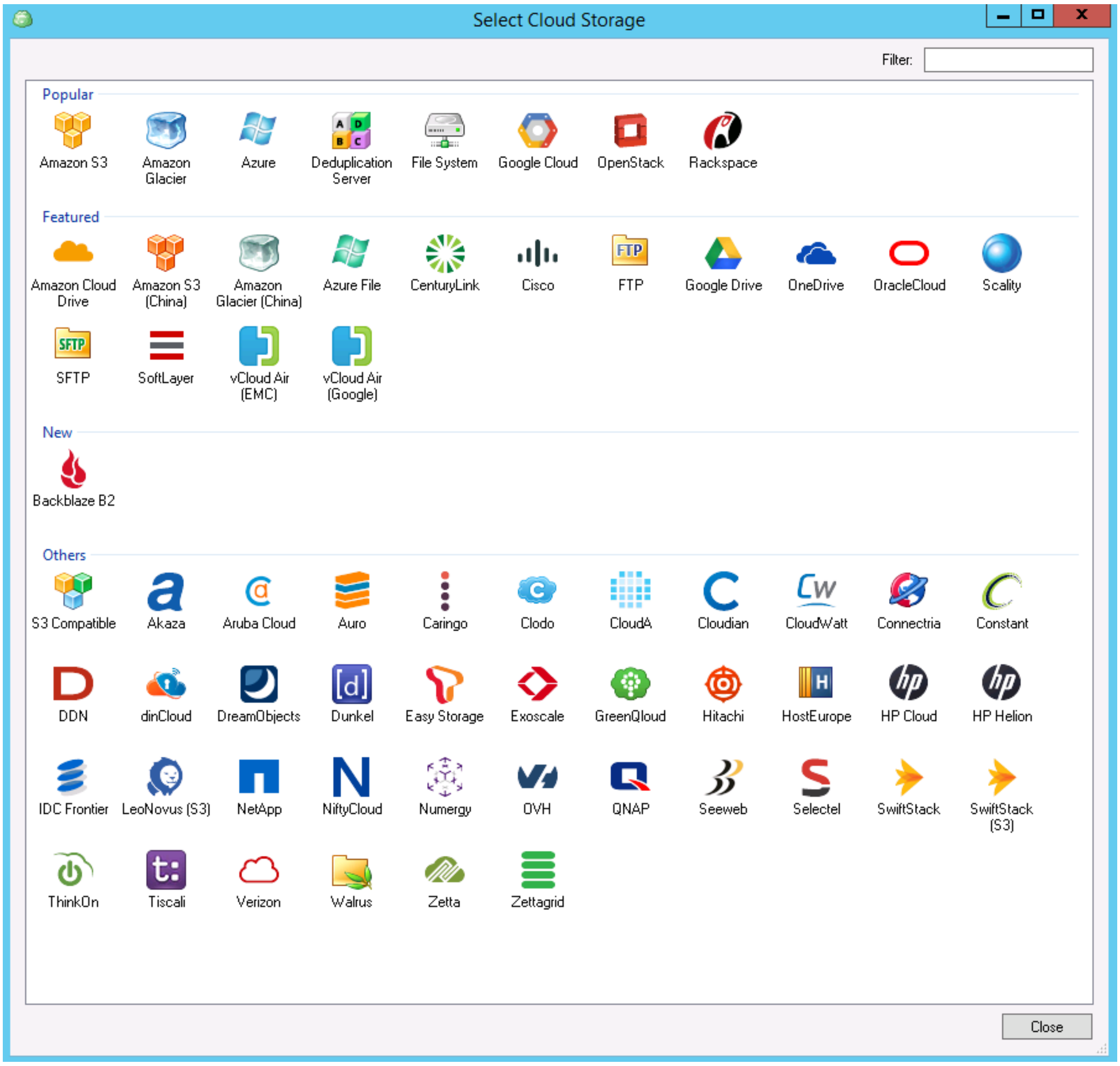
○ MyDedup (Deduplication Server)

○ mapped (File System)

○ MyDrive_1 (OneDrive)

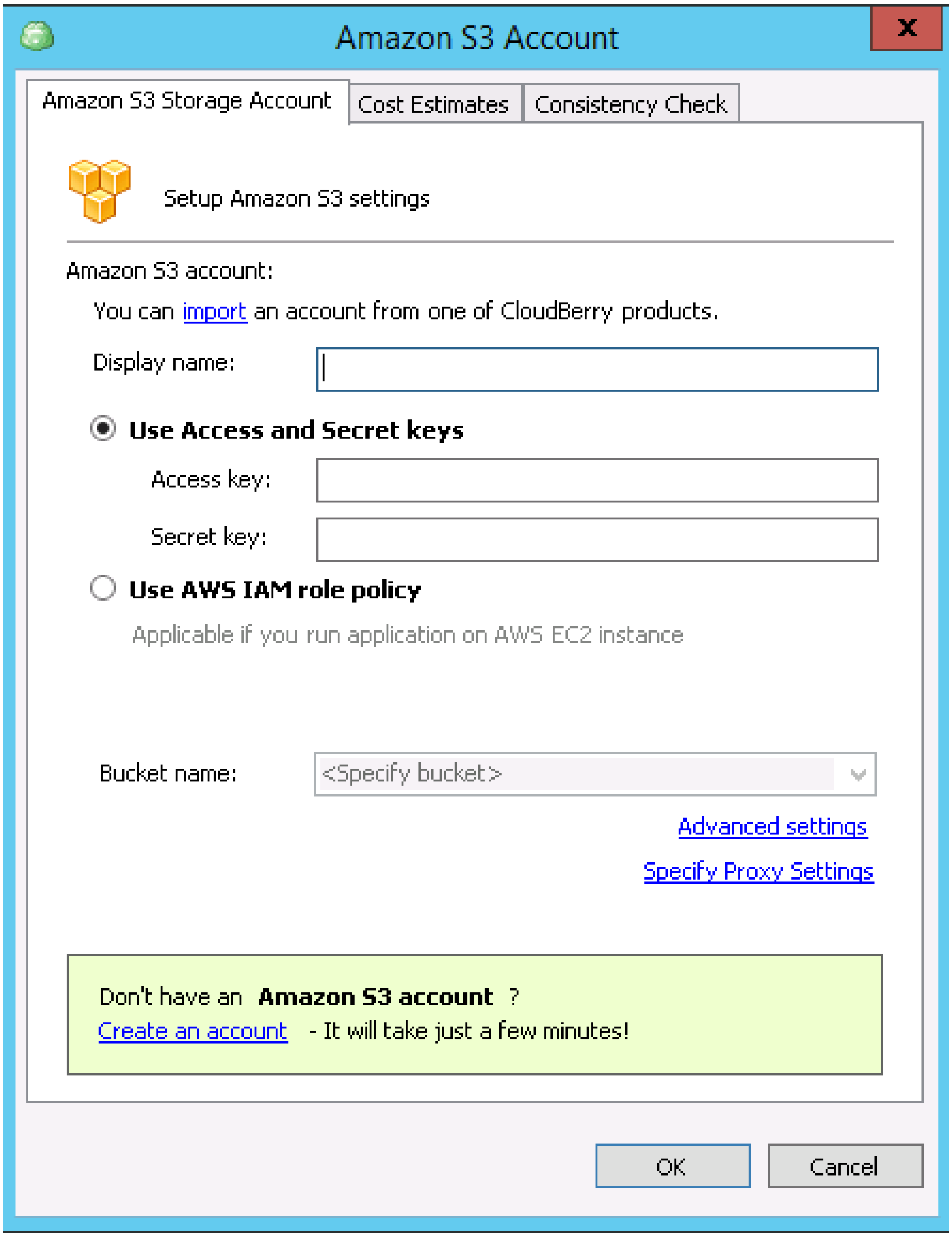
3. CBB helps facilitate backup management in a number of remote storage providers, so you need to subscribe for one of such cloud storage facility. Alternatively, you can start a sign up

directly from the Backup Wizard.



4. Let's add Amazon S3 storage as an example. Once you login to S3, CBB will remember the account to choose it quickly for next backup plans. Click **Add New Account** and double click on the Amazon S3 icon in the appeared list.
5. In the **Amazon S3 Account** window, specify the display name for this storage and provide security keys to connect existing S3 account. If they are correct, the bucket will appear in the

Bucket name dropdown.



Amazon S3 Account

Amazon S3 Storage Account | Cost Estimates | Consistency Check

Setup Amazon S3 settings

Amazon S3 account:

You can import an account from one of CloudBerry products.

Display name:

● **Use Access and Secret keys**

Access key:

Secret key:

○ **Use AWS IAM role policy**

Applicable if you run application on AWS EC2 instance

Bucket name: <Specify bucket>

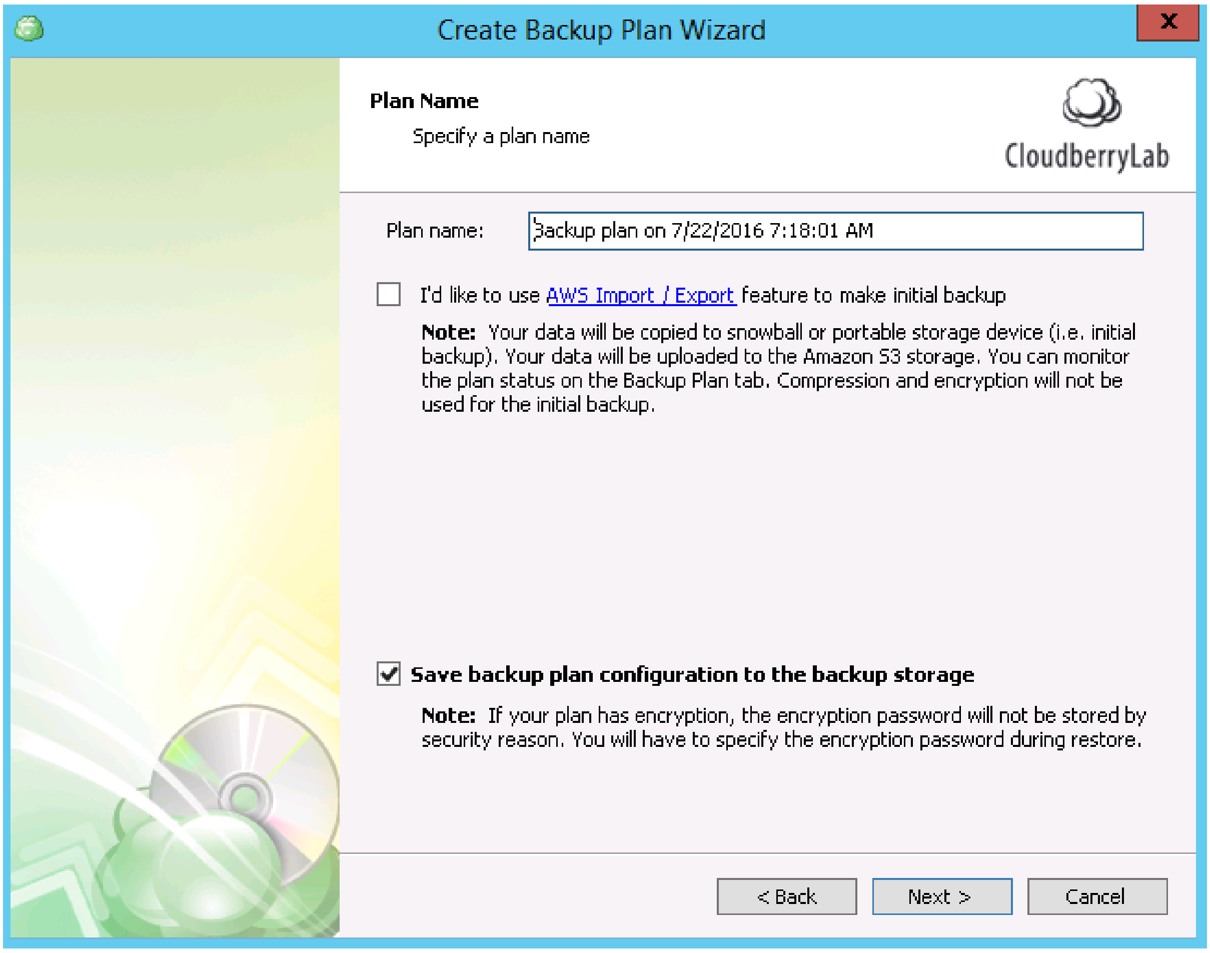
Advanced settings

Specify Proxy Settings

Don't have an **Amazon S3 account** ?
Create an account - It will take just a few minutes!

6. You can also choose to connect to S3 account via an IAM role policy or to import the credentials from another CloudBerry software. To establish a new S3 account right away, click the **Create a new account** link at the bottom to open AWS sign up page.
7. After selecting storage and clicking **Next**, specify the plan's name and decide whether to save its configuration on the cloud storage. That helps to restore jobs and presets in case the local

storage is no more available.



Plan Name

Specify a plan name

Plan name: Backup plan on 7/22/2016 7:18:01 AM

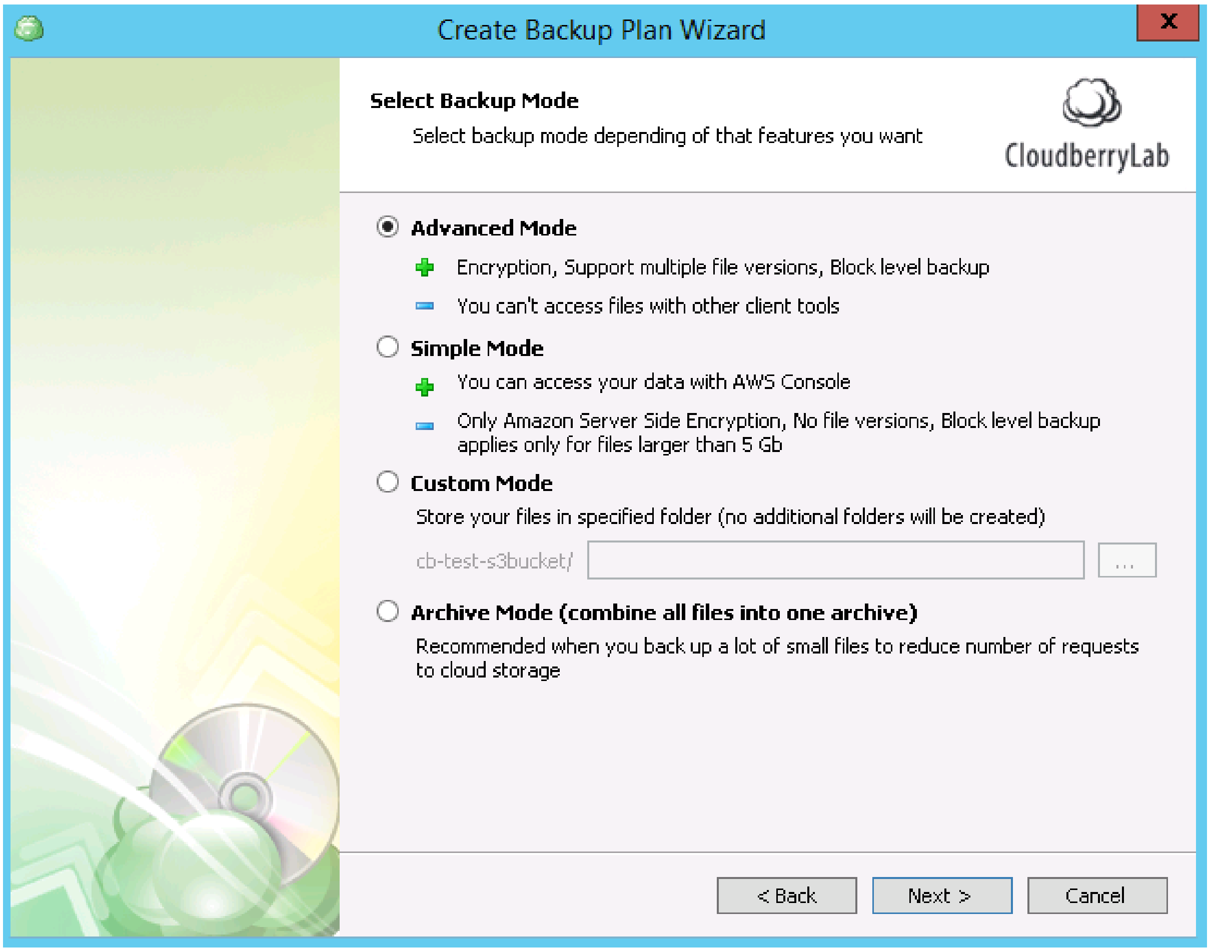
□ I'd like to use AWS Import / Export feature to make initial backup

Note: Your data will be copied to snowball or portable storage device (i.e. initial backup). Your data will be uploaded to the Amazon S3 storage. You can monitor the plan status on the Backup Plan tab. Compression and encryption will not be used for the initial backup.

☑ **Save backup plan configuration to the backup storage**

Note: If your plan has encryption, the encryption password will not be stored by security reason. You will have to specify the encryption password during restore.

8. At the next step, select **Advanced**, **Simple** or **Custom** mode for backups. The **Advanced** mode enables many helpful CBB features such as, for example, data encryption and versioning.



Select Backup Mode

Select backup mode depending of that features you want

● **Advanced Mode**

- ✚ Encryption, Support multiple file versions, Block level backup
- ▬ You can't access files with other client tools

○ **Simple Mode**

- ✚ You can access your data with AWS Console
- ▬ Only Amazon Server Side Encryption, No file versions, Block level backup applies only for files larger than 5 Gb

○ **Custom Mode**

Store your files in specified folder (no additional folders will be created)

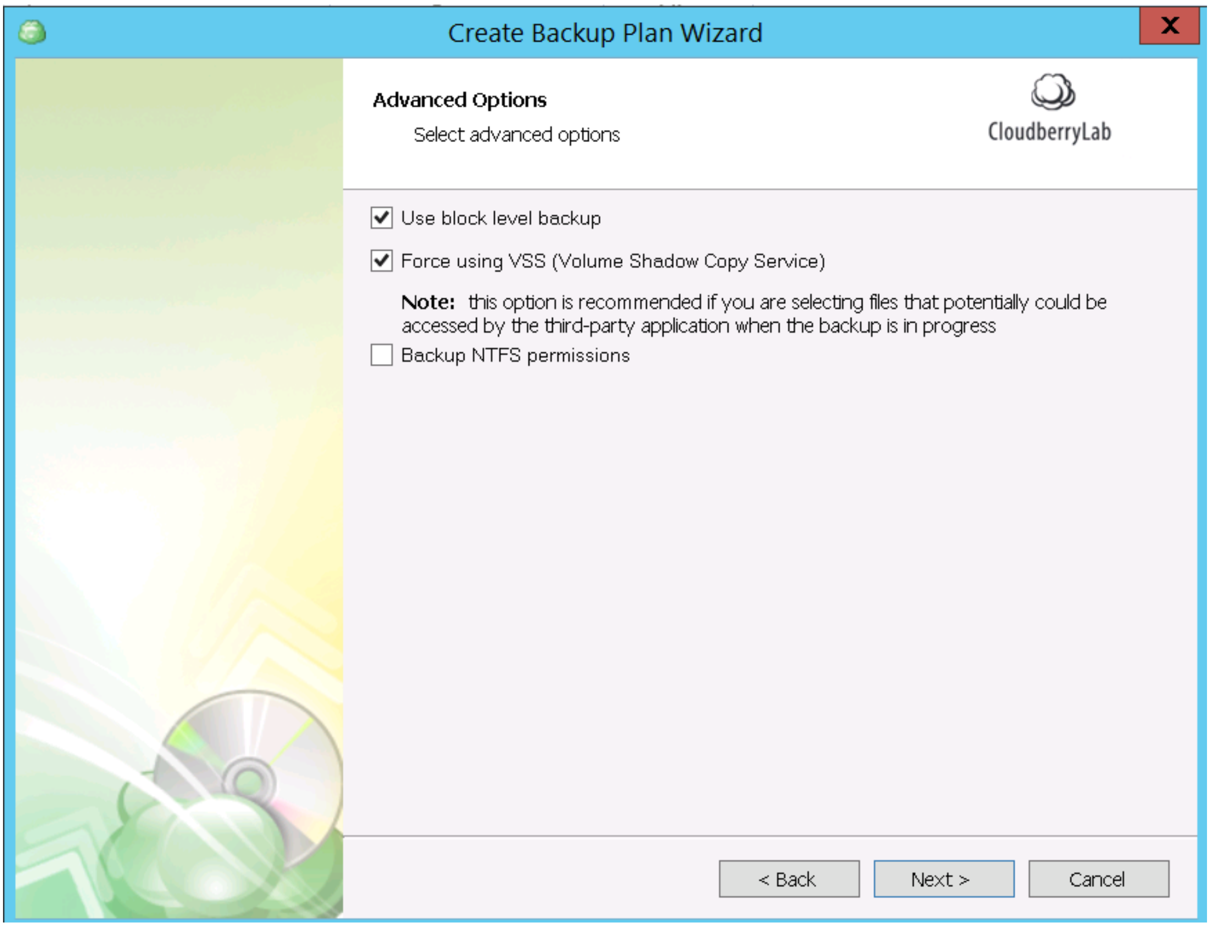
cb-test-s3bucket/

○ **Archive Mode (combine all files into one archive)**

Recommended when you back up a lot of small files to reduce number of requests to cloud storage

9. If you've chosen the Advanced mode, you can decide whether to **use VSS** or backup NTFS permissions. Another useful feature is **Block Level Backup**. It reduces network and storage utilization by uploading only those parts of the files which have been modified since the last

run. Properties of the feature adjusted on the **Full Backup Schedule Step**.



Advanced Options

Select advanced options

☑ Use block level backup

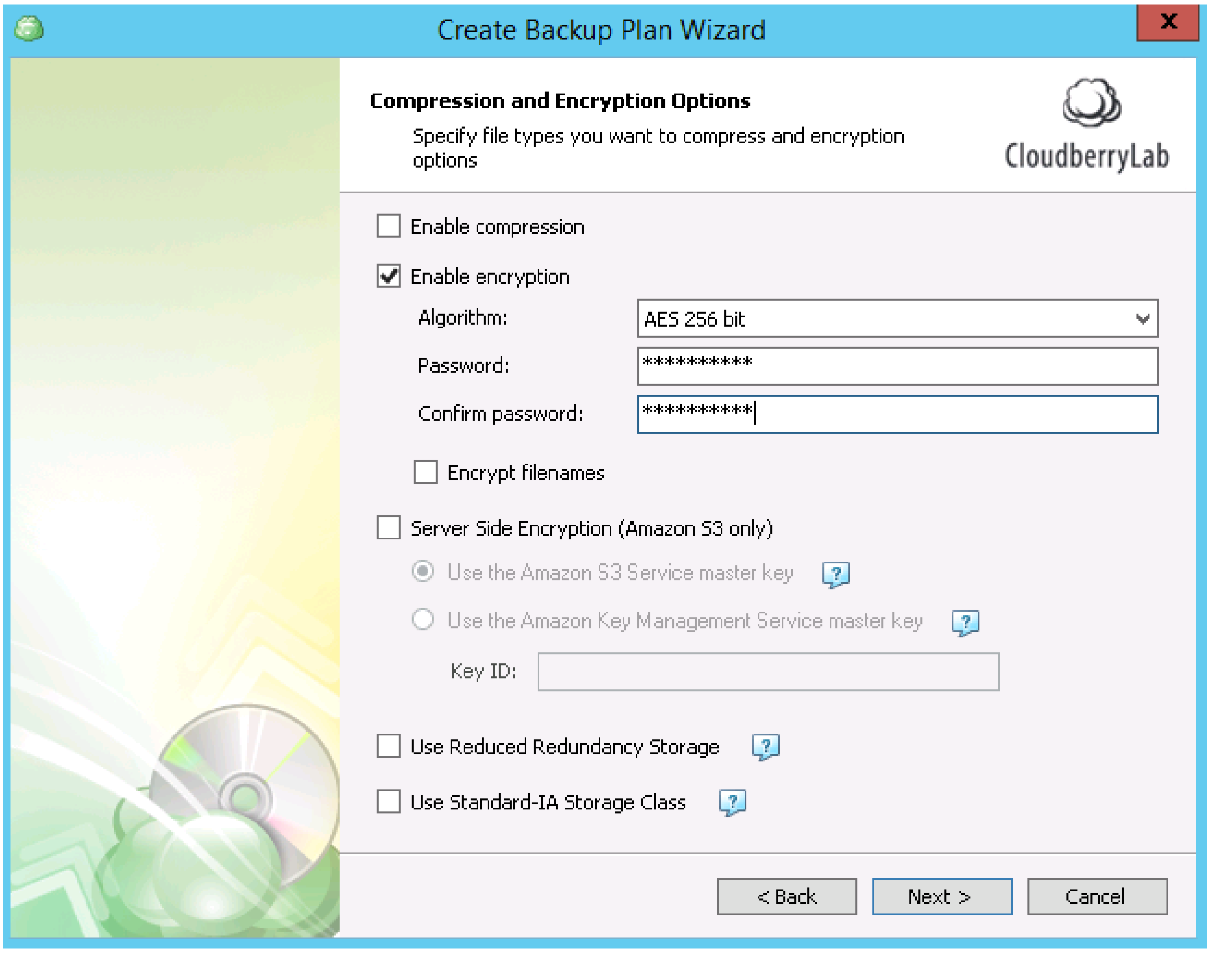
☑ Force using VSS (Volume Shadow Copy Service)

Note: this option is recommended if you are selecting files that potentially could be accessed by the third-party application when the backup is in progress

□ Backup NTFS permissions

10. During the following steps, a number of other options are to be selected, such as types of files and folders to store, limitations by the time of their modification, data compression, and encryption. You can also use particular S3 storage classes to reduce storage expenses. Read

more on the AWS S3 Storage Classes page.



Compression and Encryption Options

Specify file types you want to compress and encryption options

☐ Enable compression

☑ Enable encryption

Algorithm: AES 256 bit

Password: ***********

Confirm password: ***********

☐ Encrypt filenames

☐ Server Side Encryption (Amazon S3 only)

● Use the Amazon S3 Service master key

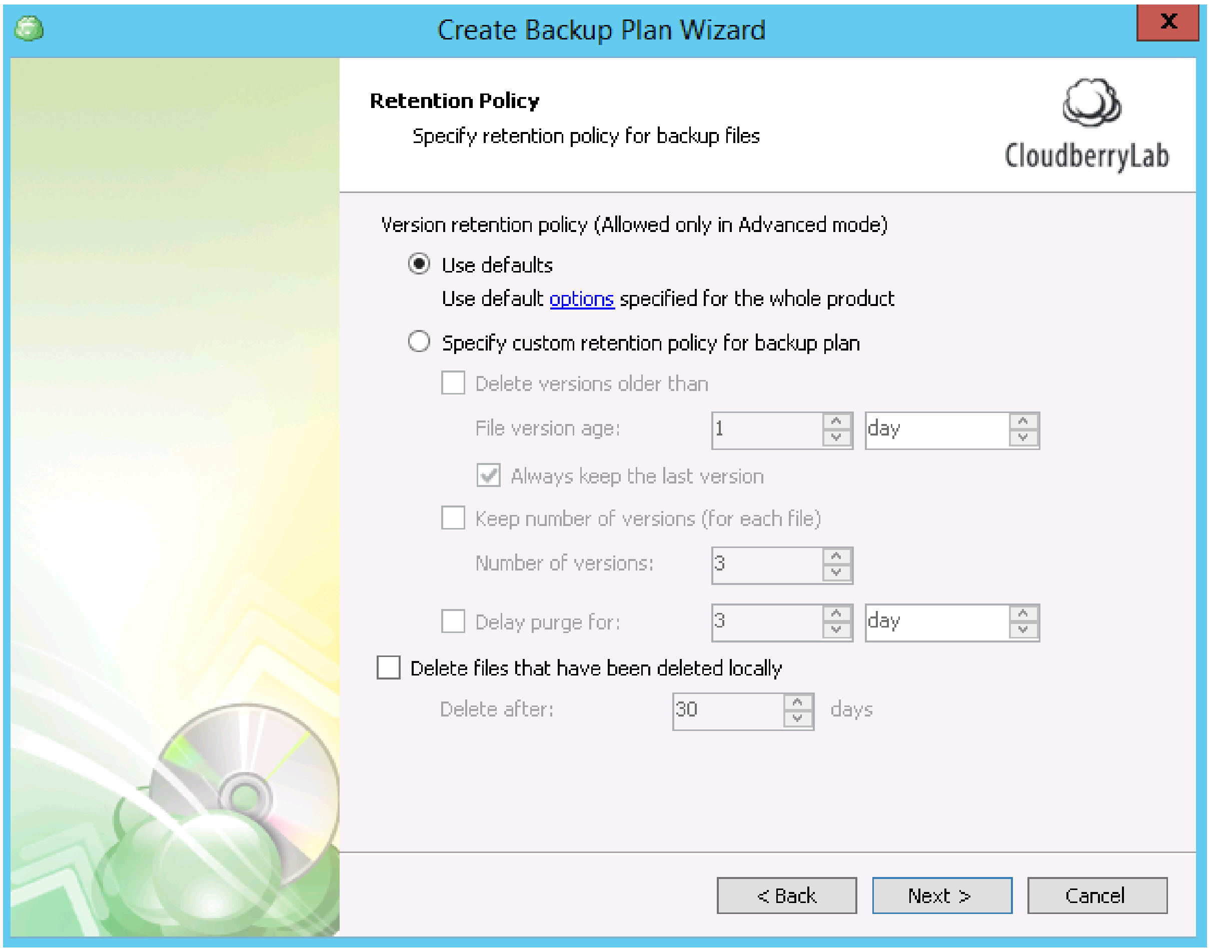
○ Use the Amazon Key Management Service master key

Key ID:

☐ Use Reduced Redundancy Storage

☐ Use Standard-IA Storage Class

11. One of the most useful CBB features is **Retention Policy**. It allows specifying the number of versions to keep, their maximum age and the deletion delay timeout.



Create Backup Plan Wizard

Retention Policy

Specify retention policy for backup files

Version retention policy (Allowed only in Advanced mode)

● Use defaults

Use default options specified for the whole product

○ Specify custom retention policy for backup plan

□ Delete versions older than

File version age: 1 day

☑ Always keep the last version

□ Keep number of versions (for each file)

Number of versions: 3

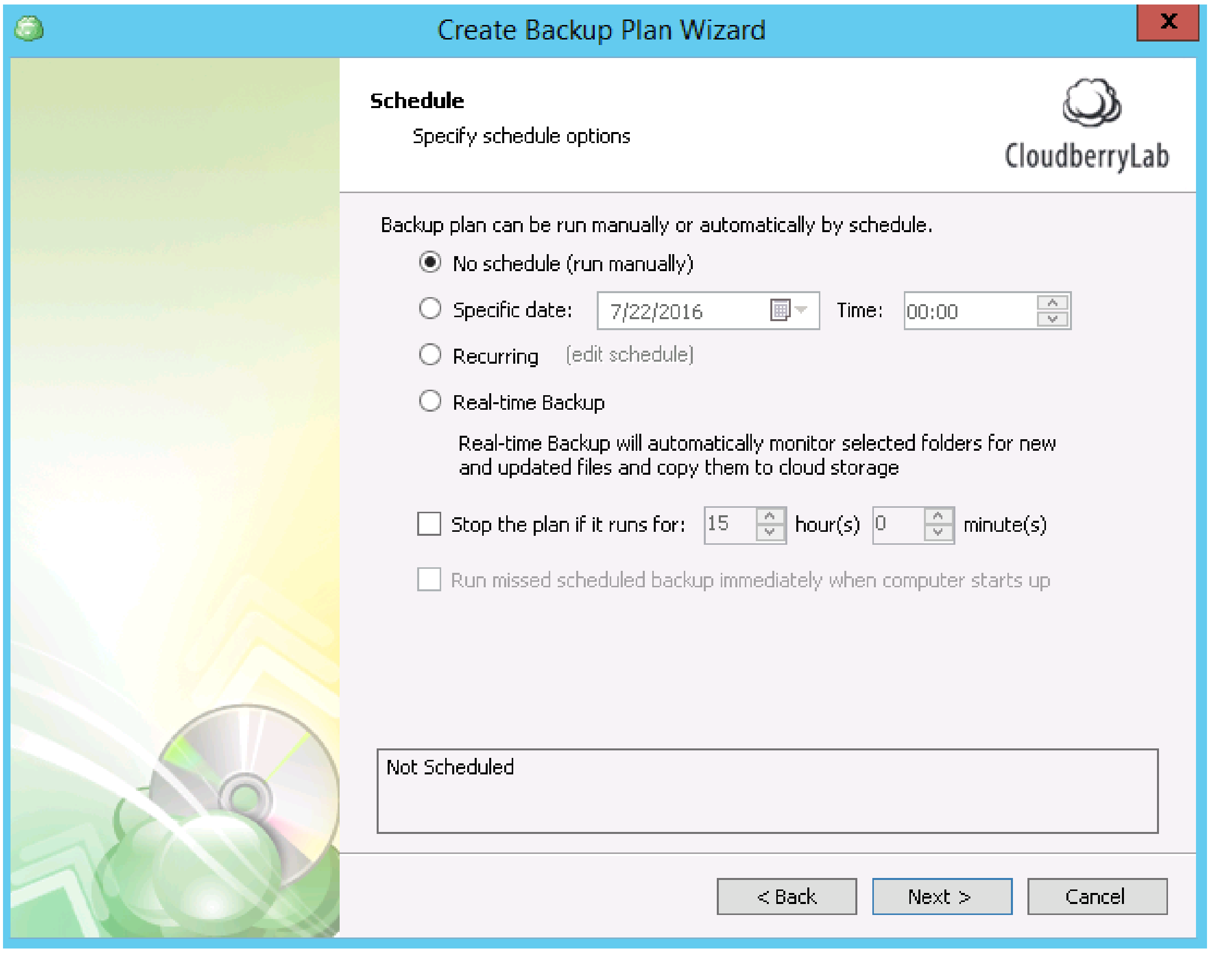
□ Delay purge for: 3 day

□ Delete files that have been deleted locally

Delete after: 30 days

12. You also need to define a **Schedule** for the new plan, allowing CloudBerry Backup to handle backup plans automatically. You can also proceed next without a schedule, thus making the

backup plan launching manual.



Backup plan can be run manually or automatically by schedule.

● No schedule (run manually)

○ Specific date: 7/22/2016 Time: 00:00

○ Recurring (edit schedule)

○ Real-time Backup

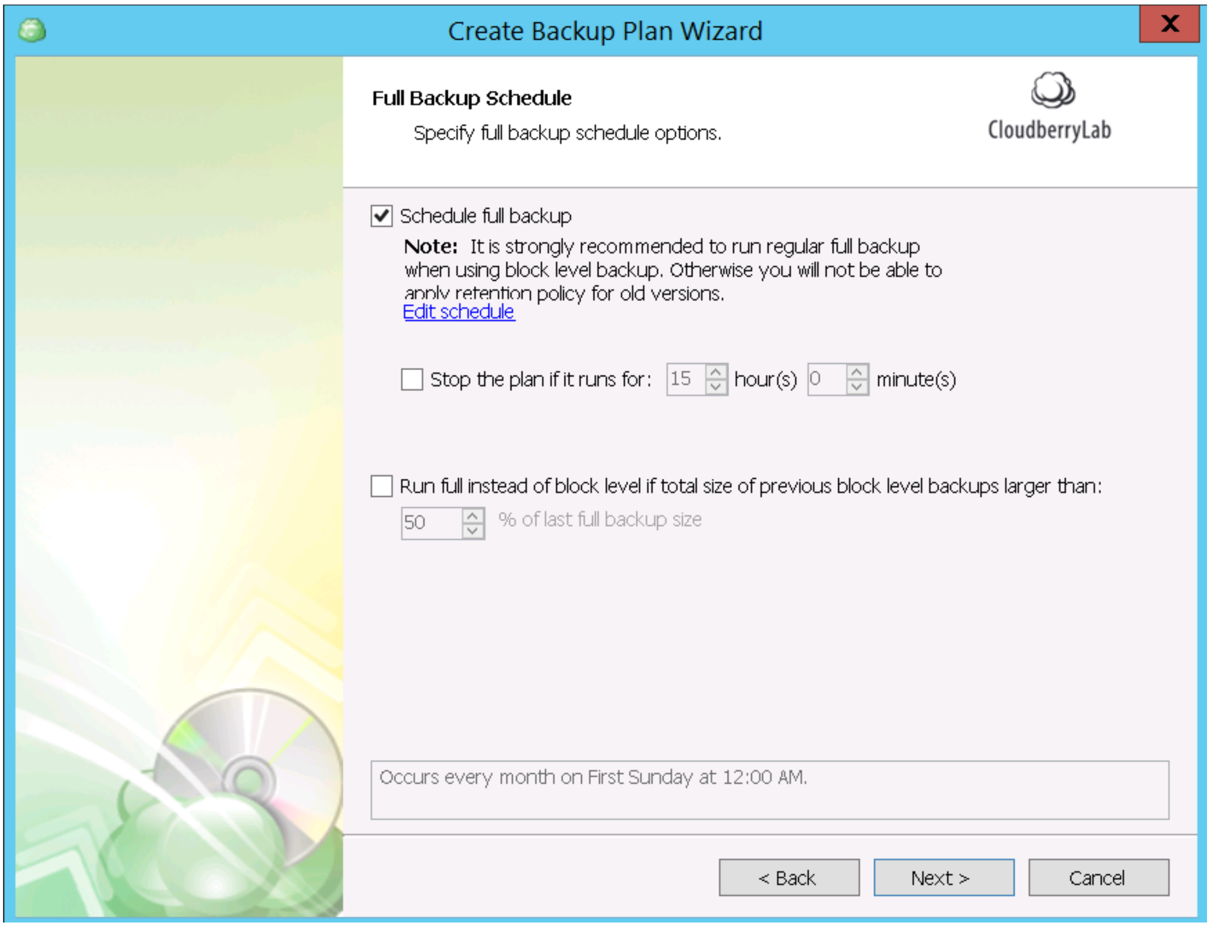
Real-time Backup will automatically monitor selected folders for new and updated files and copy them to cloud storage

□ Stop the plan if it runs for: 15 hour(s) 0 minute(s)

□ Run missed scheduled backup immediately when computer starts up

Not Scheduled

13. If you choose to use **block-level backup**, CBB can periodically copy all volume data. This **Full Backup Schedule** goes aside of general schedule, and isn't an inevitable thing. But if a block-level backup runs every day, it is recommended to make a full backup once a week to increase data durability and facilitate restoration.



Full Backup Schedule

Specify full backup schedule options.

☑ Schedule full backup

Note: It is strongly recommended to run regular full backup when using block level backup. Otherwise you will not be able to apply retention policy for old versions.

Edit schedule

□ Stop the plan if it runs for: 15 hour(s) 0 minute(s)

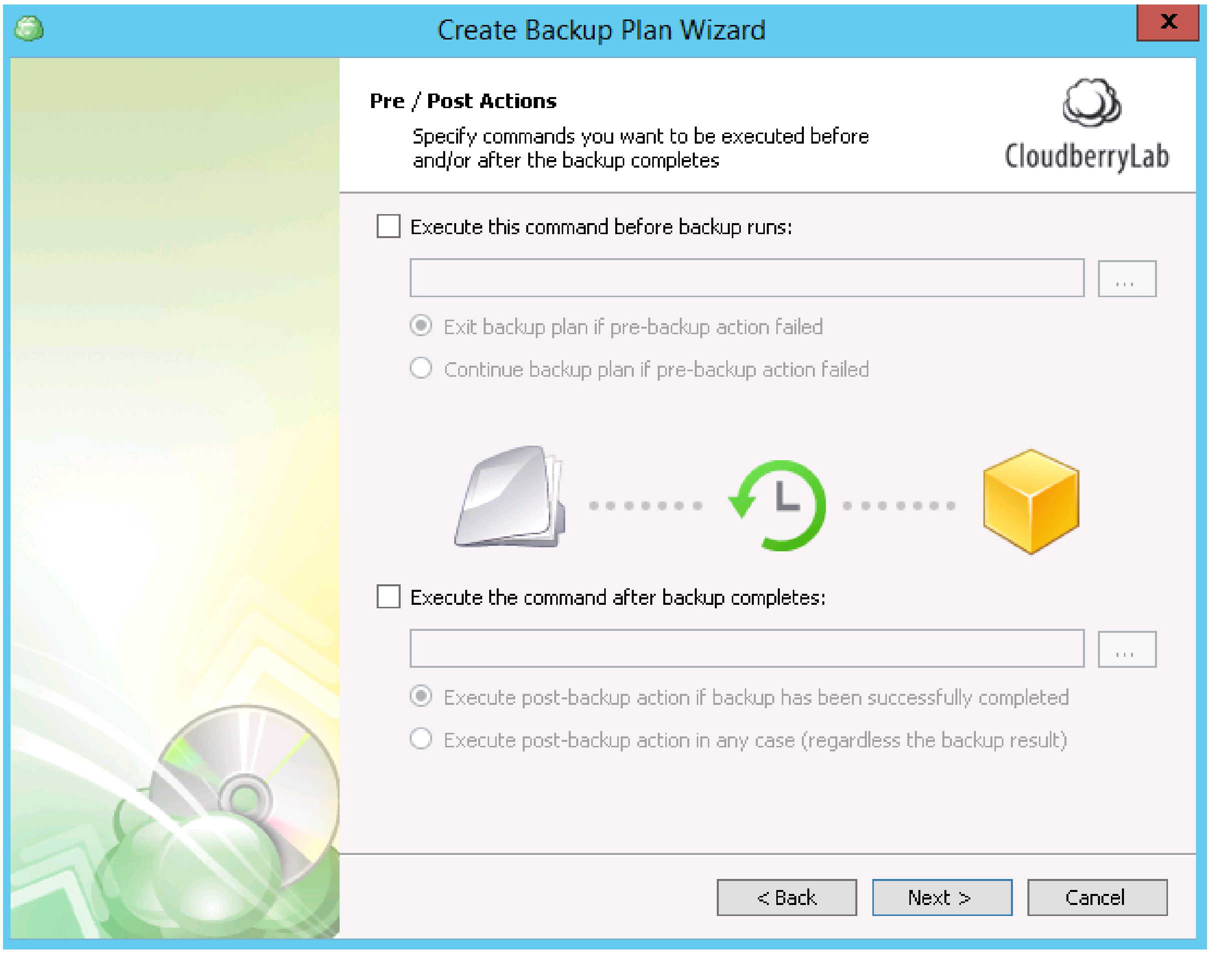
□ Run full instead of block level if total size of previous block level backups larger than:
50 % of last full backup size

Occurs every month on First Sunday at 12:00 AM.

Remember that block-level recovery progresses in two steps: first, you recover the last full backup, then apply all the incremental backups made afterwards.

14. CBB can execute Windows Command Line scripts before or after the backup job. That helps involve third-party software into the backup process or perform additional CBB tasks. See **Advanced Solutions – CloudBerry Backup Advanced Options – Command Line Interface**

section of this document to find out about particular implementations of the feature.



Create Backup Plan Wizard

Pre / Post Actions

Specify commands you want to be executed before and/or after the backup completes

□ Execute this command before backup runs:

● Exit backup plan if pre-backup action failed

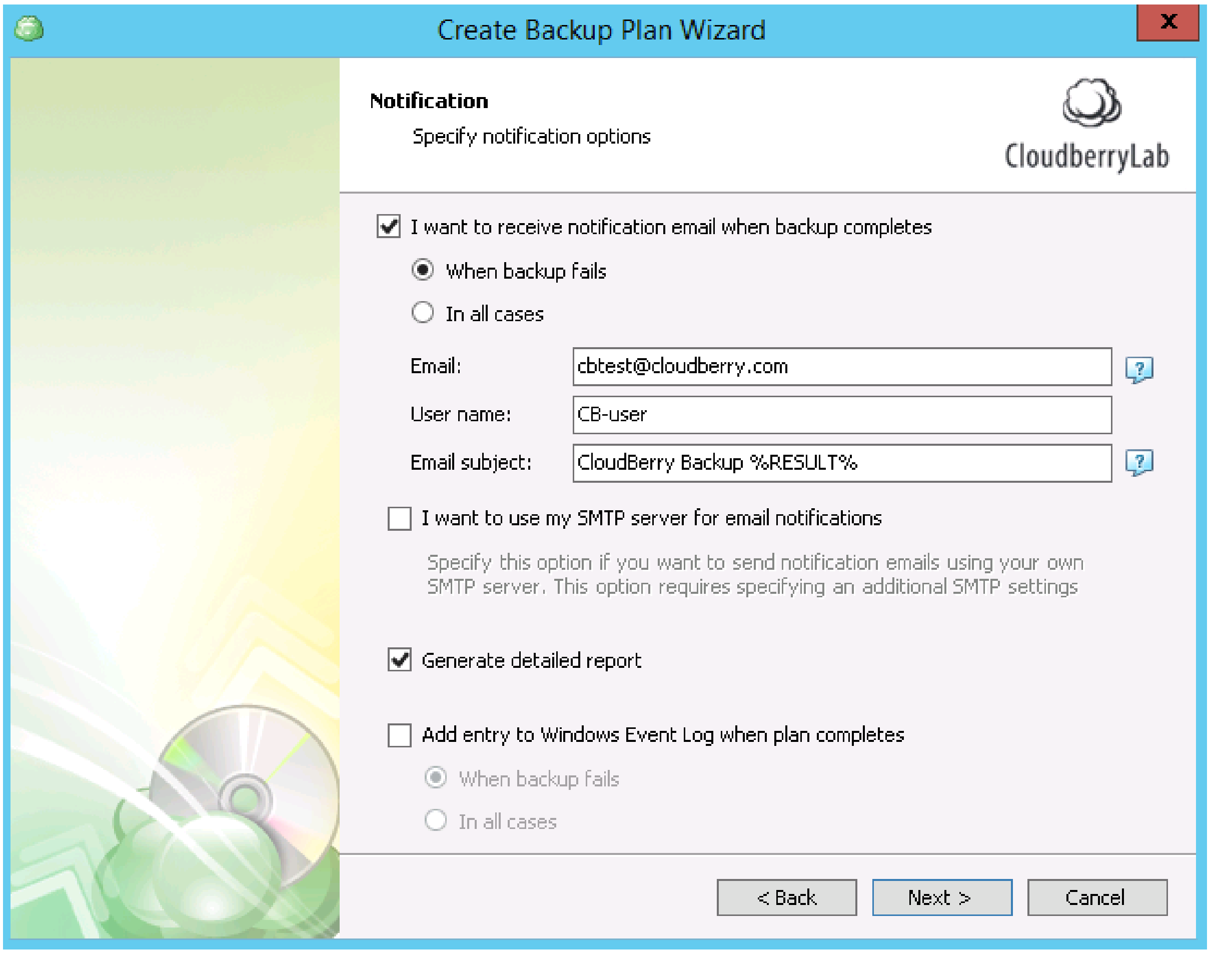
○ Continue backup plan if pre-backup action failed

□ Execute the command after backup completes:

● Execute post-backup action if backup has been successfully completed

○ Execute post-backup action in any case (regardless the backup result)

15. Finally, it is possible to define how CBB can notify you. The backup plan can add status notifications to a Windows event log or send it by email.



Notification

Specify notification options

☑ I want to receive notification email when backup completes

● When backup fails

○ In all cases

Email: cbtest@cloudberry.com

User name: CB-user

Email subject: CloudBerry Backup %RESULT%

□ I want to use my SMTP server for email notifications

Specify this option if you want to send notification emails using your own SMTP server. This option requires specifying an additional SMTP settings

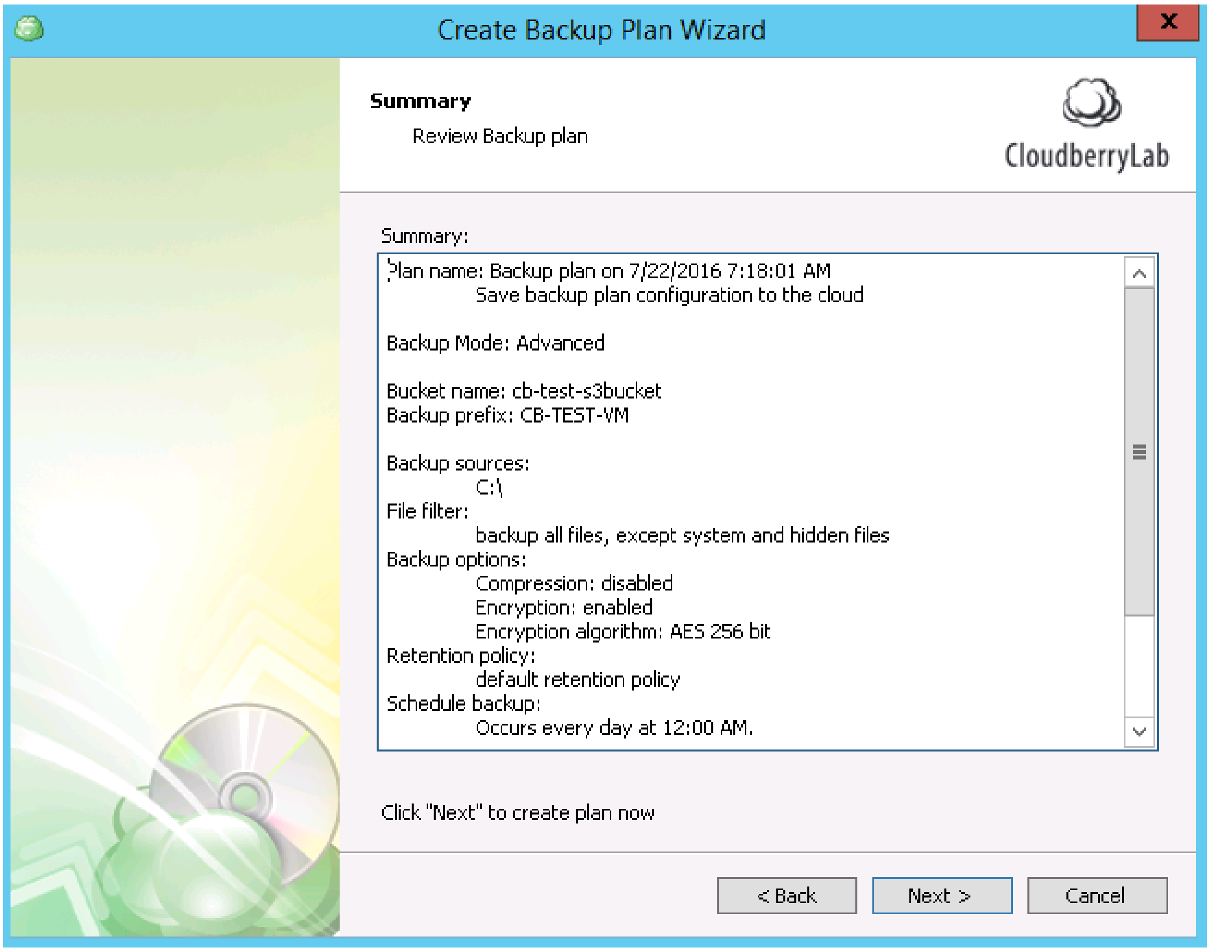
☑ Generate detailed report

□ Add entry to Windows Event Log when plan completes

● When backup fails

○ In all cases

16. After clicking **Next**, a new summary page opens so you could check new settings. Click **Next** to create and launch the new backup plan.



Summary

Review Backup plan

Summary:

```
Plan name: Backup plan on 7/22/2016 7:18:01 AM
          Save backup plan configuration to the cloud

Backup Mode: Advanced

Bucket name: cb-test-s3bucket
Backup prefix: CB-TEST-VM

Backup sources:
          C:\
File filter:
          backup all files, except system and hidden files
Backup options:
          Compression: disabled
          Encryption: enabled
          Encryption algorithm: AES 256 bit
Retention policy:
          default retention policy
Schedule backup:
          Occurs every day at 12:00 AM.
```

Click "Next" to create plan now

Image-level Backup

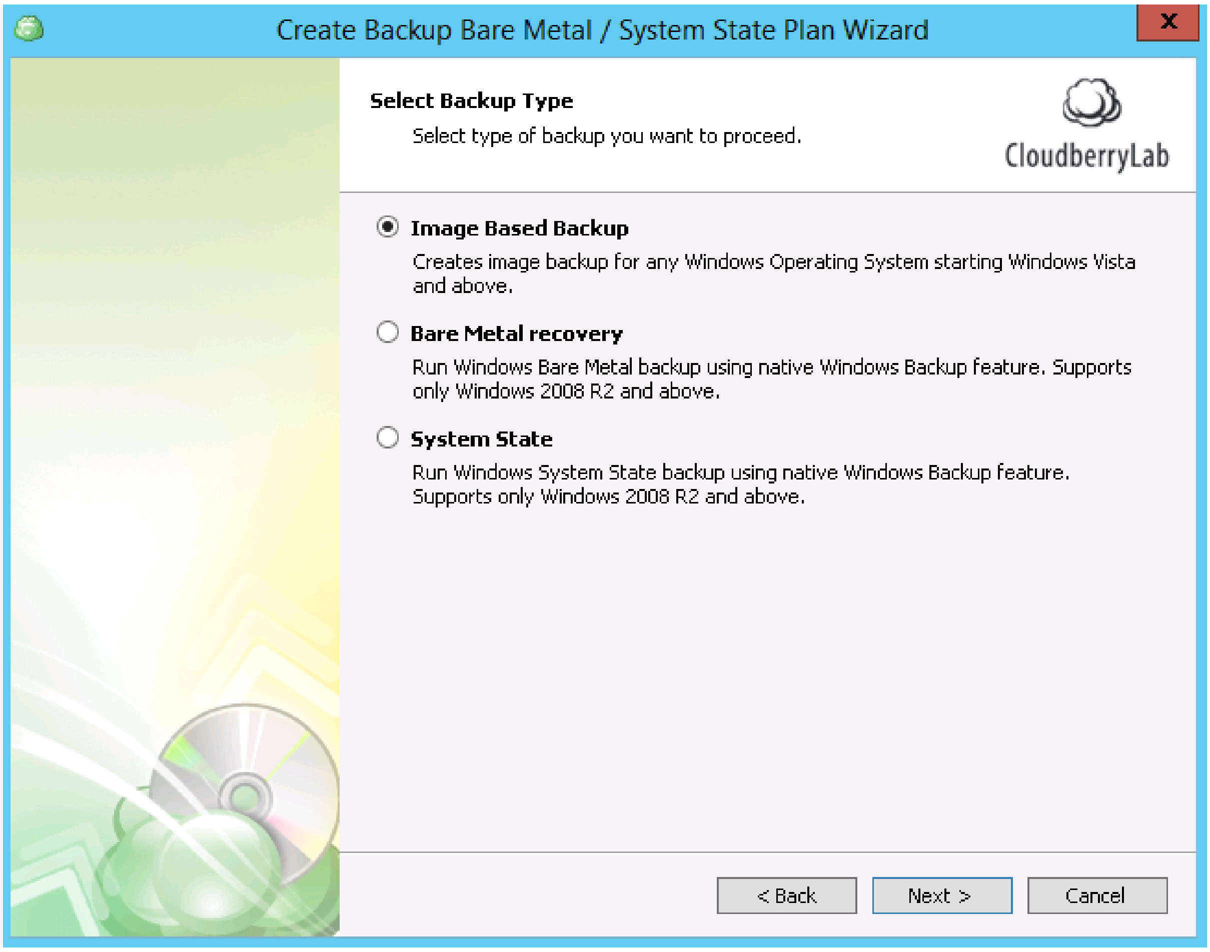
The image is the file containing the disk data, partitions, structure, file system, and other properties. Unlike the archive, the image copies data on a block level. But still, it is possible to retrieve separate files and folders from the image. This backup type is typically used for a disaster recovery, hardware migration, and virtual machines deployment.

To run the image-based backup, press **Bare Metal** button on the **Home** tab.

1. After the backup plan's name specification step you have to select the backup type:

- **Image Based** option copies the disk or its separate partitions. You can also recover separate files from the image. This mode allows restoring VM to EC2, Azure or as a virtual disk.
- **System Image (former Bare Metal)** option backups all root volume with boot files and OS using built-in Windows recovery feature. It's used for restoration to the new hardware or for repair of heavily corrupted system.

- **System State** option copies boot files, registry, drivers and other OS-crucial data with built-in Windows recovery feature. It is often used for a system repairment.



Create Backup Bare Metal / System State Plan Wizard

Select Backup Type

Select type of backup you want to proceed.

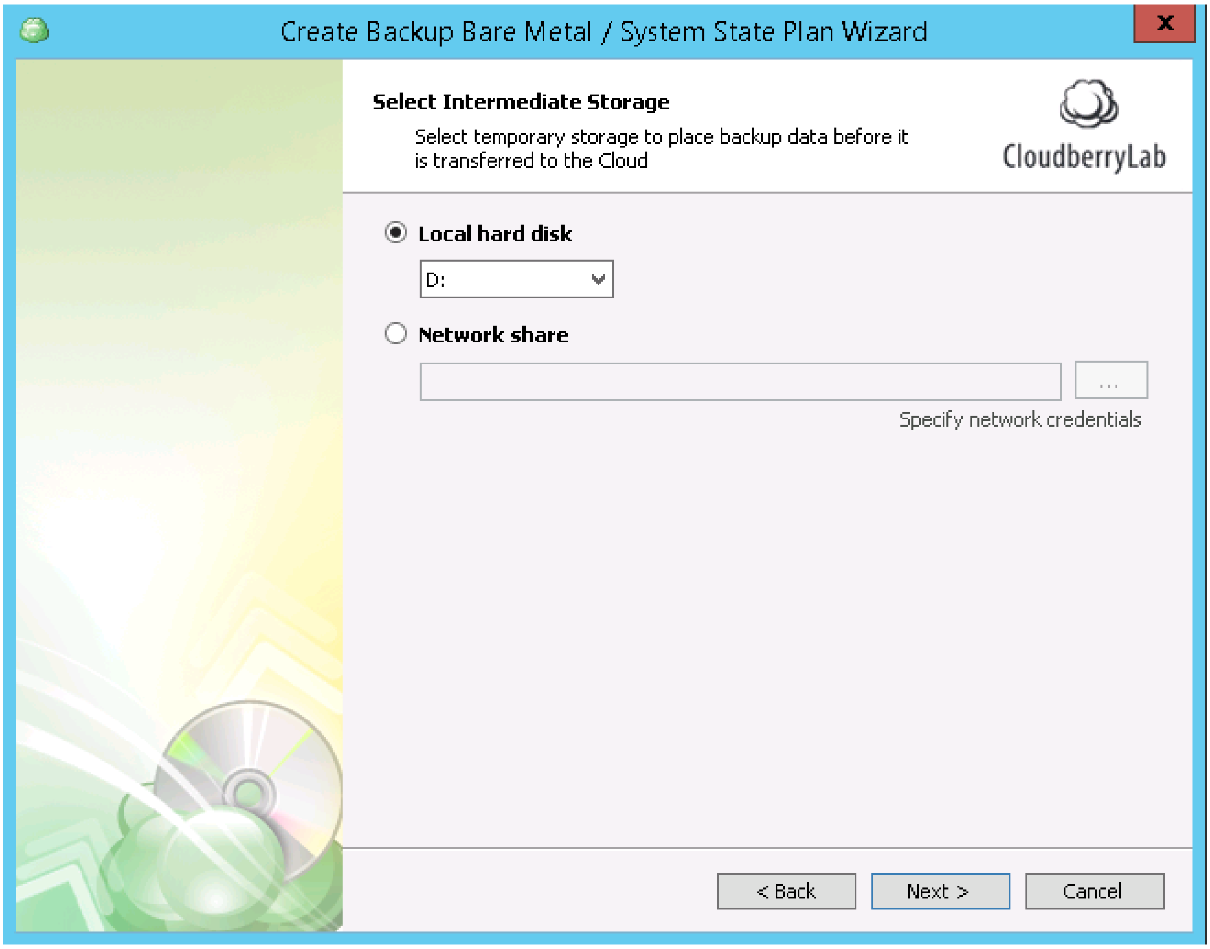
● **Image Based Backup**
Creates image backup for any Windows Operating System starting Windows Vista and above.

○ **Bare Metal recovery**
Run Windows Bare Metal backup using native Windows Backup feature. Supports only Windows 2008 R2 and above.

○ **System State**
Run Windows System State backup using native Windows Backup feature. Supports only Windows 2008 R2 and above.

Both **System Image** and **System State** types require the installation of Windows Backup feature. Moreover, they need an intermediate storage on a separate logical disk or network storage, where

CBB accomplishes images before the upload to the cloud.



Create Backup Bare Metal / System State Plan Wizard

Select Intermediate Storage

Select temporary storage to place backup data before it is transferred to the Cloud

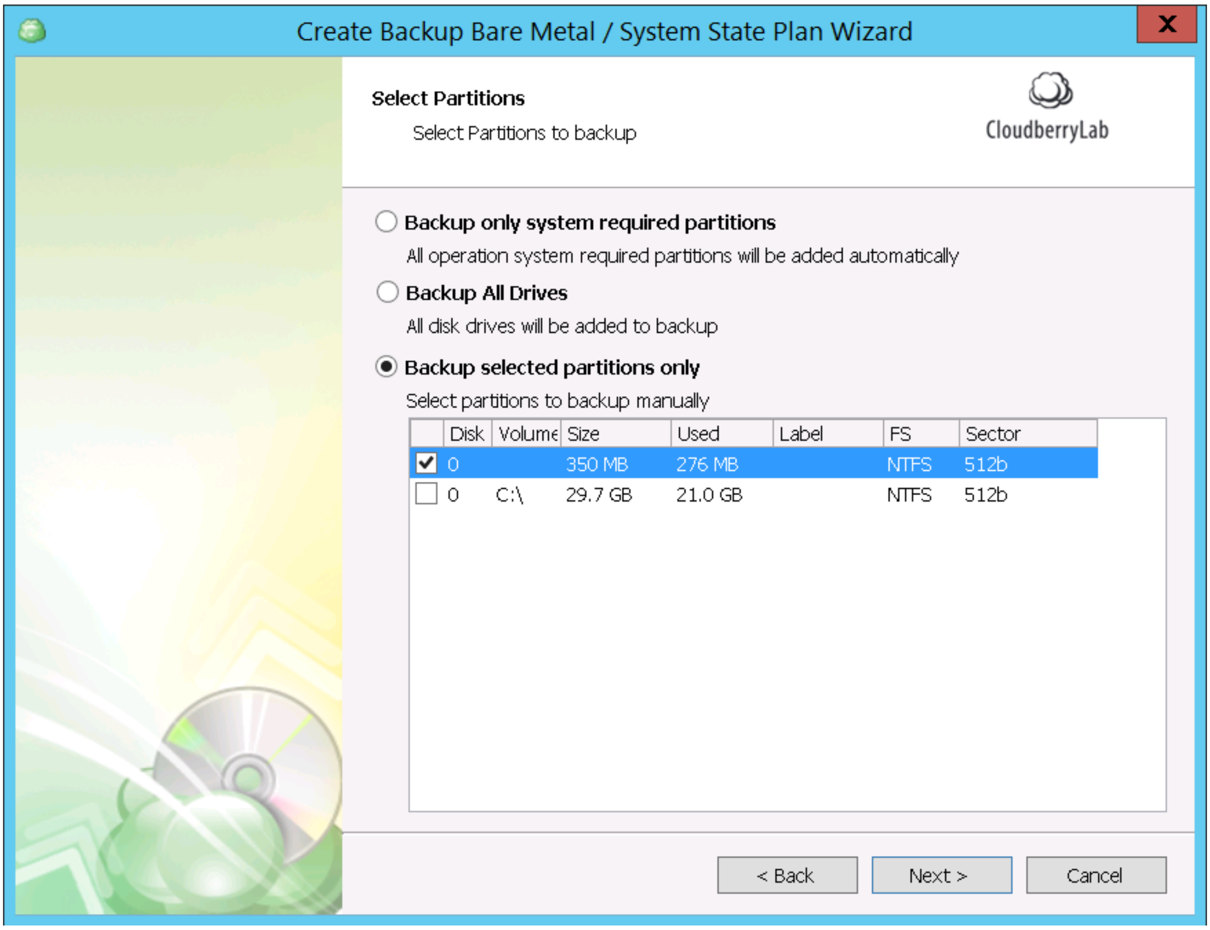
● Local hard disk

D:

○ Network share

Specify network credentials

System Image Wizard has mostly the same steps as Files Wizard. An important specific option is selecting what partitions will be backed up (all drives, system required partitions or selected ones only).



Select Partitions

Select Partitions to backup

○ Backup only system required partitions

All operation system required partitions will be added automatically

○ Backup All Drives

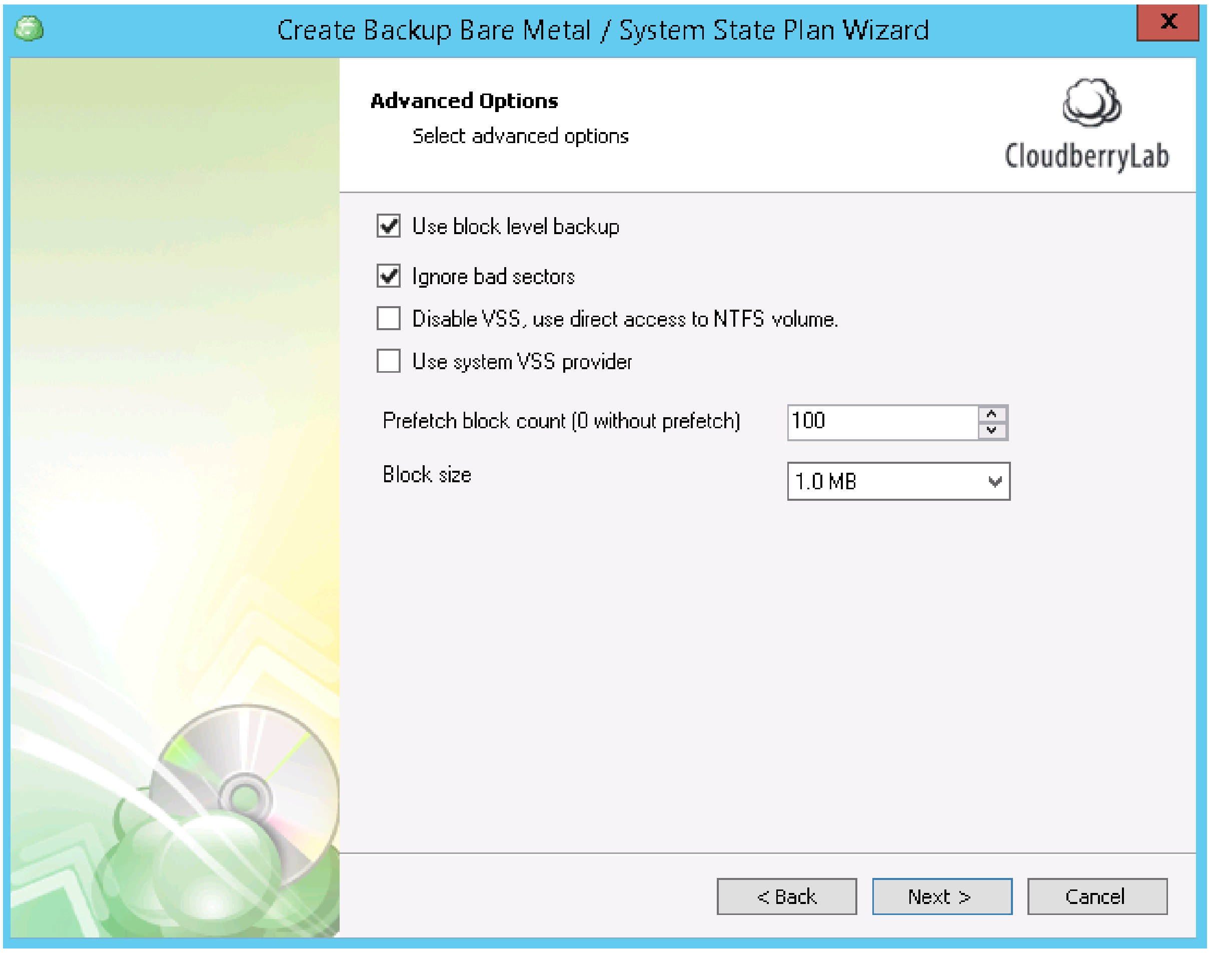
All disk drives will be added to backup

● Backup selected partitions only

Select partitions to backup manually

	Disk	Volume	Size	Used	Label	FS	Sector
☑	0		350 MB	276 MB		NTFS	512b
□	0	C:\	29.7 GB	21.0 GB		NTFS	512b

Also, there are several advanced options such as **Ignoring damaged disk** sectors or using direct access to **NTFS partitions. Block-Level backup** is available as well, and you can specify custom block size to make disk space saving even more significant.



Create Backup Bare Metal / System State Plan Wizard

Advanced Options

Select advanced options

☑ Use block level backup

☑ Ignore bad sectors

☐ Disable VSS, use direct access to NTFS volume.

☐ Use system VSS provider

Prefetch block count (0 without prefetch): 100

Block size: 1.0 MB

Next, you can set up such options as encryption, compression, schedule, full backup schedule (if you've chosen block-level backup), notifications, etc. As always, you will see the summary of all enabled features at the end.

Synthetic Backup

CloudBerry Backup also supports **Synthetic Full Backup**. This enhancement decreases the amount of data upload to the cloud and accelerates the overall process. We are going to explain the technical background and show how to use the new feature.

Block-Level Analysis

CloudBerry Backup (CBB) features block-level backups which contain only modified image blocks which, in turn, decreases the amount of data transferred to the cloud. But avoiding data losses and making recovery faster requires regular full backups, which upload a large amount of data, even if it's already stored in the previous copies. You can read more about this process in Block vs. Full Backup post.

Synthetic Full Backup (SFB) helps to reduce the amount of data uploaded and accelerates a full backup creation. SFB compares local data blocks with the cloud repository and then uploads only modified ones. Currently existing blocks in the cloud that haven't been modified since the last full backup or the last synthetic full session are automatically copied to the new backup file by AWS services within the cloud.

In the upshot, Synthetic Full Backup helps to substantially decrease upload volume from the local computer. According to our tests it makes backup process up to 20 times faster (since copying files withing the cloud is considerably faster than copying them from the local PC to the cloud). At the moment, the feature sticks to the AWS as it is one of the few systems that allow moving data blocks within the cloud storage. Now we're working on implementing this feature for Azure Blob storage.

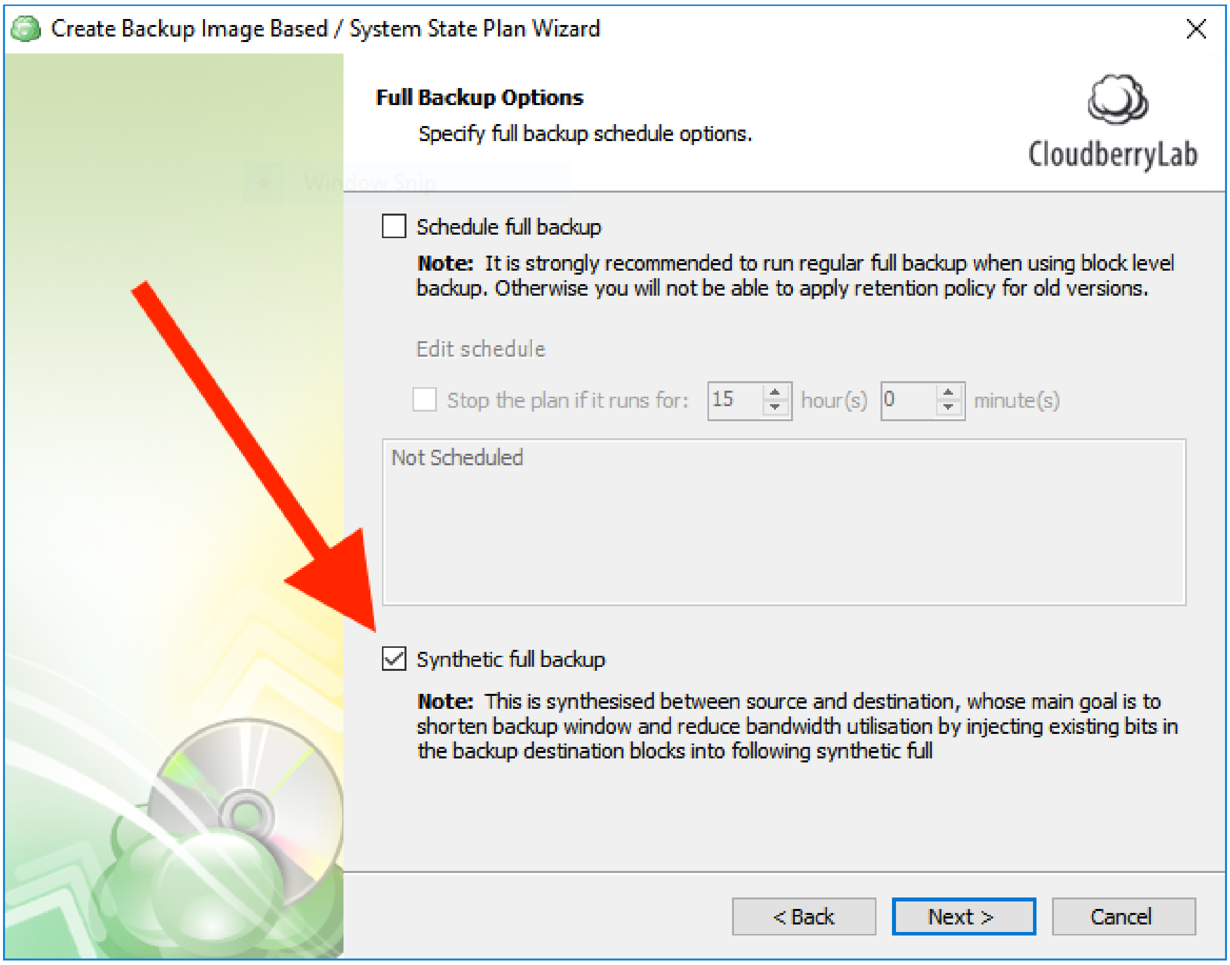
If you're using synthetic backup with Amazon S3 Standard-IA storage class, bear in mind one proviso regarding the pricing policy. When you initiate the second full back-up, the principal part of those files will be copied within the cloud itself. And you will be charged accordingly — $0.01/GB.

How to Enable Synthetic Backup?

There are some restrictions on using the Synthetic Full Backup:

- Amazon S3 must be the target cloud storage.
- Encryption options must remain unchanged since the last full backup.
- One of more full backups have to be made before you activate synthetic backup.

To enable the new feature, create a new image-based plan. Select the **block-level** checkbox when configuring a particular plan. Then select the **Synthetic full backup** checkbox.



Create Backup Image Based / System State Plan Wizard

Full Backup Options

Specify full backup schedule options.

□ Schedule full backup

Note: It is strongly recommended to run regular full backup when using block level backup. Otherwise you will not be able to apply retention policy for old versions.

Edit schedule

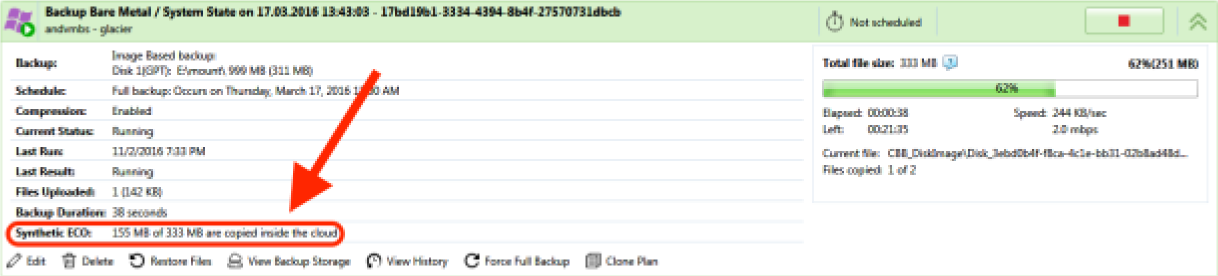
□ Stop the plan if it runs for: 15 hour(s) 0 minute(s)

Not Scheduled

☑ Synthetic full backup

Note: This is synthesised between source and destination, whose main goal is to shorten backup window and reduce bandwidth utilisation by injecting existing bits in the backup destination blocks into following synthetic full

Then, force a full backup from the Backup Plans tab to start using the SFB feature. You can see it working in the Progress Bar.



Backup Bare Metal / System State on 17.03.2016 13:43:03 - 17bd19b1-3334-4394-8b4f-27570731dbcb
andvmbs - glacier

Not scheduled

Backup:	Image Based backup: Disk 1(GPT): E:\mount\ 999 MB (311 MB)
Schedule:	Full backup: Occurs on Thursday, March 17, 2016 1[illegible]0 AM
Compression:	Enabled
Current Status:	Running
Last Run:	11/2/2016 7:33 PM
Last Result:	Running
Files Uploaded:	1 (142 KB)
Backup Duration:	38 seconds
Synthetic ECO:	155 MB of 333 MB are copied inside the cloud

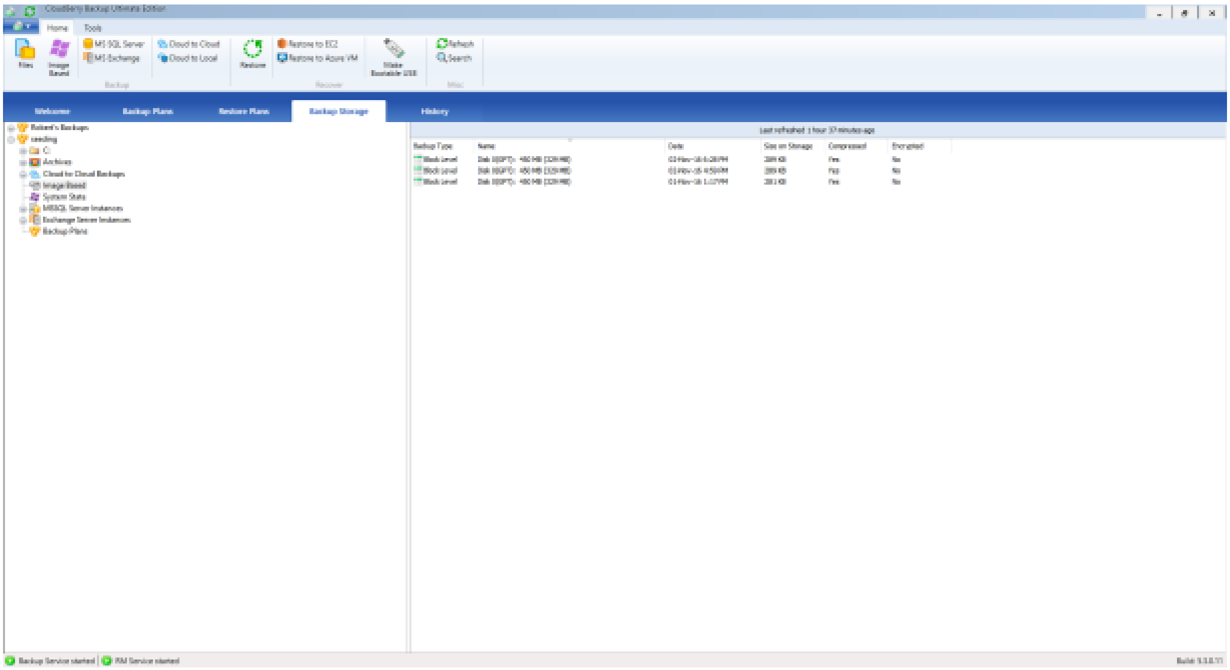
Total file size: 333 MB **62%(251 MB)**

62%

Elapsed: 00:00:38 Speed: 244 KB/sec
Left: 00:21:35 2.0 mbps

Current file: CBB_DiskImage\Disk_3ebd0b4f-f8ca-4c1e-bb31-02b8ad48d...
Files copied: 1 of 2

The synthetic image will display under the **Backup Storage** tab.



Backup Type	Name	Date	Size on Storage	Compressed	Encrypted
Block Level	Disk 0(GPT): 450 MB (329 MB)	03-Nov-16 6:28 PM	289 KB	Yes	No
Block Level	Disk 0(GPT): 450 MB (329 MB)	03-Nov-16 4:50 PM	289 KB	Yes	No
Block Level	Disk 0(GPT): 450 MB (329 MB)	03-Nov-16 1:17 PM	281 KB	Yes	No

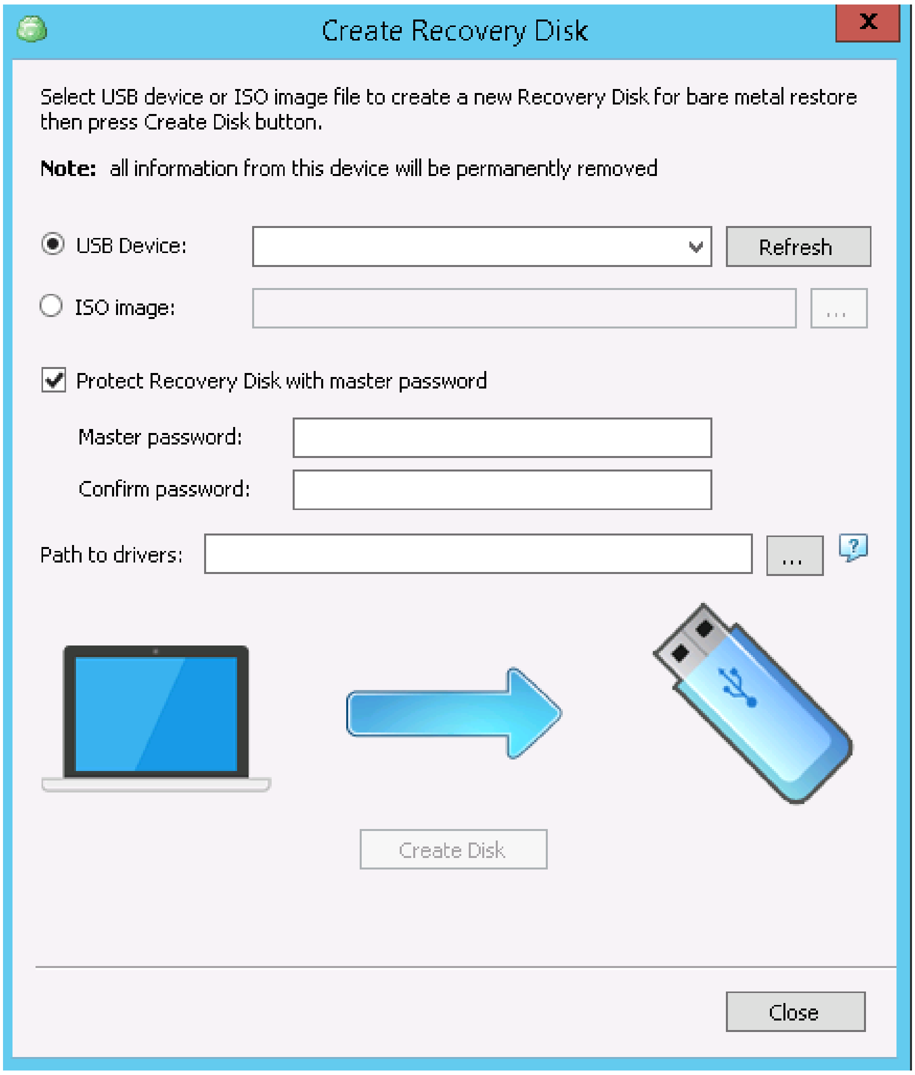
CloudBerry Backup identifies synthetic image as a full backup because there is no technical distinction between them so that you can operate them with CloudBerry Explorer, CloudBerry Drive or other third-party apps.

Note that using this feature makes sense only if the source partition is larger than 100MB.

Bootable USB Creation

With CloudBerry Backup it is possible to create a recovery disk, which can fix the system in case of a critical error, outage or to move the system to another device. As an option, it can create an ISO image to deploy the recovery data on other storage facilities such as optical disks, Storage Area Network devices, etc.

Click on **Make bootable USB** button on **Home** tab and select an option to create a bare metal restoration disk. You can also protect the drive with a password.



Create Recovery Disk

Select USB device or ISO image file to create a new Recovery Disk for bare metal restore then press Create Disk button.

Note: all information from this device will be permanently removed

● USB Device:

○ ISO image:

☑ Protect Recovery Disk with master password

Master password:

Confirm password:

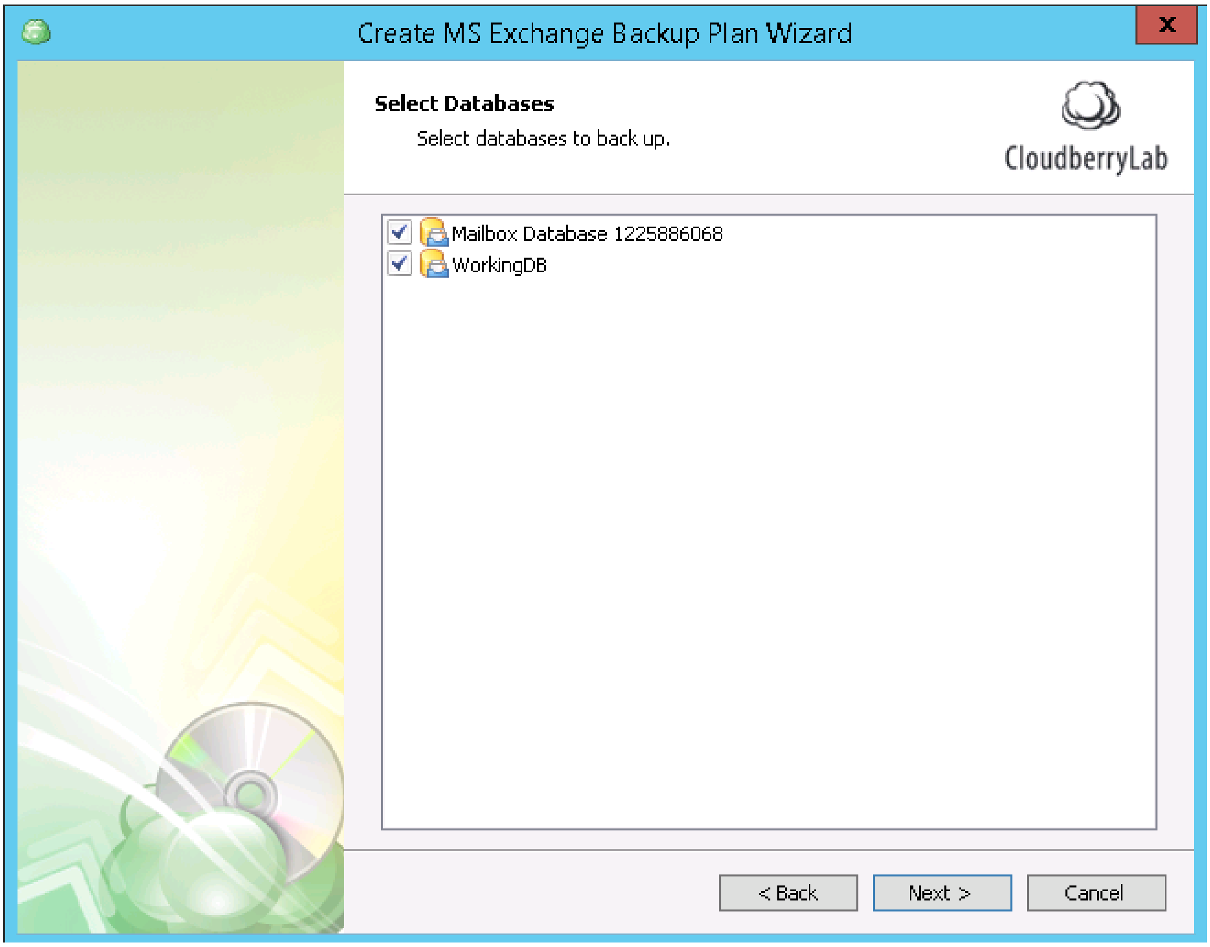
Path to drivers:

Microsoft Exchange Backup

Main structural units of Microsoft Exchange is **EDB-files and logs**, which contain all user data like emails, contacts, calendars, etc. File level backup is too clumsy here because it needs accurate option adjustment, and image-based takes too much storage place. To facilitate Exchange server maintenance, we designed particular backup technique.

Use Exchange Backup Wizard to create a separate backup of a Microsoft Exchange server. It starts by pressing **Microsoft Exchange** button on the **Home** tab, or picking **Backup Microsoft Exchange** on **Welcome** tab.

1. After choosing the storage account and specifying plan name, you have to select databases for backup.

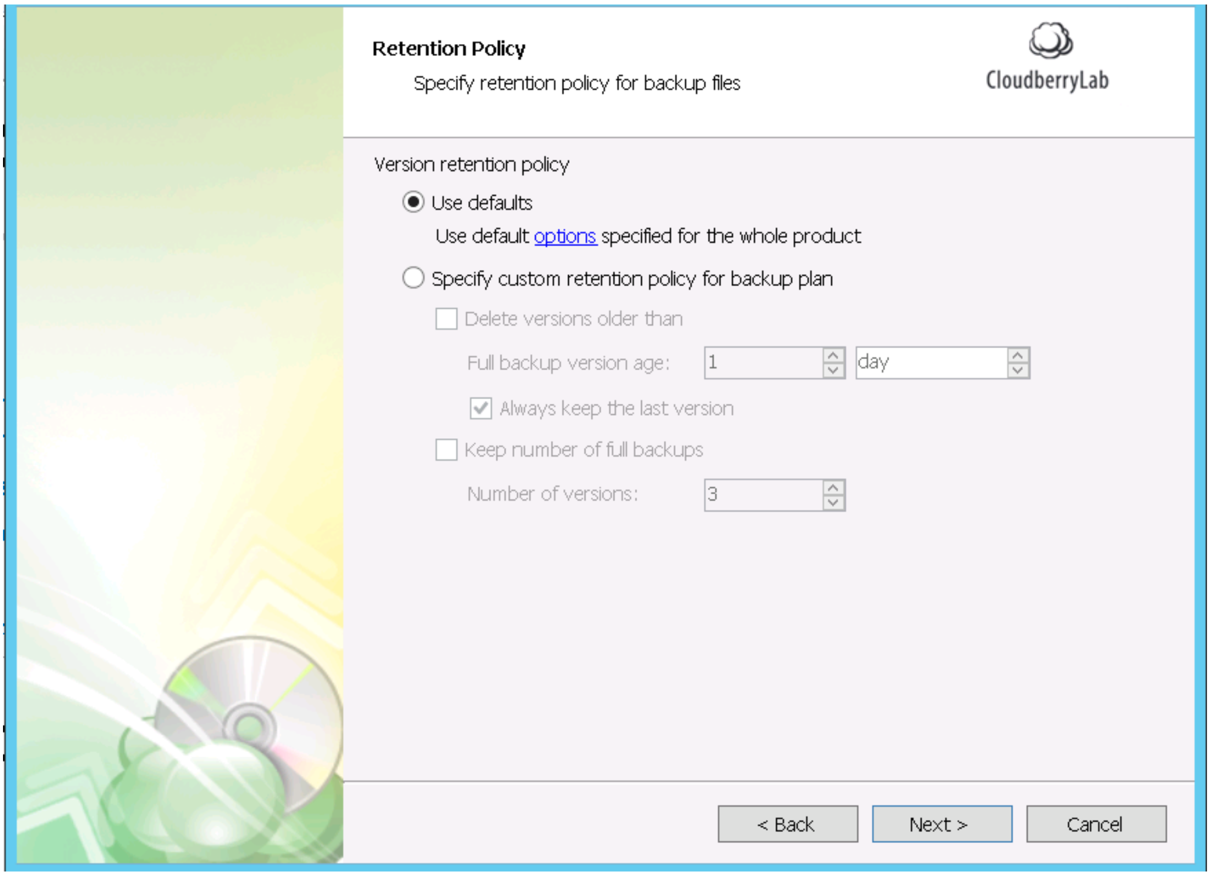


Create MS Exchange Backup Plan Wizard
Select Databases
Select databases to back up.
CloudberryLab
< Back
Next >
Cancel

☑ Mailbox Database 1225886068
☑ WorkingDB

2. During the next steps, you can enable encryption, compression, scheduling, and configure **Retention Policy**. In essence, it is similar to retention policy of file or image-level backup. CBB creates a version of the file on each time it is modified, thus limiting an amount of versions to

be kept for one file. This helps to avoid backup size overflow.



Retention Policy

Specify retention policy for backup files

Version retention policy

● Use defaults

Use default options specified for the whole product

○ Specify custom retention policy for backup plan

□ Delete versions older than

Full backup version age: 1 day

☑ Always keep the last version

□ Keep number of full backups

Number of versions: 3

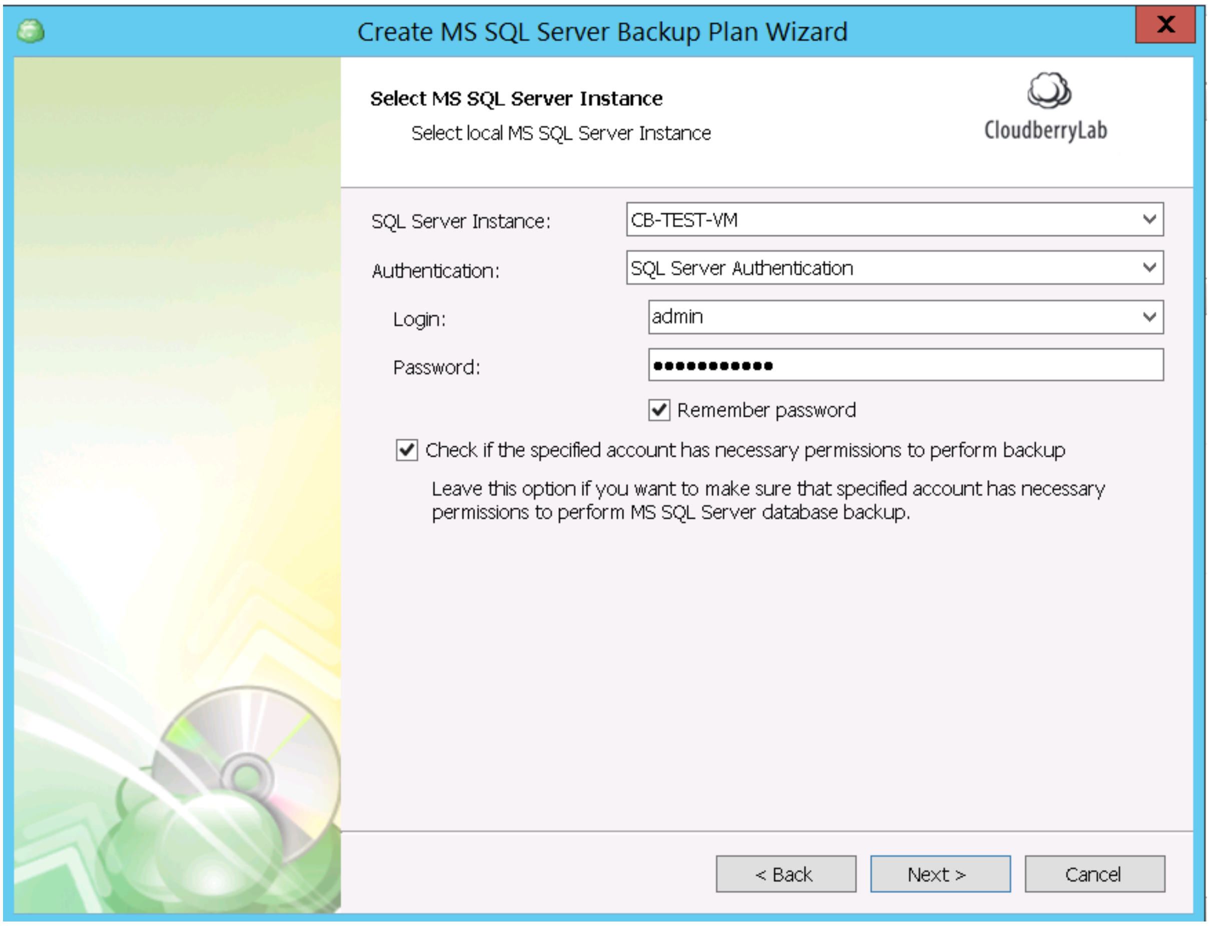
3. Then, you need to specify the **Schedules** of full and incremental backups. It works same as for block-level backup – to recover the database, you need to restore the latest full backup and then update it with the modified files.
4. Finally, it is necessary to set up the notifications and pre-post actions. The list of enabled functions displays at the final step.

Microsoft SQL Server Backup

If you need to backup Microsoft SQL databases separately, CloudBerry Backup can easily cope with this task. CBB can use any of the authorization methods available and create a backup only of chosen database elements.

Activate Backup Plan Wizard by clicking on **Microsoft SQL Server** button on **Home** tab, or by selecting **Backup Microsoft SQL Server** on the **Welcome** tab.

1. Specify the backup plan name, and then select which **SQL instance to backup** and **authentication method** for CBB to access server. You can also check whether selected SQL login has **sysadmin** role, which is necessary for full-fledged backup.



Create MS SQL Server Backup Plan Wizard

Select MS SQL Server Instance

Select local MS SQL Server Instance

SQL Server Instance: CB-TEST-VM

Authentication: SQL Server Authentication

Login: admin

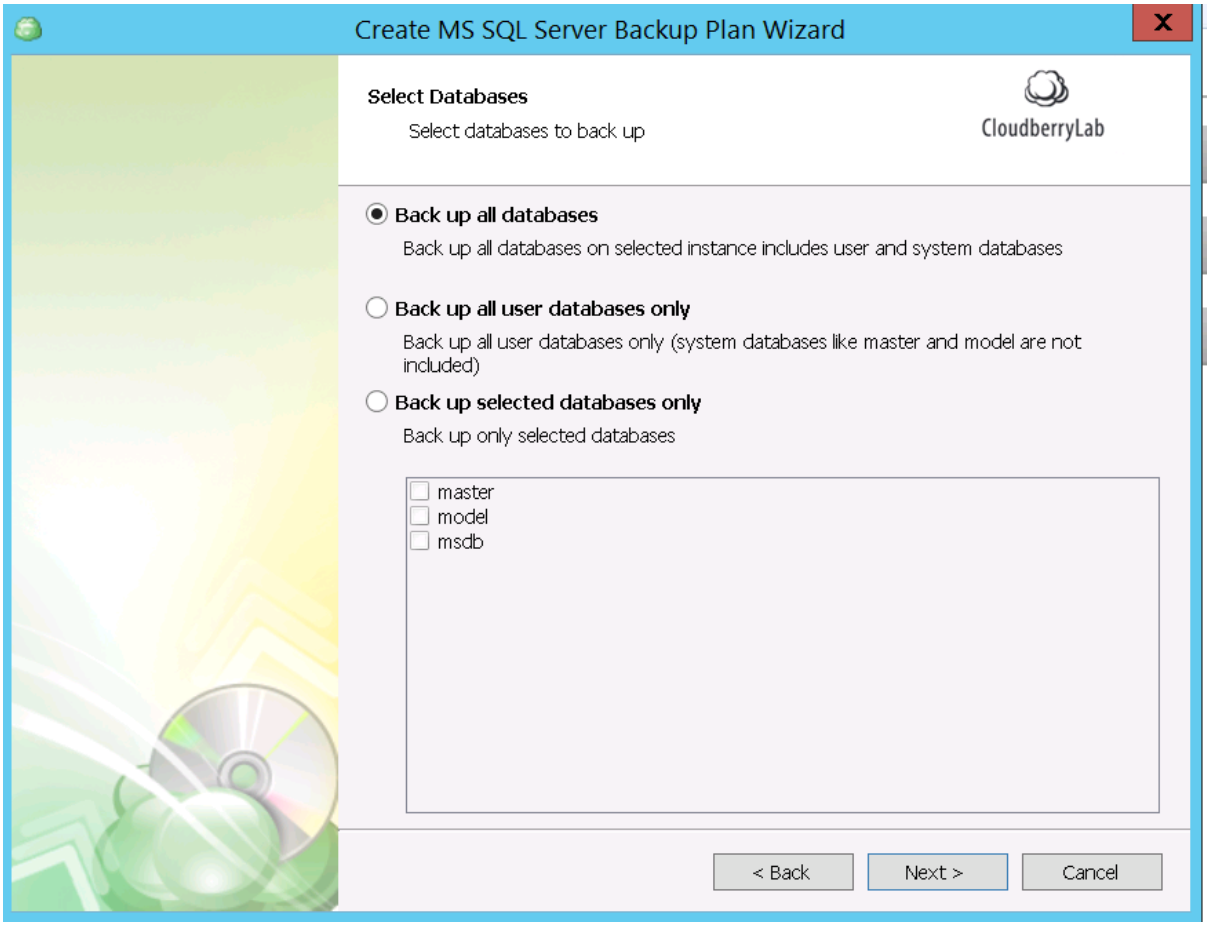
Password: ●●●●●●●●●●●●

☑ Remember password

☑ Check if the specified account has necessary permissions to perform backup

Leave this option if you want to make sure that specified account has necessary permissions to perform MS SQL Server database backup.

2. Then select databases for backup.



Create MS SQL Server Backup Plan Wizard

Select Databases

Select databases to back up

● **Back up all databases**

Back up all databases on selected instance includes user and system databases

○ **Back up all user databases only**

Back up all user databases only (system databases like master and model are not included)

○ **Back up selected databases only**

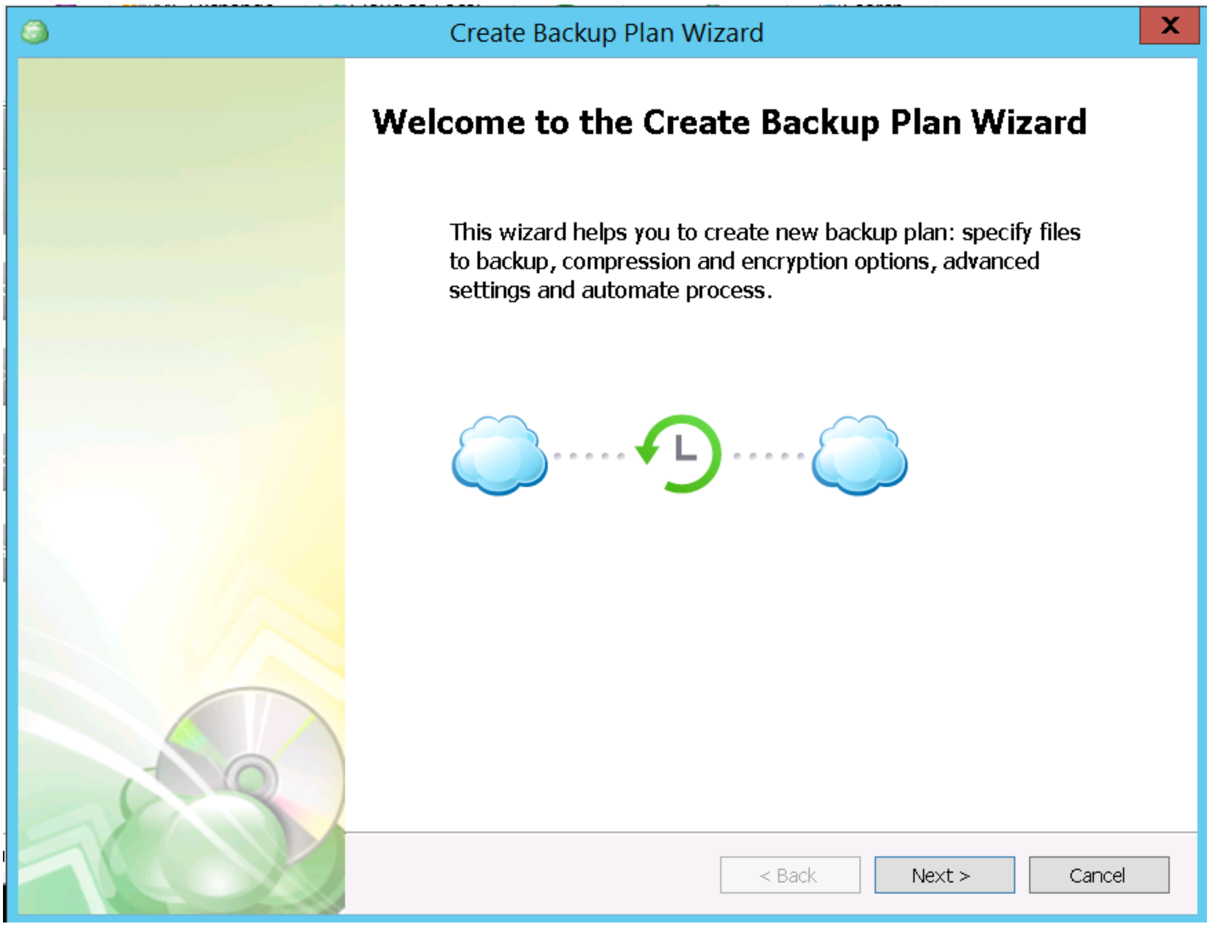
Back up only selected databases

□ master
□ model
□ msdb

3. Finally, you set up the rest of the options: retention policy of database versions, email notifications, maintenance schedule, etc. All features enabled will display on the **Summary** screen.

Cloud to Cloud Backup

CBB can backup your data stored on the cloud storage, or increase durability of the offsite-stored backups with Cloud to Cloud Backup Plan Wizard, which accessible under the **Cloud to Cloud** button on the **Home** tab.

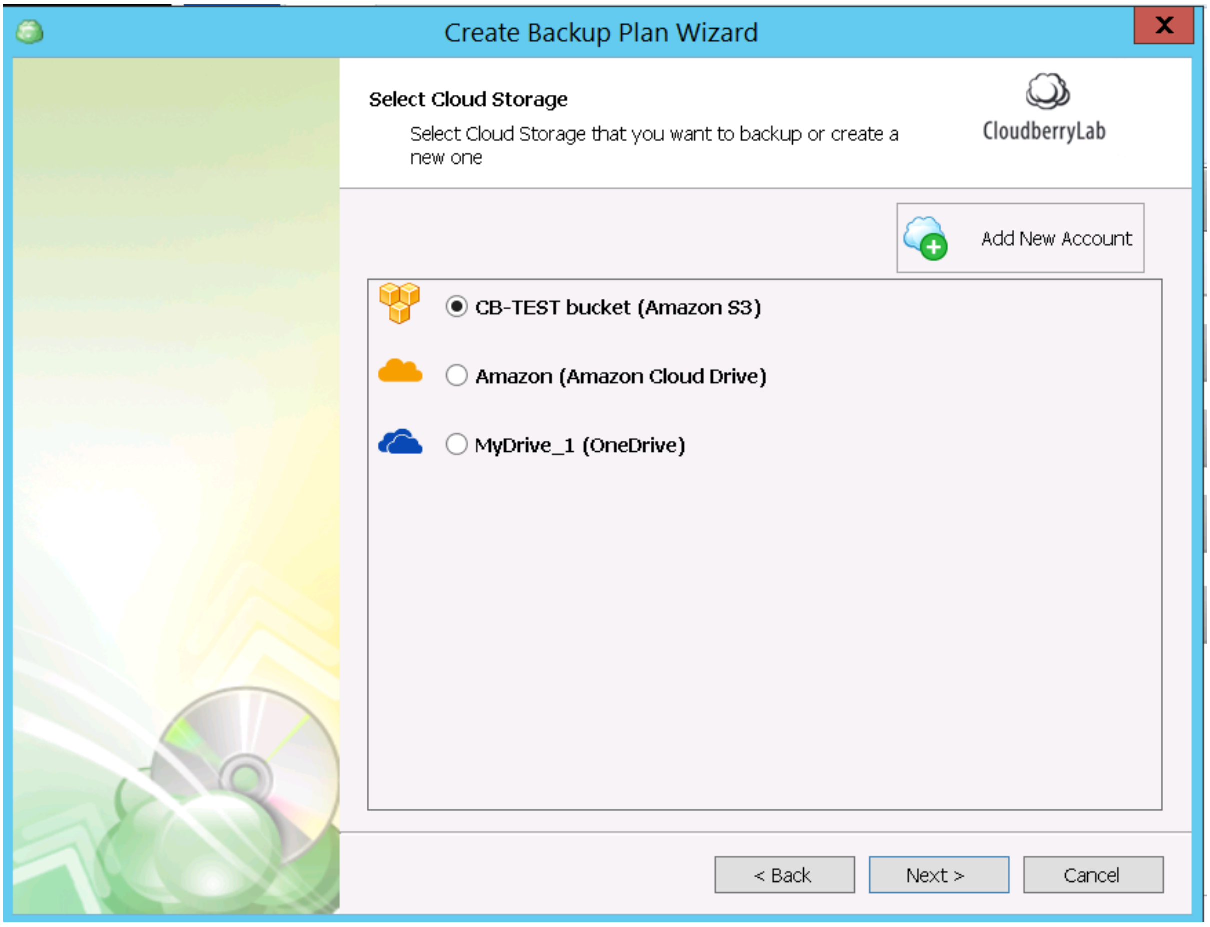


Create Backup Plan Wizard

Welcome to the Create Backup Plan Wizard

This wizard helps you to create new backup plan: specify files to backup, compression and encryption options, advanced settings and automate process.

1. First, **Select Cloud Storage** and the exact buckets, folders, and files to be backed up.



Create Backup Plan Wizard

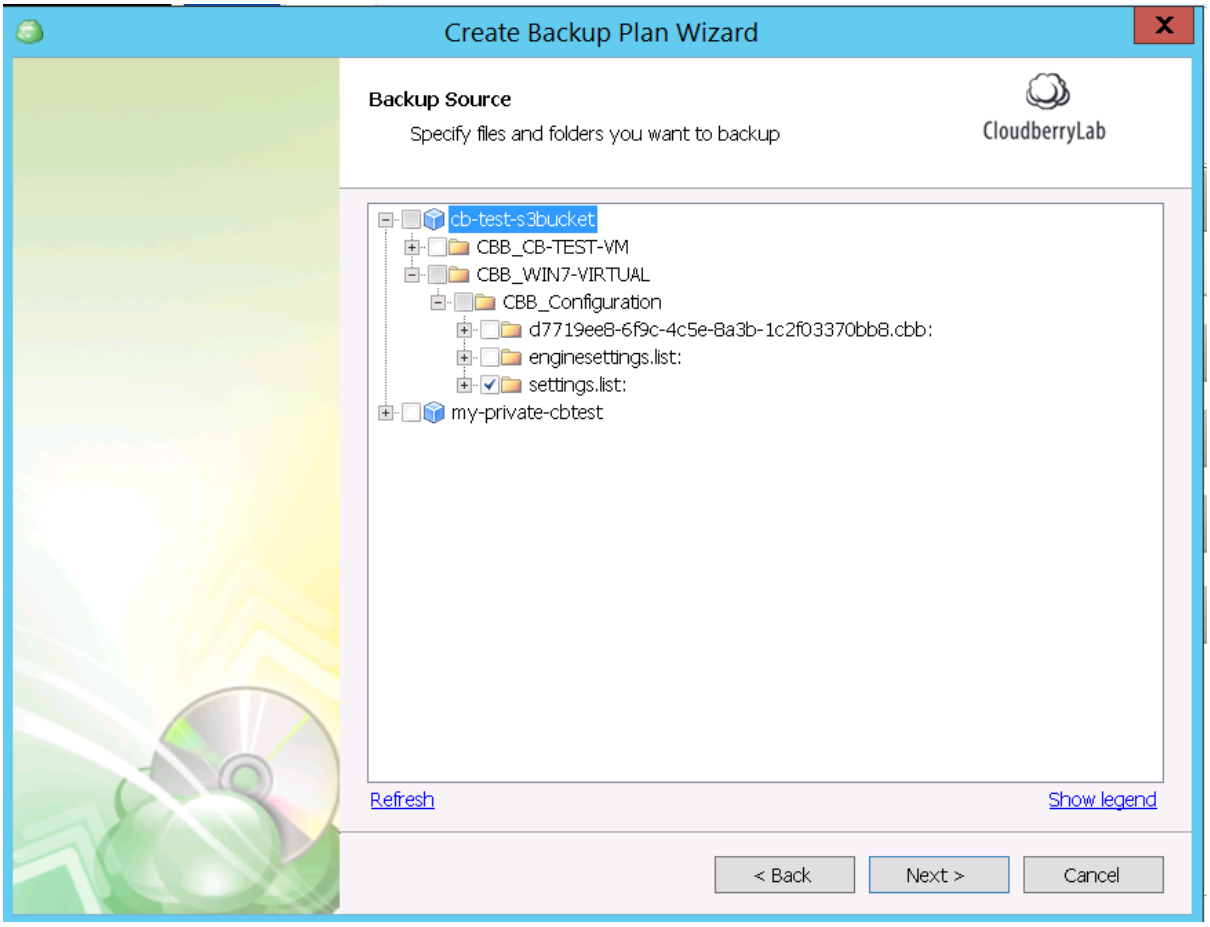
Select Cloud Storage

Select Cloud Storage that you want to backup or create a new one

● CB-TEST bucket (Amazon S3)

○ Amazon (Amazon Cloud Drive)

○ MyDrive_1 (OneDrive)



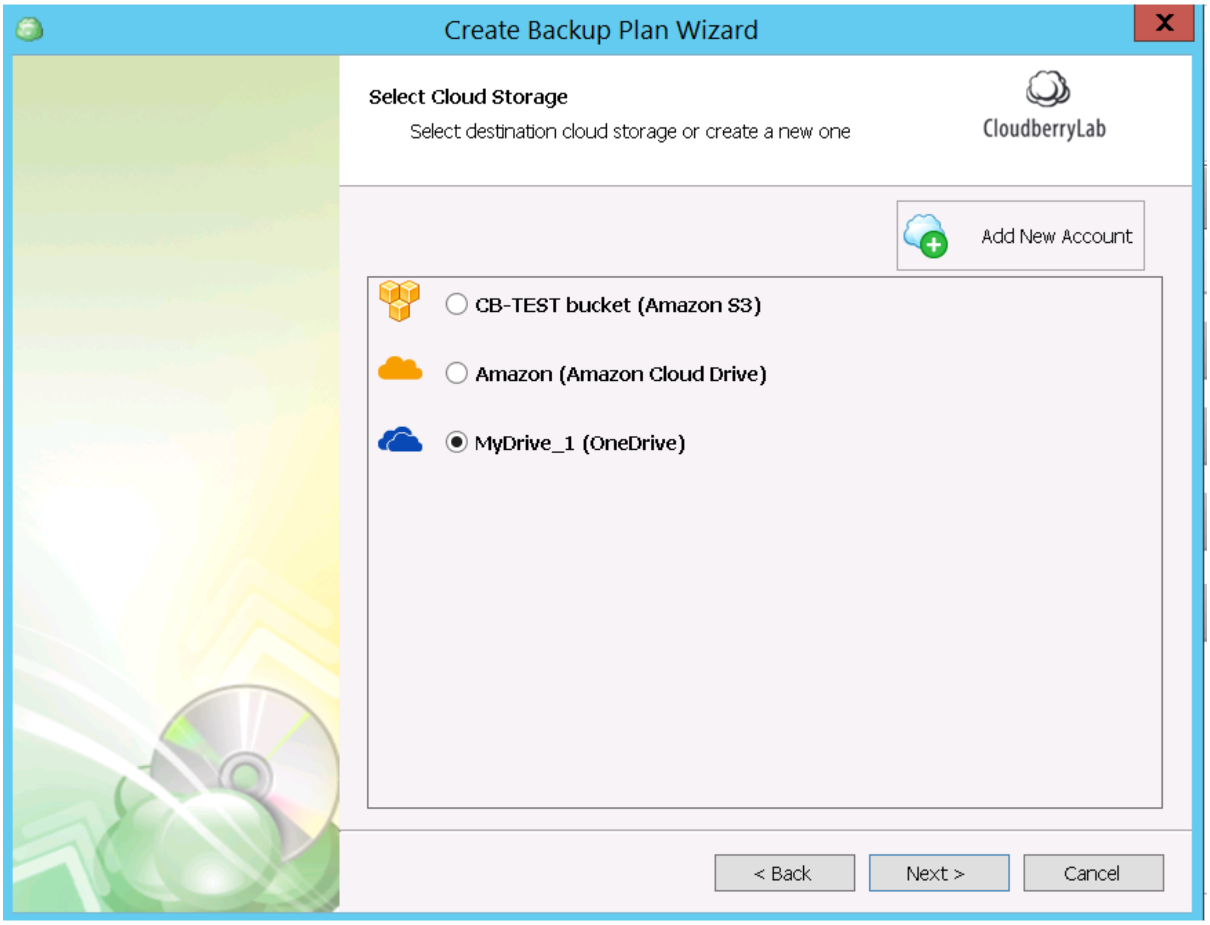
Create Backup Plan Wizard

Backup Source

Specify files and folders you want to backup

- □ cb-test-s3bucket
  - □ CBB_CB-TEST-VM
  - □ CBB_WIN7-VIRTUAL
    - □ CBB_Configuration
      - □ d7719ee8-6f9c-4c5e-8a3b-1c2f03370bb8.cbb:
      - □ enginesettings.list:
      - ☑ settings.list:
- □ my-private-cbtest

2. Then, specify the destination cloud storage.



Select Cloud Storage

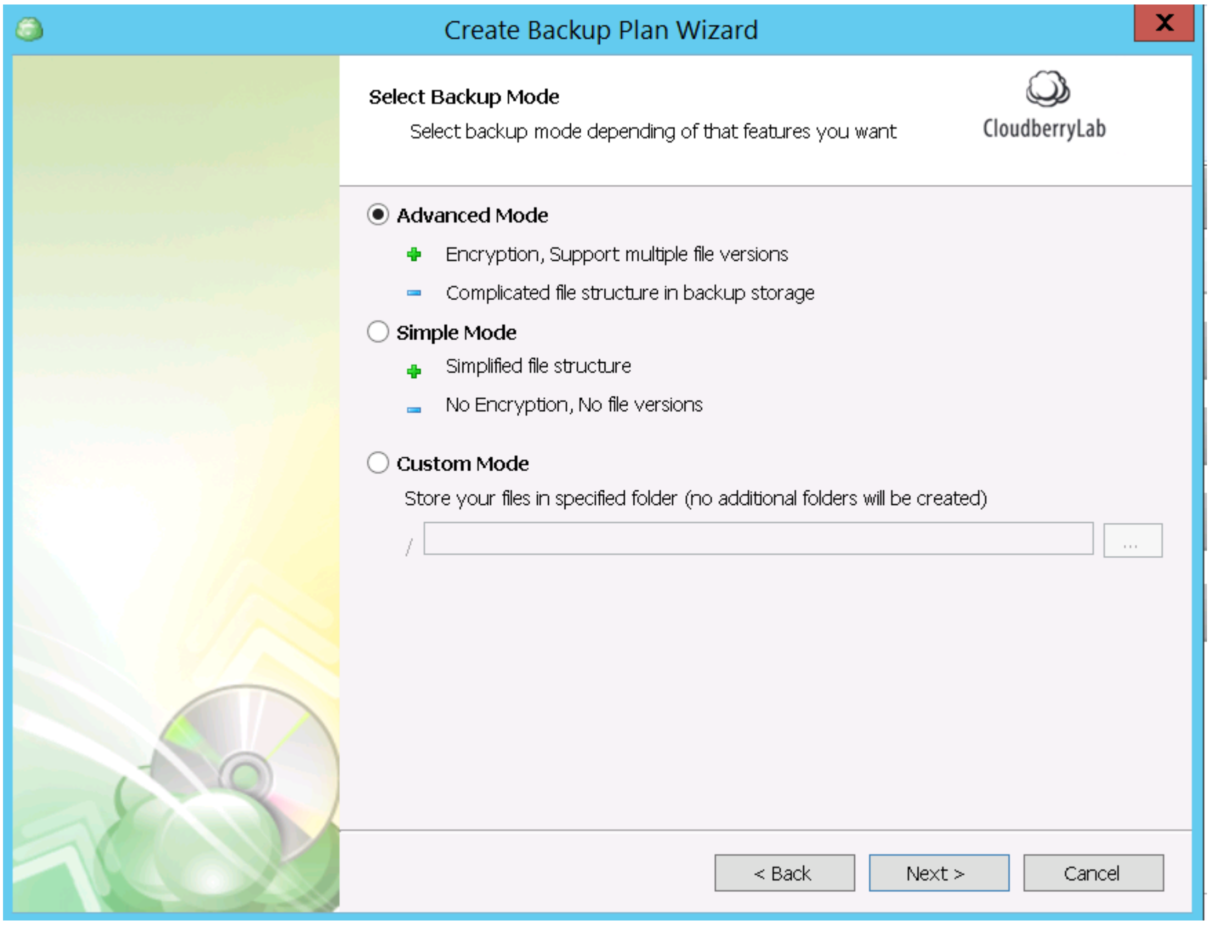
Select destination cloud storage or create a new one

○ CB-TEST bucket (Amazon S3)

○ Amazon (Amazon Cloud Drive)

● MyDrive_1 (OneDrive)

3. Next, choose a name for the newly created backup plan and select **Backup Mode**.



Create Backup Plan Wizard

Select Backup Mode

Select backup mode depending of that features you want

● Advanced Mode

+ Encryption, Support multiple file versions

− Complicated file structure in backup storage

○ Simple Mode

+ Simplified file structure

− No Encryption, No file versions

○ Custom Mode

Store your files in specified folder (no additional folders will be created)

4. Depending on previous step's presets, configure file filter options, encryption, compression, retention policy for file versions, schedule, etc.

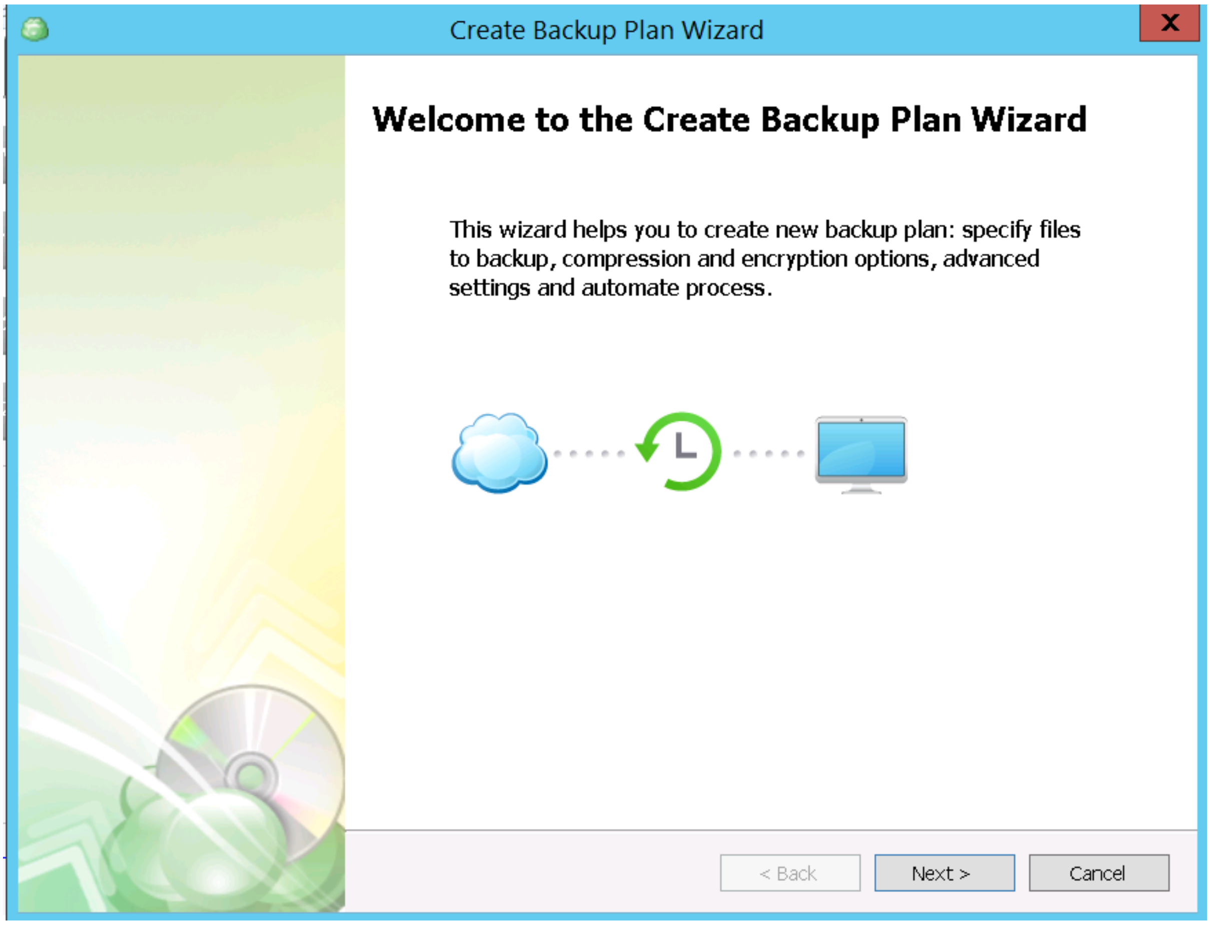
***Note**: encryption and compression may be not supported on the destination storage.*

5. On the final screen, you'll see the list of the options enabled.

Cloud to Local Backup

As a rule, local storage facilities are backed up to the cloud, but it's possible to do inversely and save on additional copies maintenance. It may also be a part of the data lifecycle when outdated files move on a low-cost storage facility. To help you with cloud to local backup, CBB has a special tool aboard.

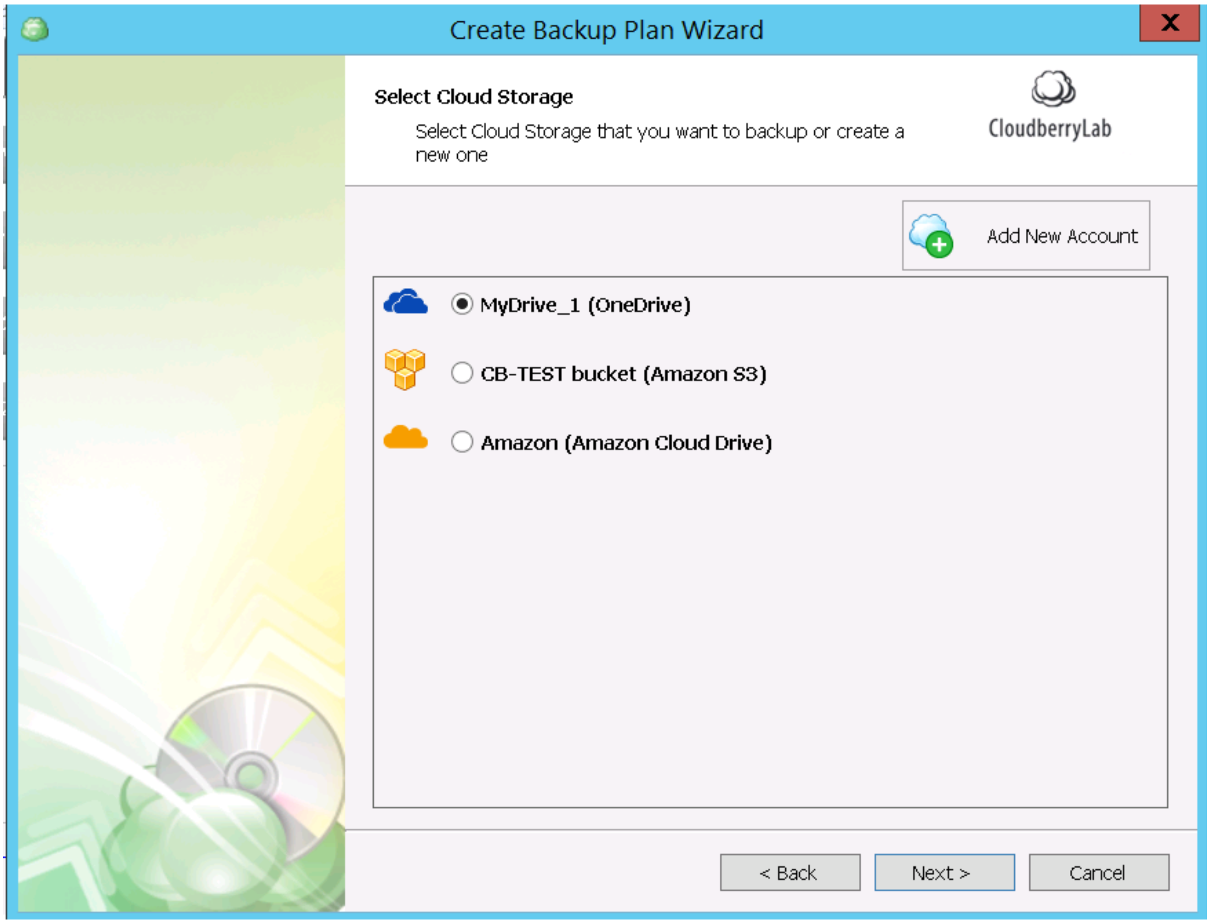
The Wizard starts by pressing on **Cloud to Local** button at the **Home** tab.



Welcome to the Create Backup Plan Wizard

This wizard helps you to create new backup plan: specify files to backup, compression and encryption options, advanced settings and automate process.

1. First, select the cloud storage and files for backup.



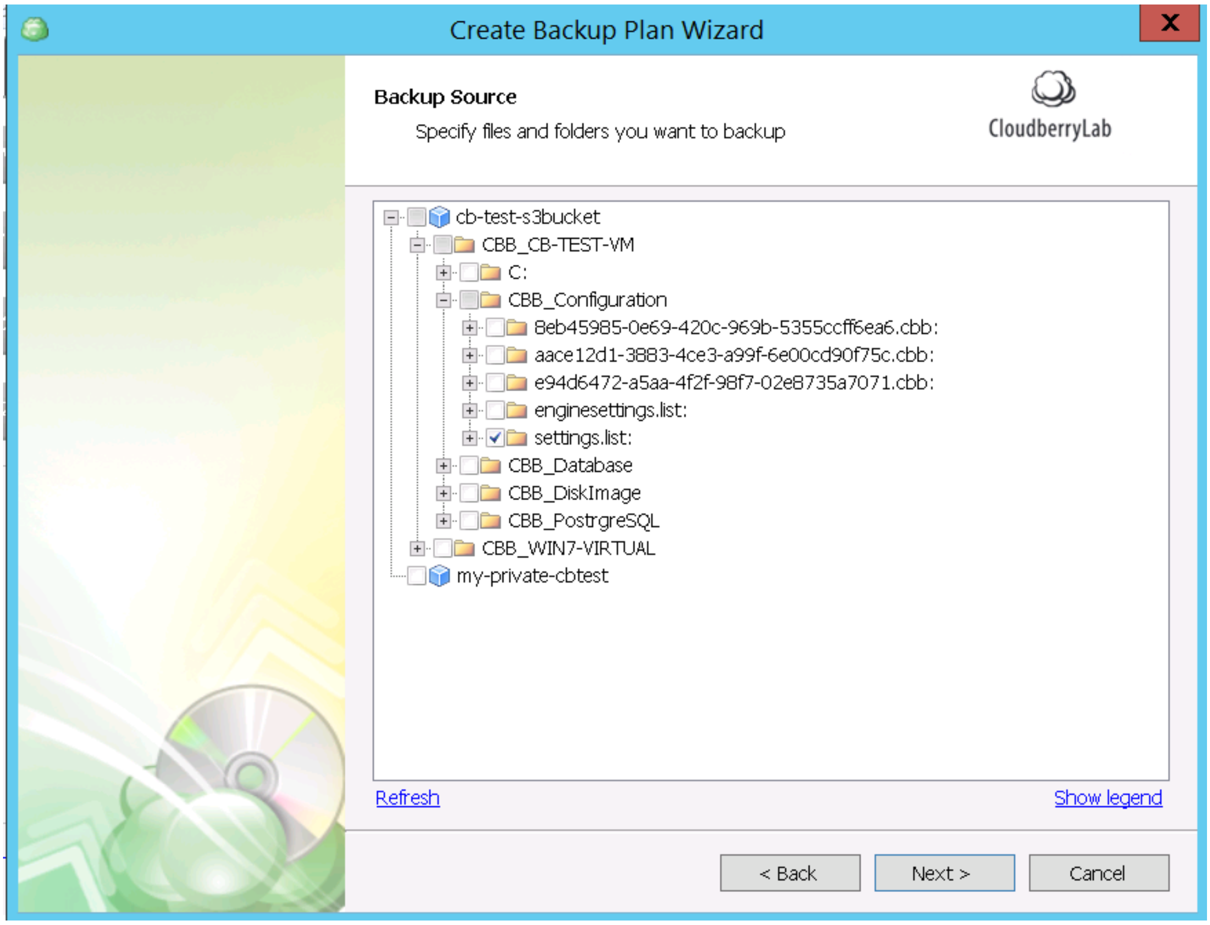
Select Cloud Storage

Select Cloud Storage that you want to backup or create a new one

● MyDrive_1 (OneDrive)

○ CB-TEST bucket (Amazon S3)

○ Amazon (Amazon Cloud Drive)



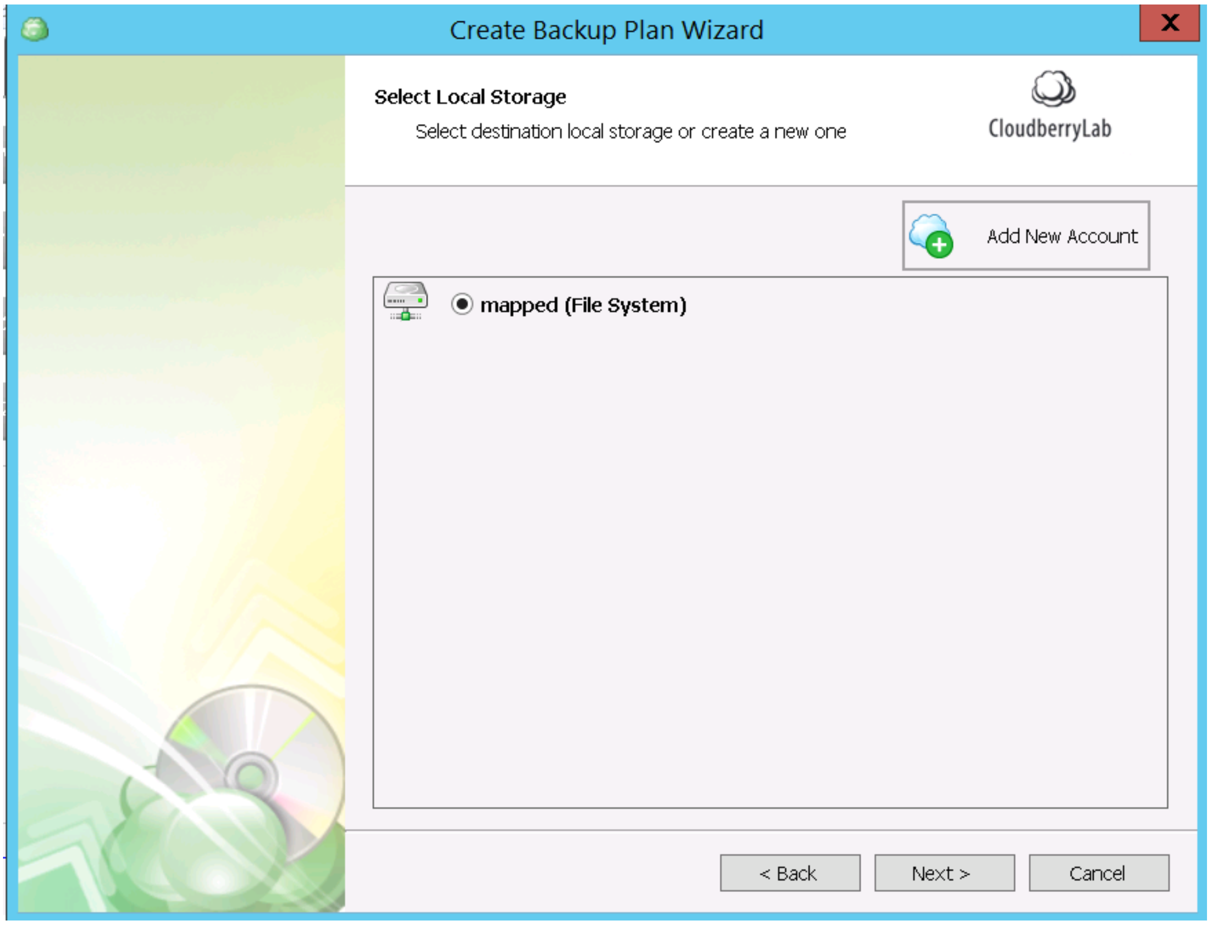
Create Backup Plan Wizard

Backup Source

Specify files and folders you want to backup

```
⊟ □ cb-test-s3bucket
  ⊟ □ CBB_CB-TEST-VM
    ⊞ □ C:
    ⊟ □ CBB_Configuration
      ⊞ □ 8eb45985-0e69-420c-969b-5355ccff6ea6.cbb:
      ⊞ □ aace12d1-3883-4ce3-a99f-6e00cd90f75c.cbb:
      ⊞ □ e94d6472-a5aa-4f2f-98f7-02e8735a7071.cbb:
      ⊞ □ enginesettings.list:
      ⊞ ☑ settings.list:
    ⊞ □ CBB_Database
    ⊞ □ CBB_DiskImage
    ⊞ □ CBB_PostgreSQL
  ⊞ □ CBB_WIN7-VIRTUAL
□ my-private-cbtest
```

2. Then, **pick up the local endpoint** facility or create a new one.



Create Backup Plan Wizard

Select Local Storage

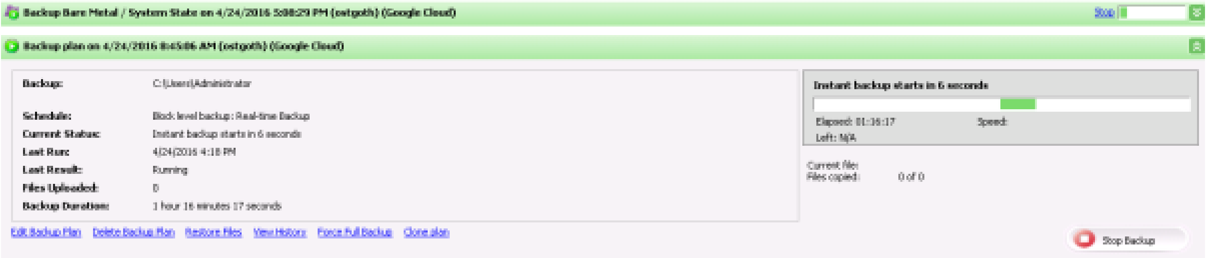
Select destination local storage or create a new one

● mapped (File System)

3. Finally, configure the routine backup plan options like file filter, encryption, schedule, etc. The summary of all features enabled displays at the final screen of the Wizard. New Cloud to Local plan will function as the file-level backup.

Backup Plans Management

You can access all created backup plans at the **Backup Plans** tab.



Backup Bare Metal / System State on 4/24/2016 5:08:29 PM (ostgoth) (Google Cloud)

Backup plan on 4/24/2016 8:45:06 AM (ostgoth) (Google Cloud)

Backup: C:\Users\Administrator

Schedule: Block level backup: Real-time Backup

Current Status: Instant backup starts in 6 seconds

Last Run: 4/24/2016 4:18 PM

Last Result: Running

Files Uploaded: 0

Backup Duration: 1 hour 16 minutes 17 seconds

Instant backup starts in 6 seconds

Elapsed: 01:16:17 Speed:

Left: N/A

Current file:

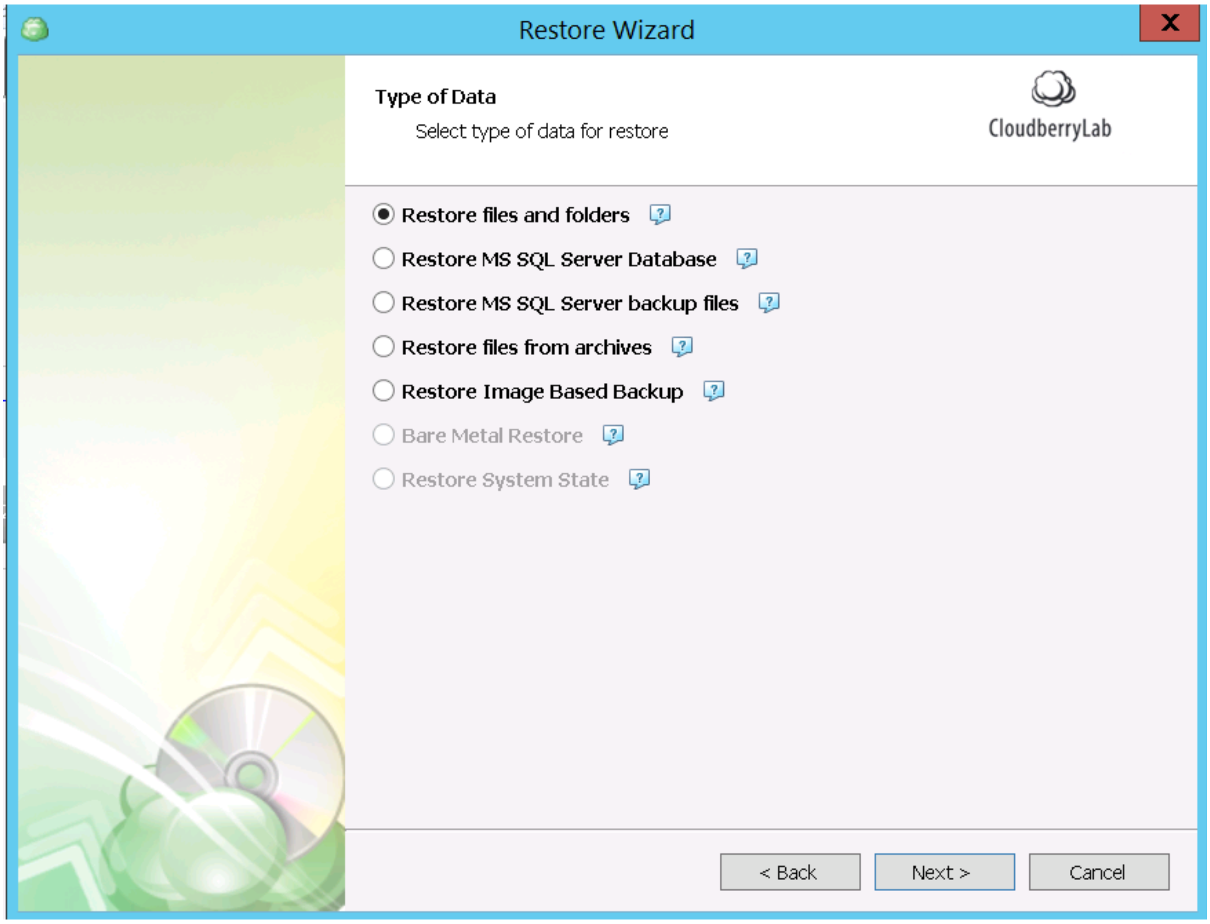
Files copied: 0 of 0

Click the green field to view a plan's details, check its progress, view history, edit or delete. You can also turn off\on backup schedule.

How to Restore

The **Restore** options provide the following data recovery services:

- **Files** – recovers separate files and folders.
- **Image** and **System State** – deploys system recovery kit on the local storage.
- **Cloud VM** – deploys a server image as Azure VM or Amazon EC2 instance (Google CE is coming soon).
- **Microsoft SQL Server** – recovers database files.
- **Microsoft Exchange Server** – restores Exchange data and logs.



Restore Wizard

Type of Data

Select type of data for restore

● Restore files and folders

○ Restore MS SQL Server Database

○ Restore MS SQL Server backup files

○ Restore files from archives

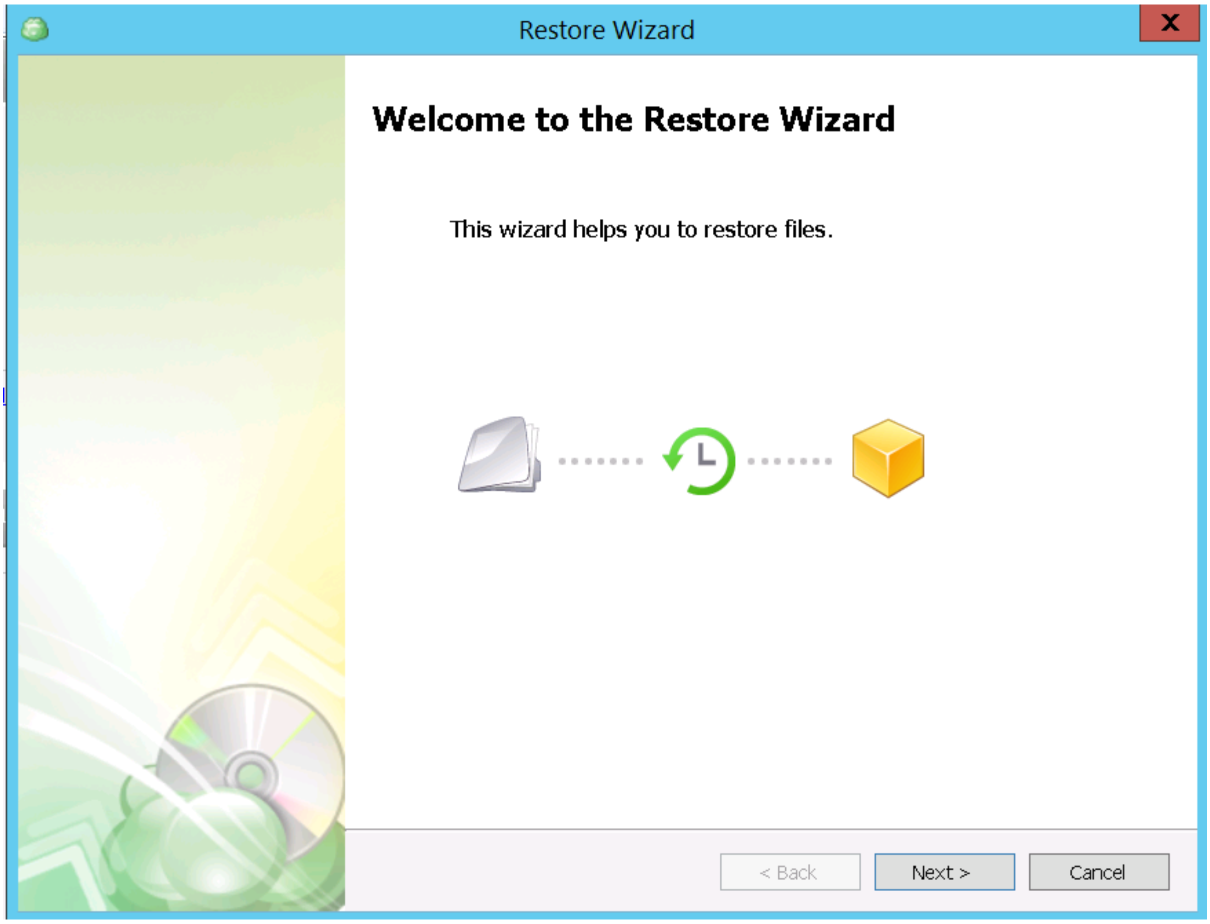
○ Restore Image Based Backup

○ Bare Metal Restore

○ Restore System State

These options can be managed within the **Restore Wizard**. It starts by pressing the **Restore** button at the Home tab, or by picking **Restore Backup** at the **Welcome** tab.

Note: CloudBerry Backup provide any kind of recovery for free – you don't need to activate a license or sign up for trial to retrieve the data.

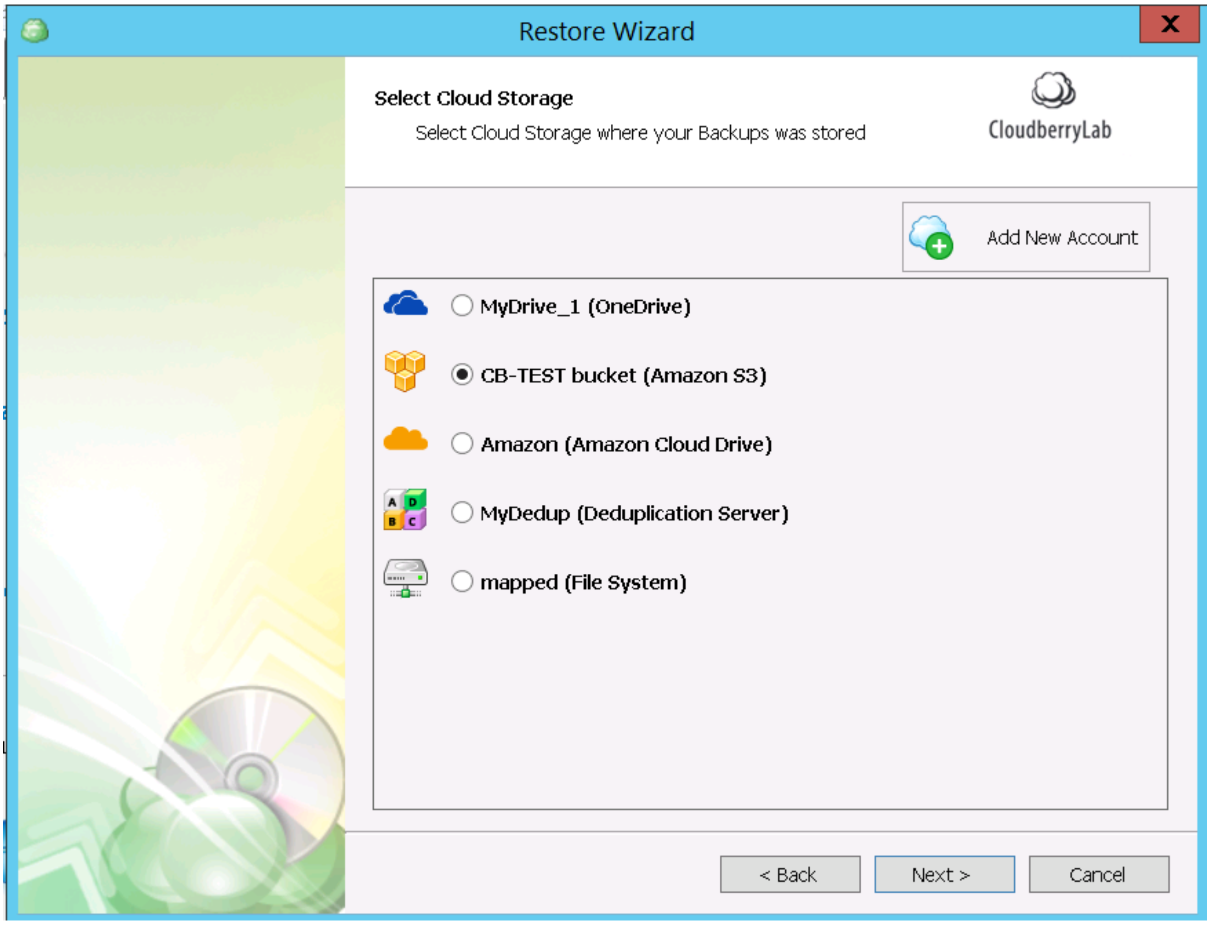


Restore Wizard

Welcome to the Restore Wizard

This wizard helps you to restore files.

After the Wizard started, choose the storage where the needed backups located.



Restore Wizard

Select Cloud Storage

Select Cloud Storage where your Backups was stored

○ MyDrive_1 (OneDrive)

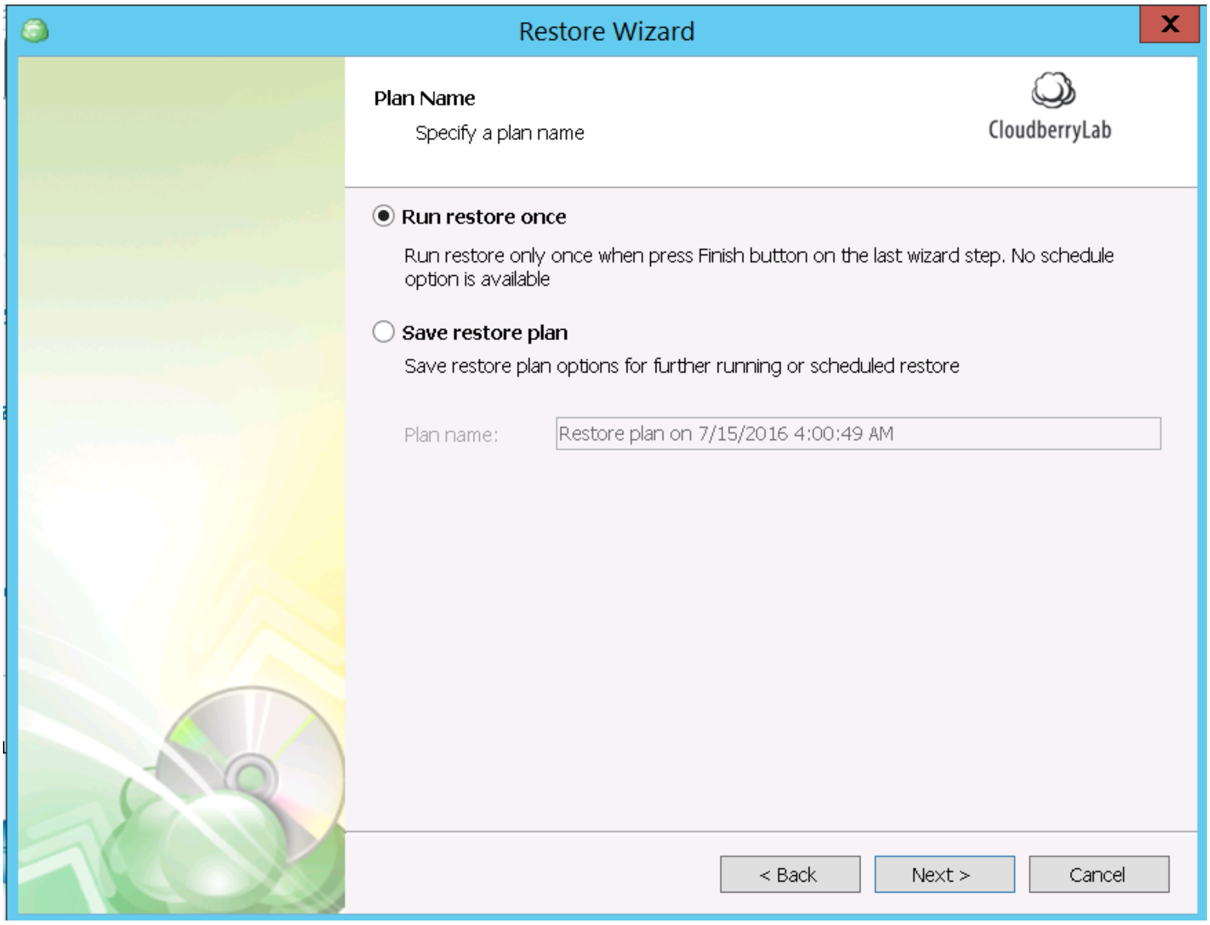
● CB-TEST bucket (Amazon S3)

○ Amazon (Amazon Cloud Drive)

○ MyDedup (Deduplication Server)

○ mapped (File System)

Next, decide whether restore data once or save restore plan to schedule recovery.



Plan Name

Specify a plan name

● Run restore once

Run restore only once when press Finish button on the last wizard step. No schedule option is available

○ Save restore plan

Save restore plan options for further running or scheduled restore

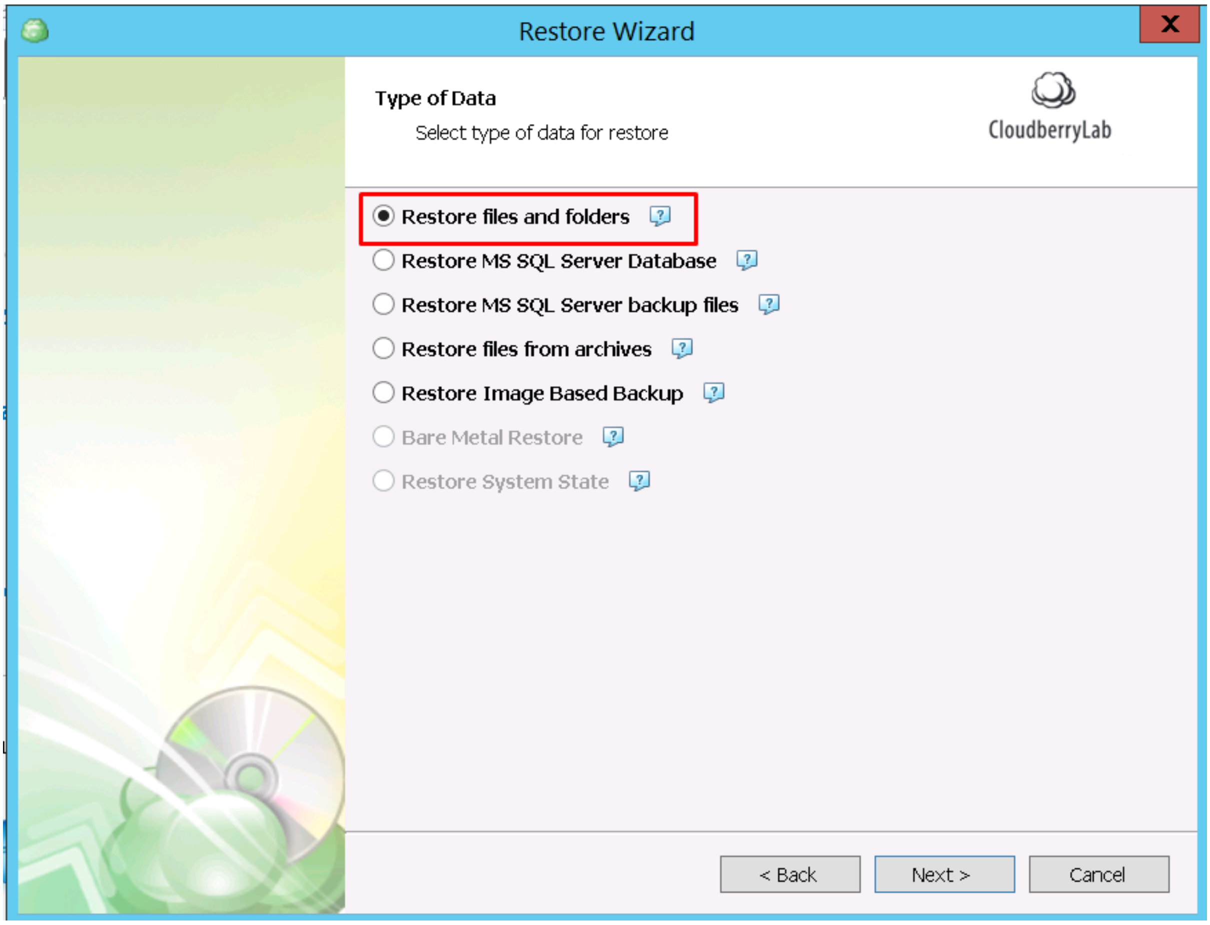
Plan name: Restore plan on 7/15/2016 4:00:49 AM

Finally, select a type of data to recover, and the Wizard will guide you through all the required steps for successful data restoration.

File-level Restore

File recovery is commonly used to retrieve working data and restore particular elements of system and applications, e.g. configurations files, registry elements, etc. To start file-level recovery, select

Restore files and folders option on the type of data screen of **Restore Wizard**.



Type of Data

Select type of data for restore

● Restore files and folders

○ Restore MS SQL Server Database

○ Restore MS SQL Server backup files

○ Restore files from archives

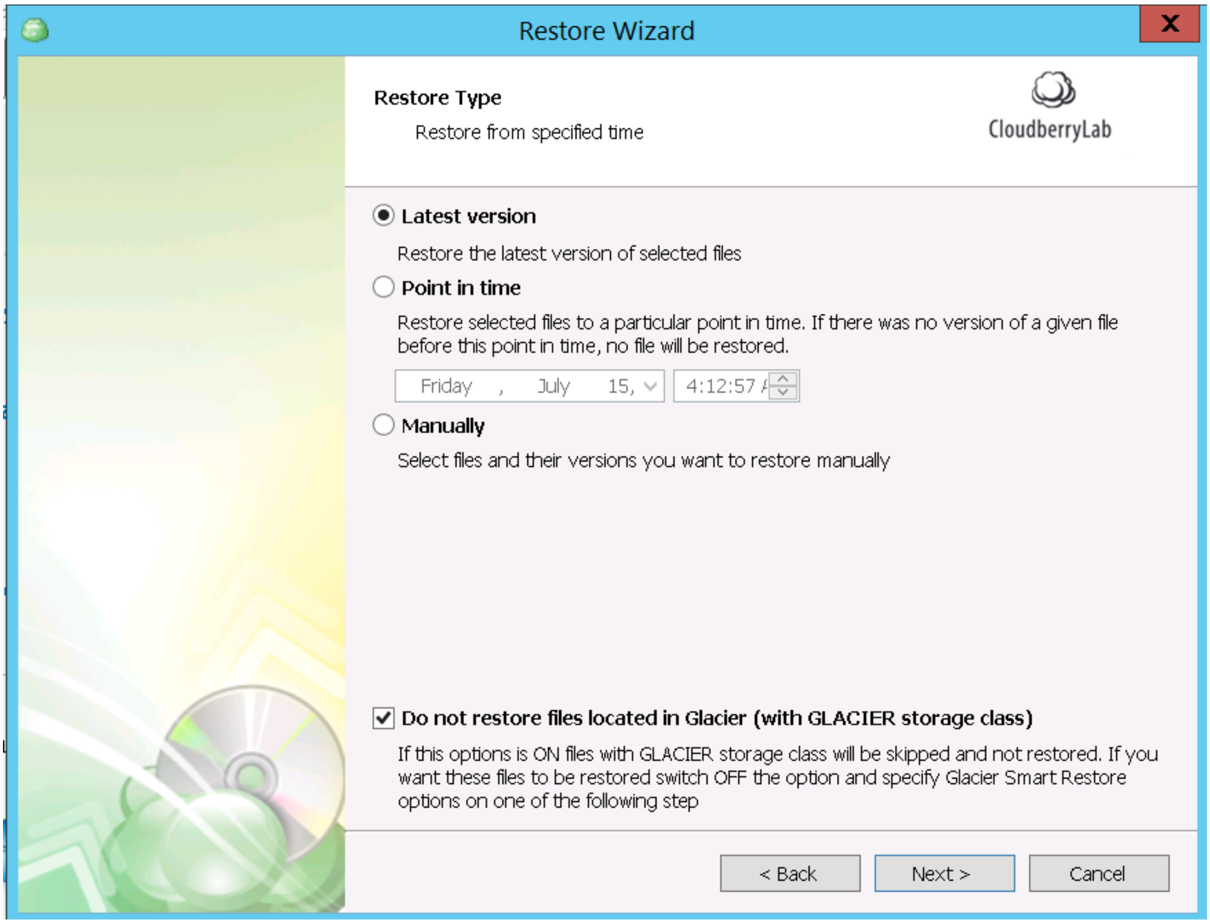
○ Restore Image Based Backup

○ Bare Metal Restore

○ Restore System State

.

1. At the beginning, select the version of the data to recover. The **Latest version** will recover the last backup made, **Point in time** will restore the nearest backup version before specified time, and with **Manually** option you can choose the version for each file or folder separately.



Restore Type

Restore from specified time

● Latest version

Restore the latest version of selected files

○ Point in time

Restore selected files to a particular point in time. If there was no version of a given file before this point in time, no file will be restored.

Friday , July 15, 4:12:57 A

○ Manually

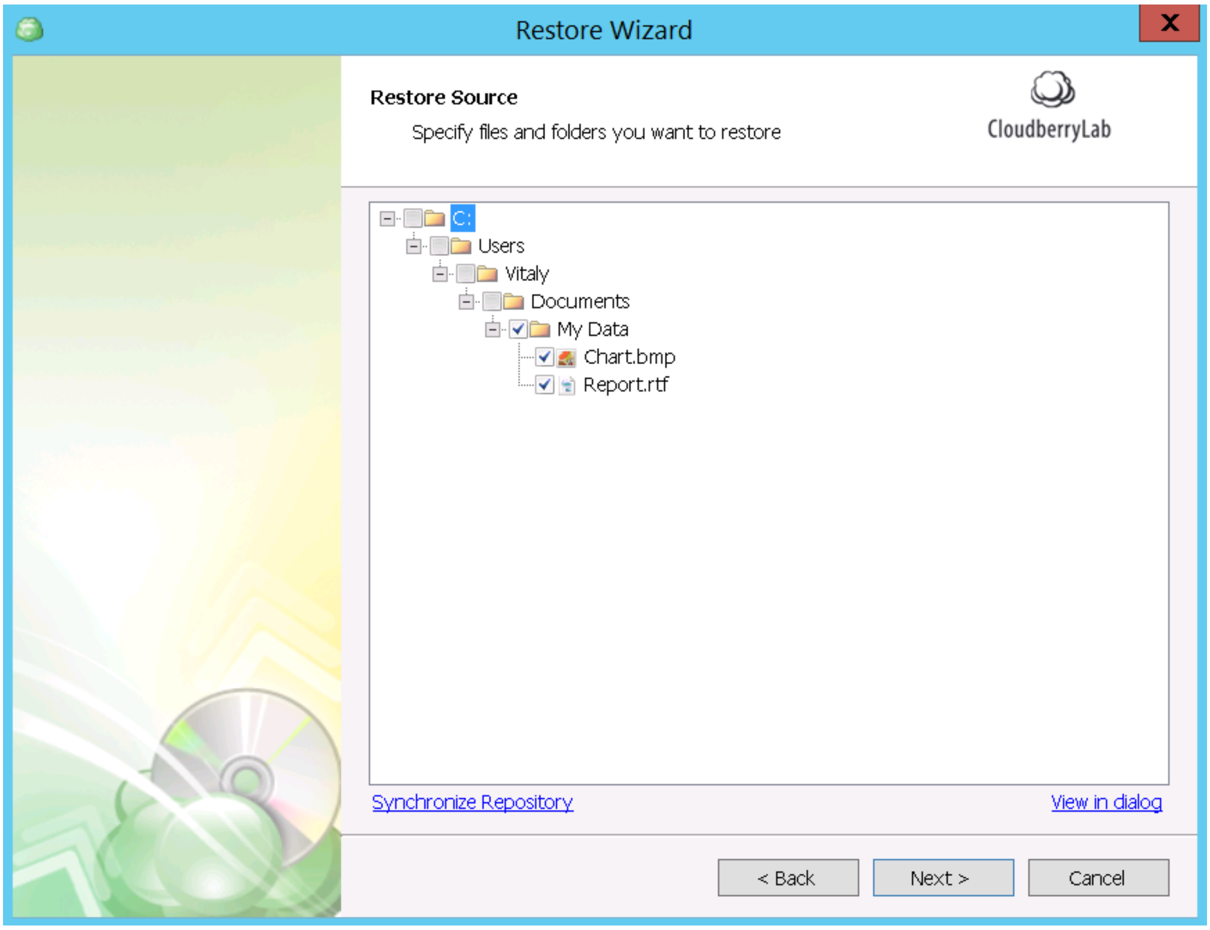
Select files and their versions you want to restore manually

☑ Do not restore files located in Glacier (with GLACIER storage class)

If this options is ON files with GLACIER storage class will be skipped and not restored. If you want these files to be restored switch OFF the option and specify Glacier Smart Restore options on one of the following step

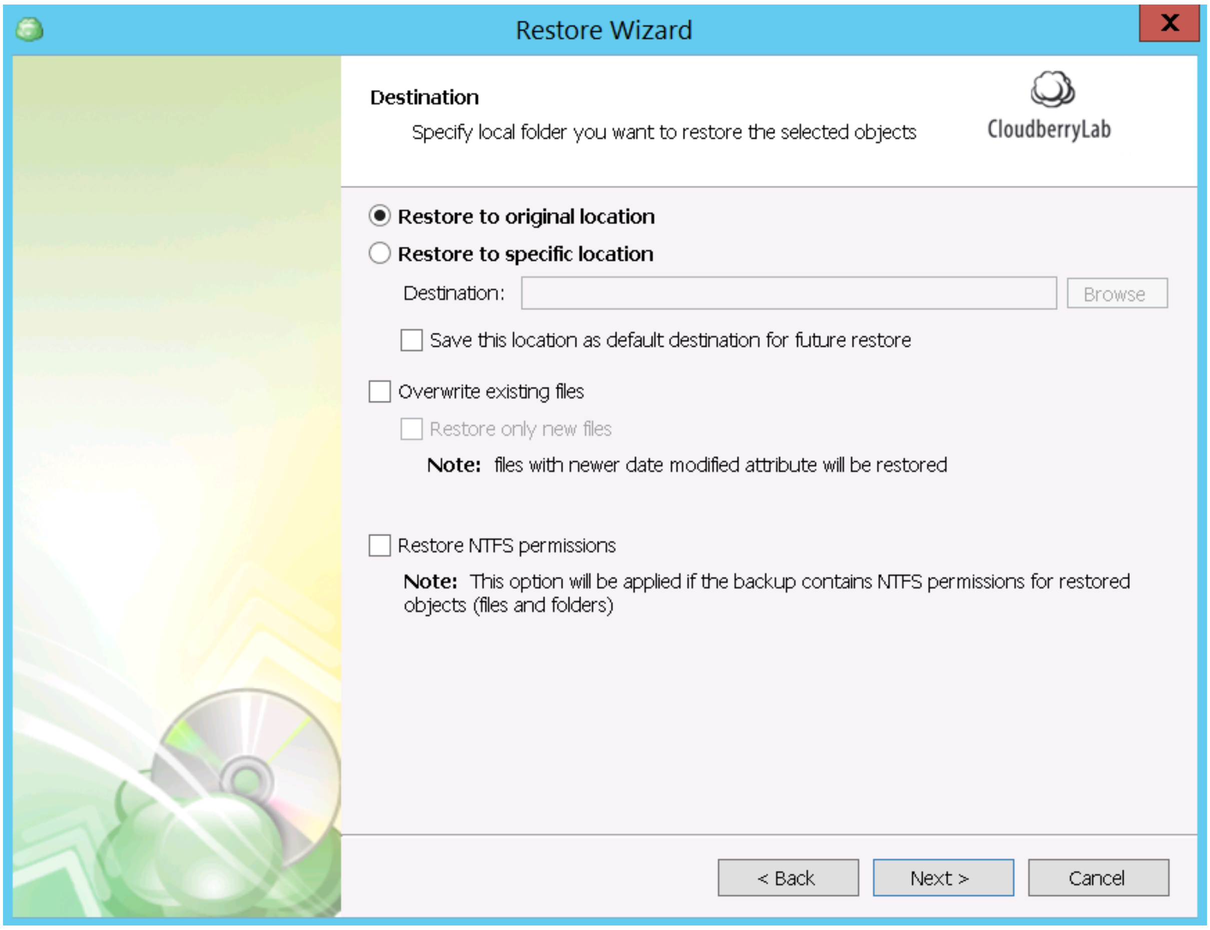
Do not restore files located in Glacier option will prevent unexpected expenses on files, which are placed to AWS Glacier according to lifecycle policies. Find out more in **Advanced Solutions – Archive to Glacier and Lifecycle Policies** section.

2. On the **Restore Source** step, specify exact files for recovery.



If the storage contents might have changed since the last backup, use **Synchronize Repository** option to update the CBB backup database. This feature explained in **How to Backup – CloudBerry Backup Configuration – Repository** section of this document.

3. Next select recovery **Destination** and its options.



Destination

Specify local folder you want to restore the selected objects

● **Restore to original location**

○ **Restore to specific location**

Destination: Browse

□ Save this location as default destination for future restore

□ Overwrite existing files

□ Restore only new files

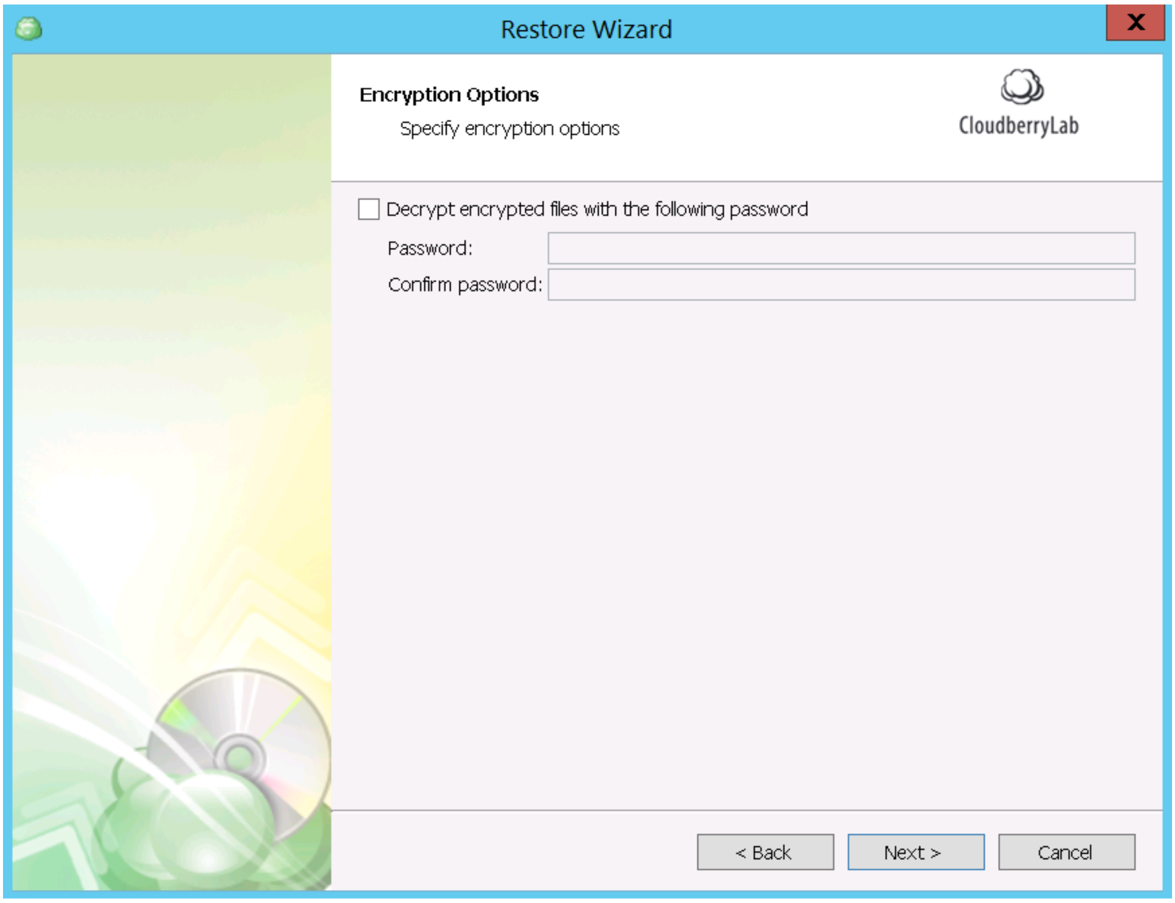
Note: files with newer date modified attribute will be restored

□ Restore NTFS permissions

Note: This option will be applied if the backup contains NTFS permissions for restored objects (files and folders)

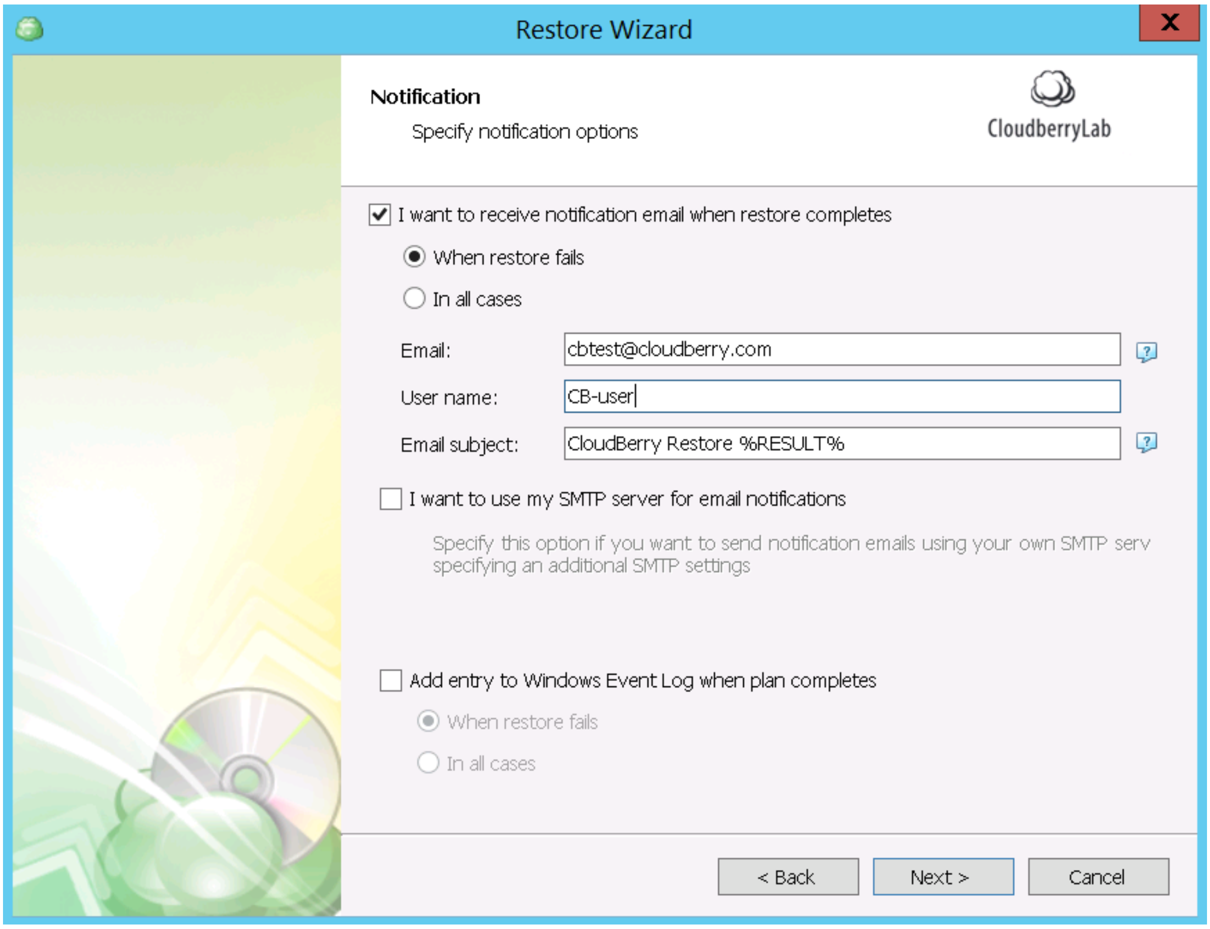
By default, data is restored to the original location, though you can download it to another folder, overwrite files with coinciding names and restore NTFS permissions (if they were backed up before).

4. Then, decrypt files by specifying the password.



If the data is ciphered, but the password isn't fed into, CloudBerry Backup will download encrypted files for manual decryption.

5. On the next step, configure **Notification** settings. CBB can inform you about recovery status via email and add the corresponding entry to the Windows Events.



☑ I want to receive notification email when restore completes

● When restore fails

○ In all cases

Email: cbtest@cloudberry.com

User name: CB-user

Email subject: CloudBerry Restore %RESULT%

□ I want to use my SMTP server for email notifications

Specify this option if you want to send notification emails using your own SMTP serv specifying an additional SMTP settings

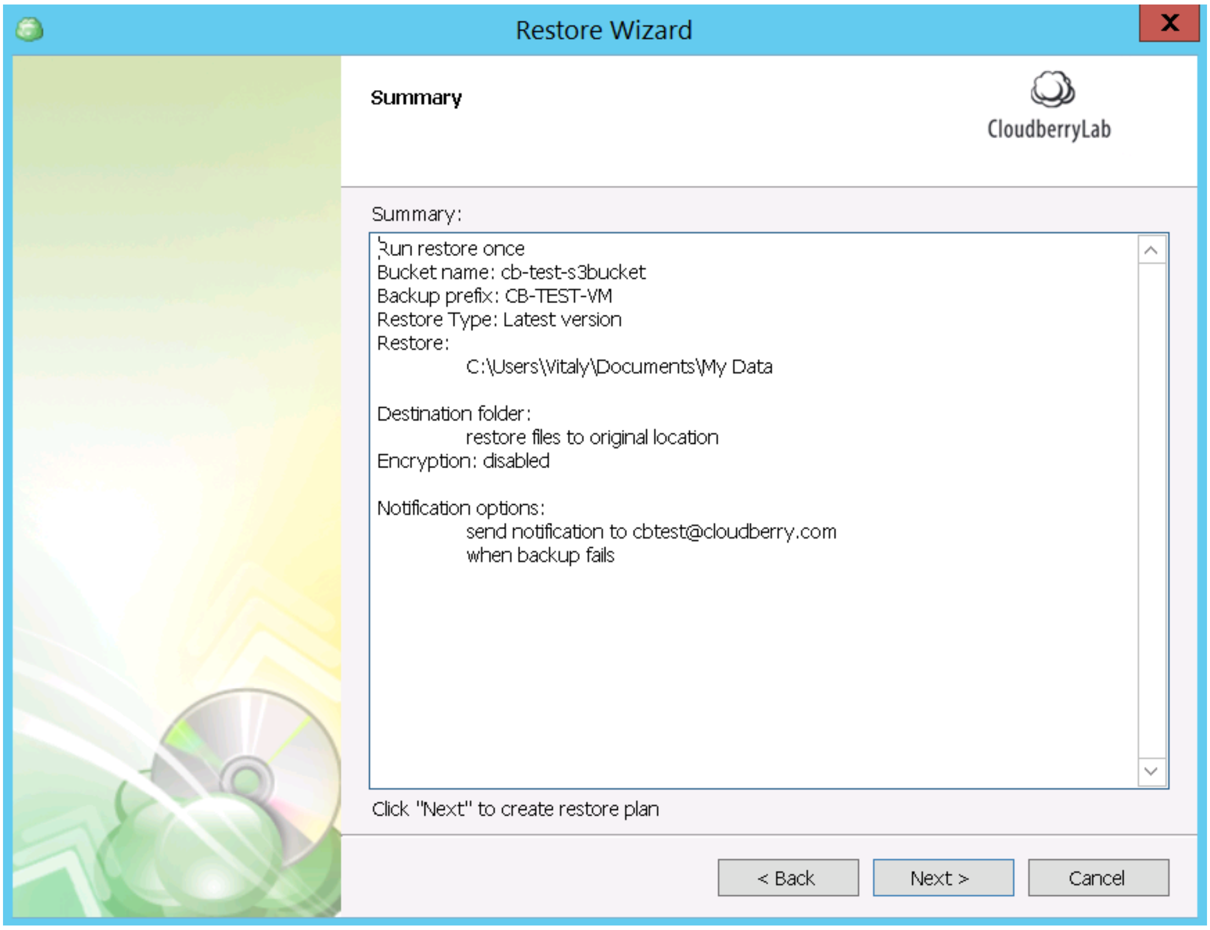
□ Add entry to Windows Event Log when plan completes

● When restore fails

○ In all cases

One can also use own SMTP server for notifications instead of built-in CBB service.

6. Finally, you'll see the **Summary** screen with all the recovery option chosen.



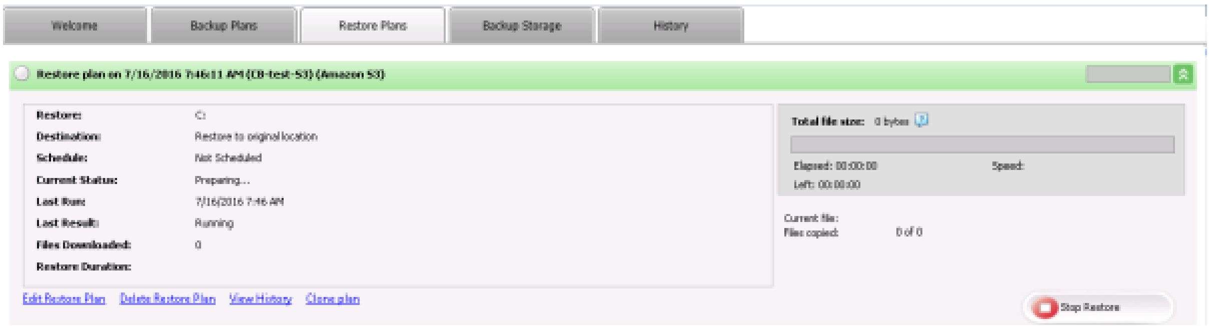
Summary:

```
Run restore once
Bucket name: cb-test-s3bucket
Backup prefix: CB-TEST-VM
Restore Type: Latest version
Restore:
        C:\Users\Vitaly\Documents\My Data

Destination folder:
        restore files to original location
Encryption: disabled

Notification options:
        send notification to cbtest@cloudberry.com
        when backup fails
```

Click "Next" to create restore plan

Press **Next** to create a Restore Plan and then **Finish** to begin the data recovery.

7. After the Wizard is finished, the **Restore Plans** tab will open – here you can track down the recovery process. If you've chosen **Restore Once** option, the restore plan will disappear after finishing the task.



Restore plan on 7/16/2016 7:46:11 AM (CB-test-S3) (Amazon S3)

```
Restore:              C:
Destination:          Restore to original location
Schedule:             Not Scheduled
Current Status:       Preparing...
Last Run:             7/16/2016 7:46 AM
Last Result:          Running
Files Downloaded:     0
Restore Duration:

Total file size:  0 bytes
Elapsed: 00:00:00          Speed:
Left: 00:00:00
Current file:
Files copied:        0 of 0
```

Image-level Restore

There are several ways of image-based recovery:

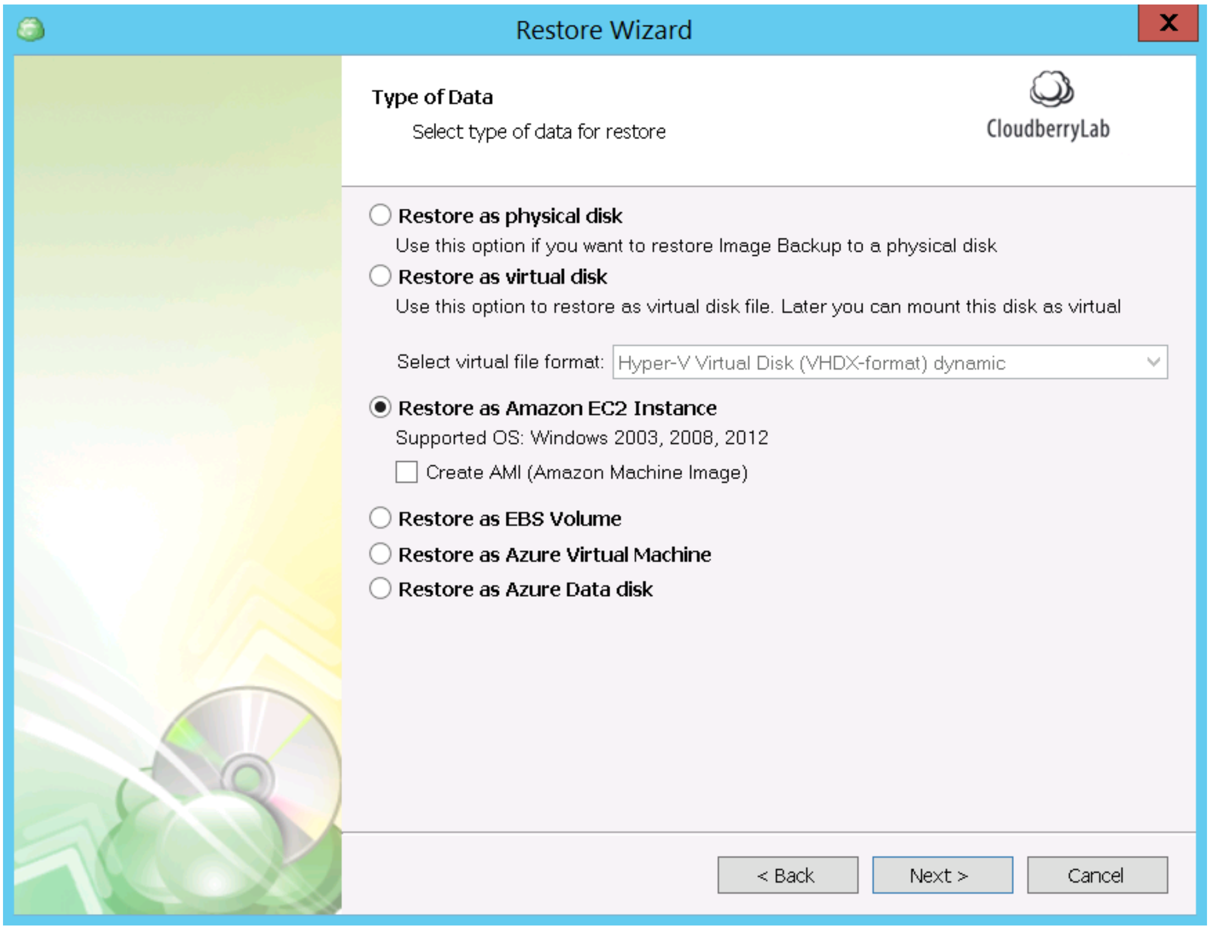
- **Restore Image Based Backup** – recovers the whole machine from the image file. In this mode, you can also restore the data to Amazon Elastic Compute Cloud (EC2) and Azure virtual machines.

- **System Image (former Bare Metal) Restore** – recovers all root volume with boot files, thus used for restoration to the new hardware or for repair of the entire system.
- **System State Restore** – recovers boot and system files. It's designed for system repair tasks.

The last two options involve Windows restoration service, so the Wizard will prompt to install it. They also need enough disk space to download recovery images, which may be deleted after restore job finished.

Image and Virtual Machine Restore

1. After you choose the **Restore Image Based Backup** option, the Wizard will ask to specify **Restore Type** and choose which version of an image to retrieve. It works just like with files recovery.
2. Select the data type to recover. On this step, the following options are available:



Type of Data

Select type of data for restore

○ Restore as physical disk

Use this option if you want to restore Image Backup to a physical disk

○ Restore as virtual disk

Use this option to restore as virtual disk file. Later you can mount this disk as virtual

Select virtual file format: Hyper-V Virtual Disk (VHDX-format) dynamic

● Restore as Amazon EC2 Instance

Supported OS: Windows 2003, 2008, 2012

□ Create AMI (Amazon Machine Image)

○ Restore as EBS Volume

○ Restore as Azure Virtual Machine

○ Restore as Azure Data disk

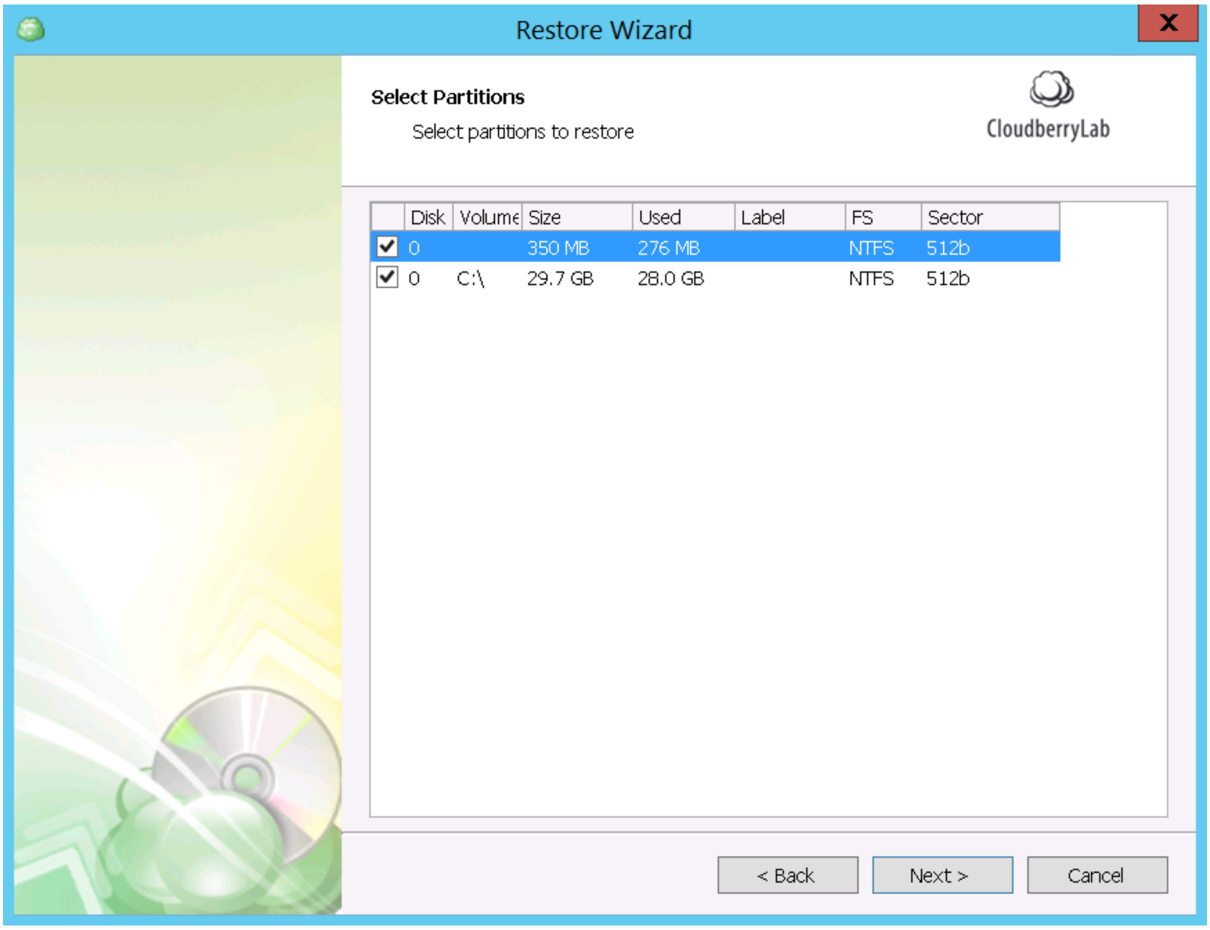
- **Restore as physical disk** – formats the chosen local disk and deploy the image contents to it.
- **Restore as virtual disk** – creates a virtual disk file to be mounted within VirtualBox, Hyper-V or VMware virtual machine systems: you can also create a RAW disk image.
- **Restore as Amazon EC2 Instance** – deploys Amazon cloud virtual machine using the image data. You need to have the Amazon Web Services (AWS) account to use this option. *Note: If you select to convert the backup to .AMI (Amazon Machine Image) file, the virtual machine will start immediately after finishing the Wizard. Otherwise, you need to access it via Amazon Management Console and launch manually.*

- **Restore as EBS volume** – creates Amazon Elastic Block storage volume to be mounted to EC2 instances or used separately. You need to have AWS account for this too.
- **Restore as Azure Virtual Machine** – deploys and automatically launches Microsoft Azure VM instance using the image data. You need to have Azure VM account to use this option.

Each option requires specific adjustments. We shall look them over below.

Restore as physical disk

1. If you choose the recovery to the physical disk, select image partitions to restore on the next step.

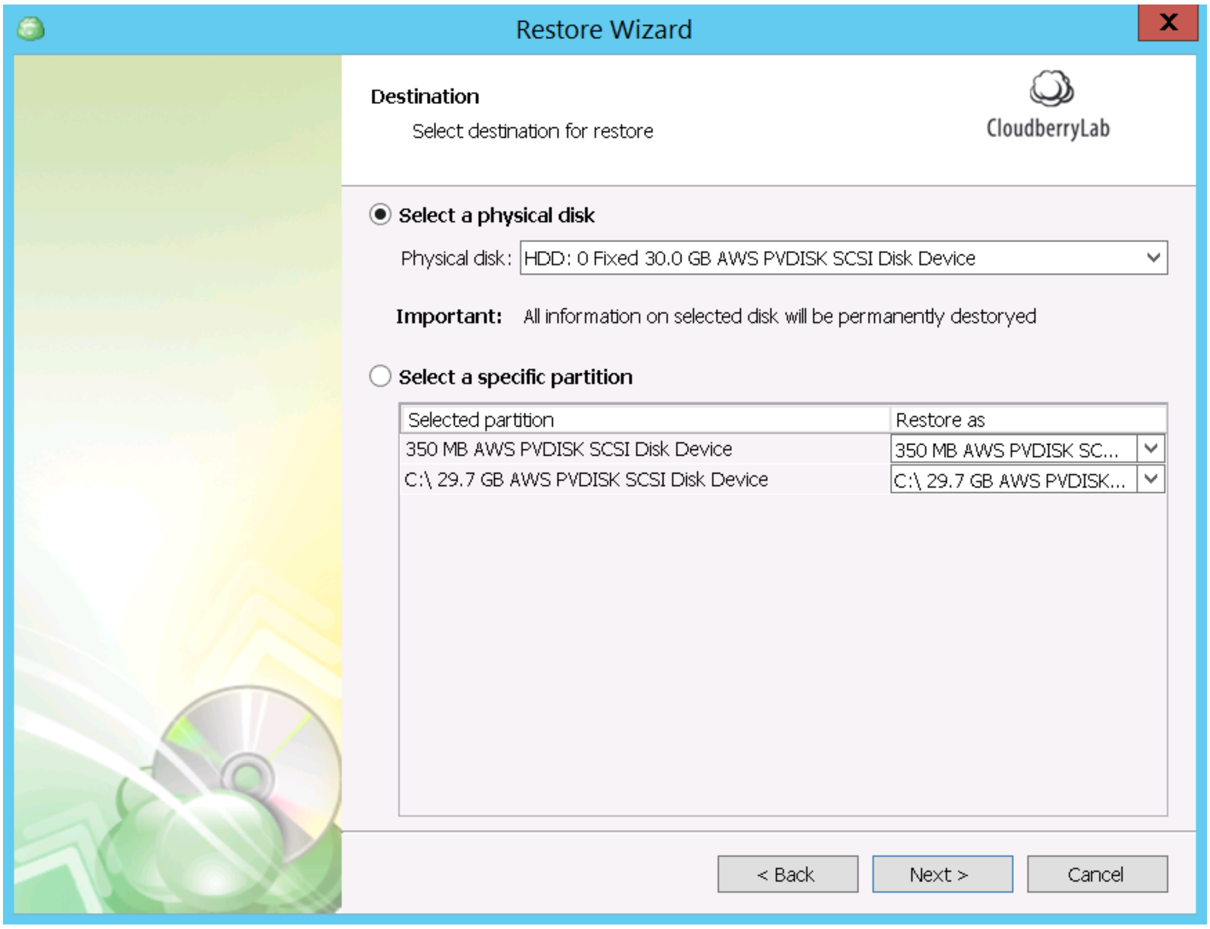


Select Partitions

Select partitions to restore

	Disk	Volume	Size	Used	Label	FS	Sector
☑	0		350 MB	276 MB		NTFS	512b
☑	0	C:\	29.7 GB	28.0 GB		NTFS	512b

2. Then, select a destination for the image data deployment. If it is a physical disk, CBB will format it according to the partition scheme of the image. You can also distribute data across existing local disks.



Destination

Select destination for restore

● Select a physical disk

Physical disk: HDD: 0 Fixed 30.0 GB AWS PVDISK SCSI Disk Device

Important: All information on selected disk will be permanently destoryed

○ Select a specific partition

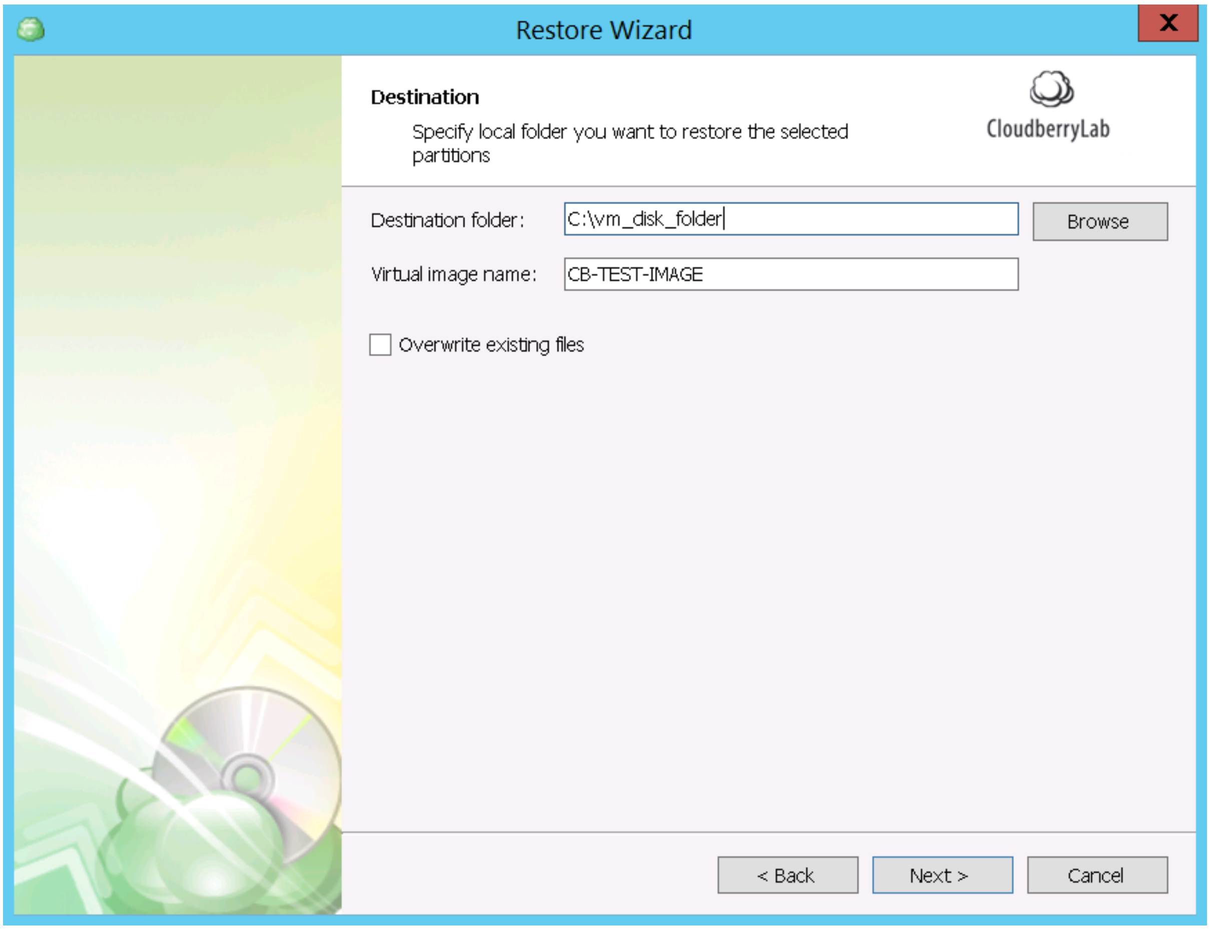
Selected partition	Restore as
350 MB AWS PVDISK SCSI Disk Device	350 MB AWS PVDISK SC...
C:\ 29.7 GB AWS PVDISK SCSI Disk Device	C:\ 29.7 GB AWS PVDISK...

Note: recovery to the boot volume is not allowed.

3. Next, specify the decryption password if needed and set up notifications. All chosen option will be displayed on the Summary screen.
4. After the Wizard has finished, CBB will download the image and deploy it onto the chosen disk. It will disappear in Windows Explorer when the recovery begins. If the restored disk has a boot volume, the firmware will recognize it, and the system on the disk will start on this or another computer after proper BIOS setting.

Restore as virtual disk

1. If virtual disk option selected, choose partitions for recovery. Next, pick up **Destination** to save the virtual disk and specify its name.



Destination

Specify local folder you want to restore the selected partitions

Destination folder: C:\vm_disk_folder

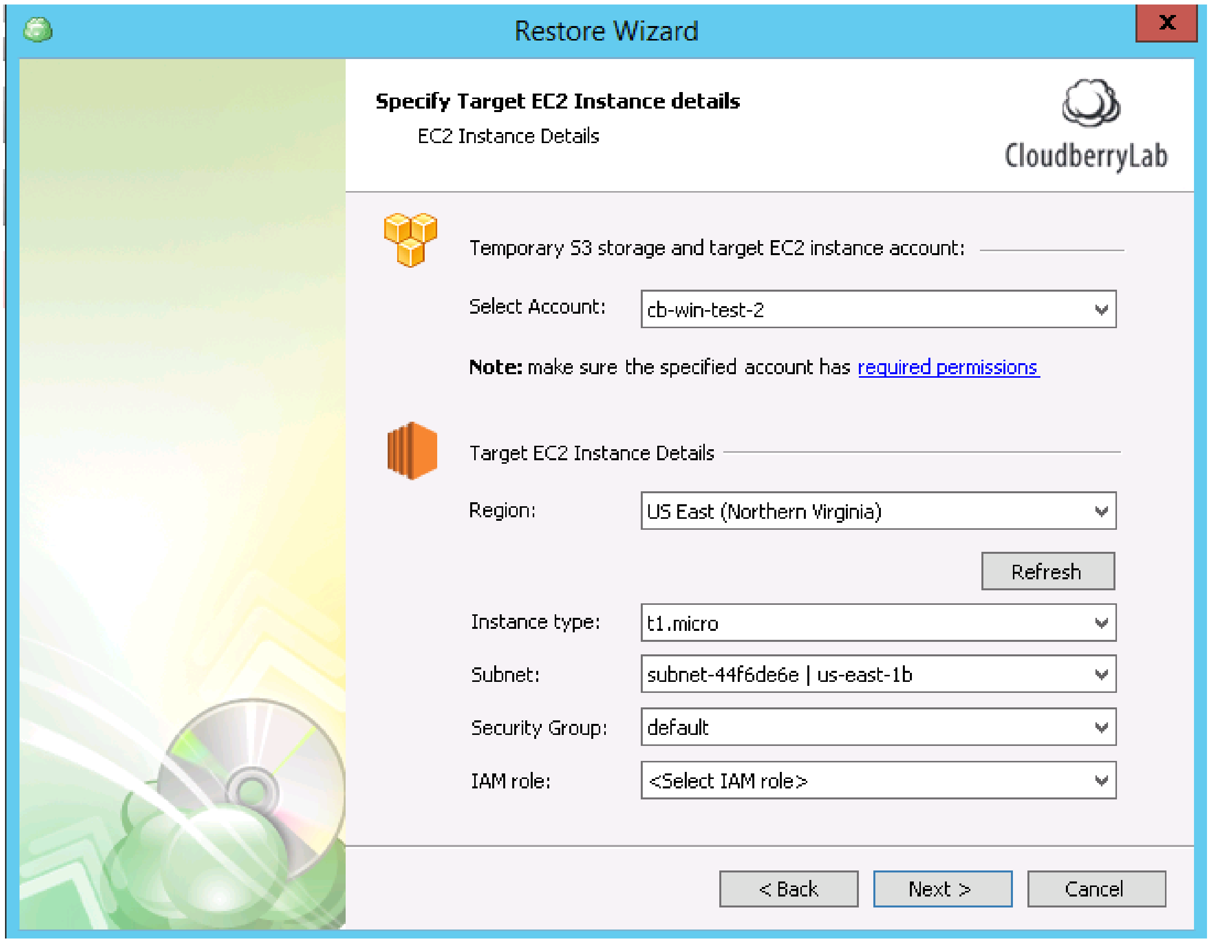
Virtual image name: CB-TEST-IMAGE

□ Overwrite existing files

2. Configure file deciphering, notifications options, etc.
3. Then, you can attach this disk to the existent VM or deploy a new one based on the disk data. Here are the guides how to do it in Virtualbox, VMware and Hyper-V systems.

Restore as EC2 Instance

1. If you choose to recover the image as Amazon EC2 virtual machine, specify target instance details and choose the AWS account on the next step. Use the account already registered in CloudBerry Backup or add a new one. To setup an instance, you must have a role with name ***vmimport*** in AWS account.



Specify Target EC2 Instance details

EC2 Instance Details

Temporary S3 storage and target EC2 instance account:

Select Account: cb-win-test-2

Note: make sure the specified account has required permissions

Target EC2 Instance Details

Region: US East (Northern Virginia)

Instance type: t1.micro

Subnet: subnet-44f6de6e | us-east-1b

Security Group: default

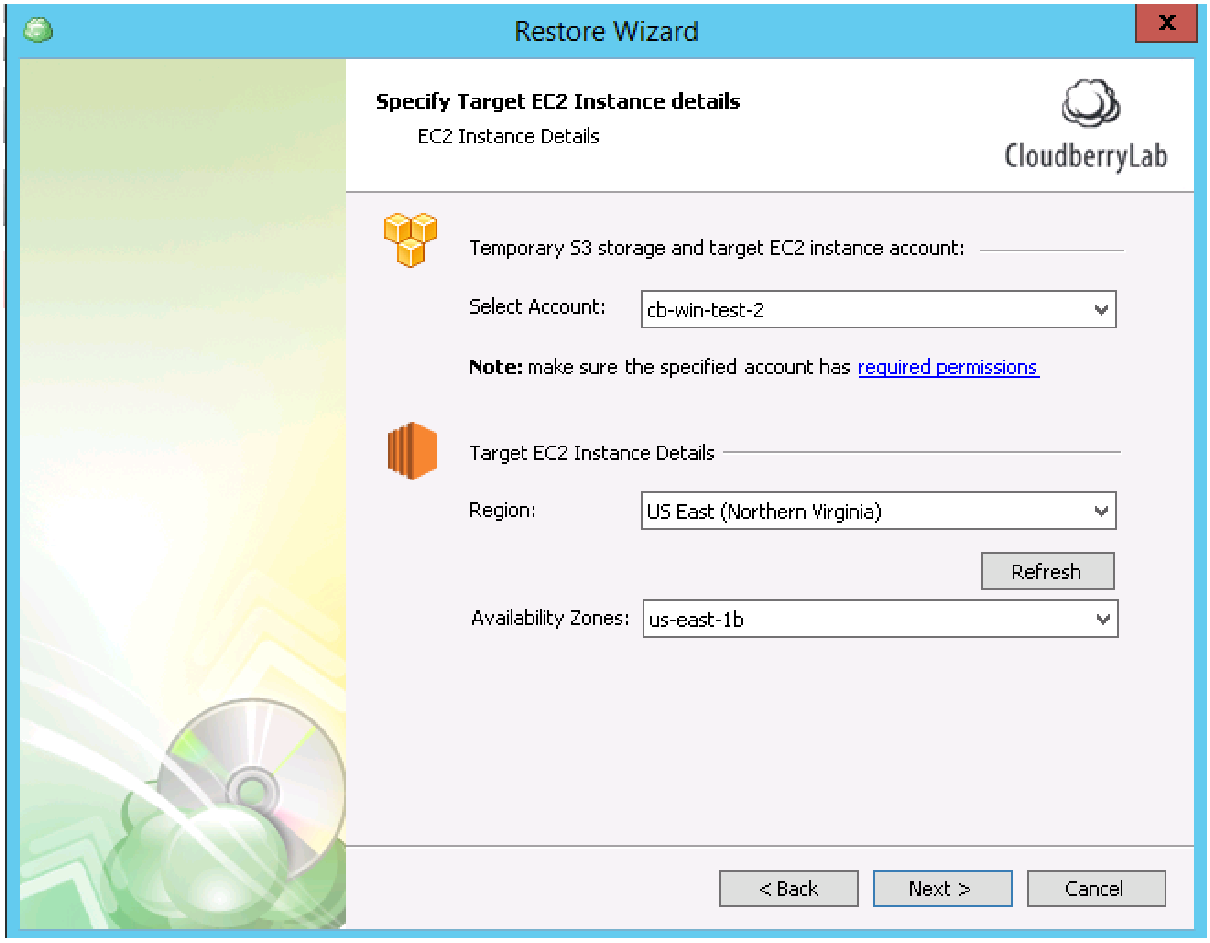
IAM role: <Select IAM role>

If the target account is configured correctly, you can select instance type and other EC2 credentials.

2. Configure file deciphering, notifications options, etc.

Restore as EBS Volume

1. If you want to restore the image as the Amazon Elastic Block Storage volume, select Amazon S3 account or create a new one. Then choose the **Region** and **Availability Zone** for a volume. You need to know that:
   a. Newly created EBS instance won't be prepared to function as a boot volume.
   b. The AWS account must have the required permissions. Visit AWS Controlling Access to Amazon EC2 Resources page to find out more.



Specify Target EC2 Instance details

EC2 Instance Details

Temporary S3 storage and target EC2 instance account:

Select Account: cb-win-test-2

Note: make sure the specified account has required permissions

Target EC2 Instance Details

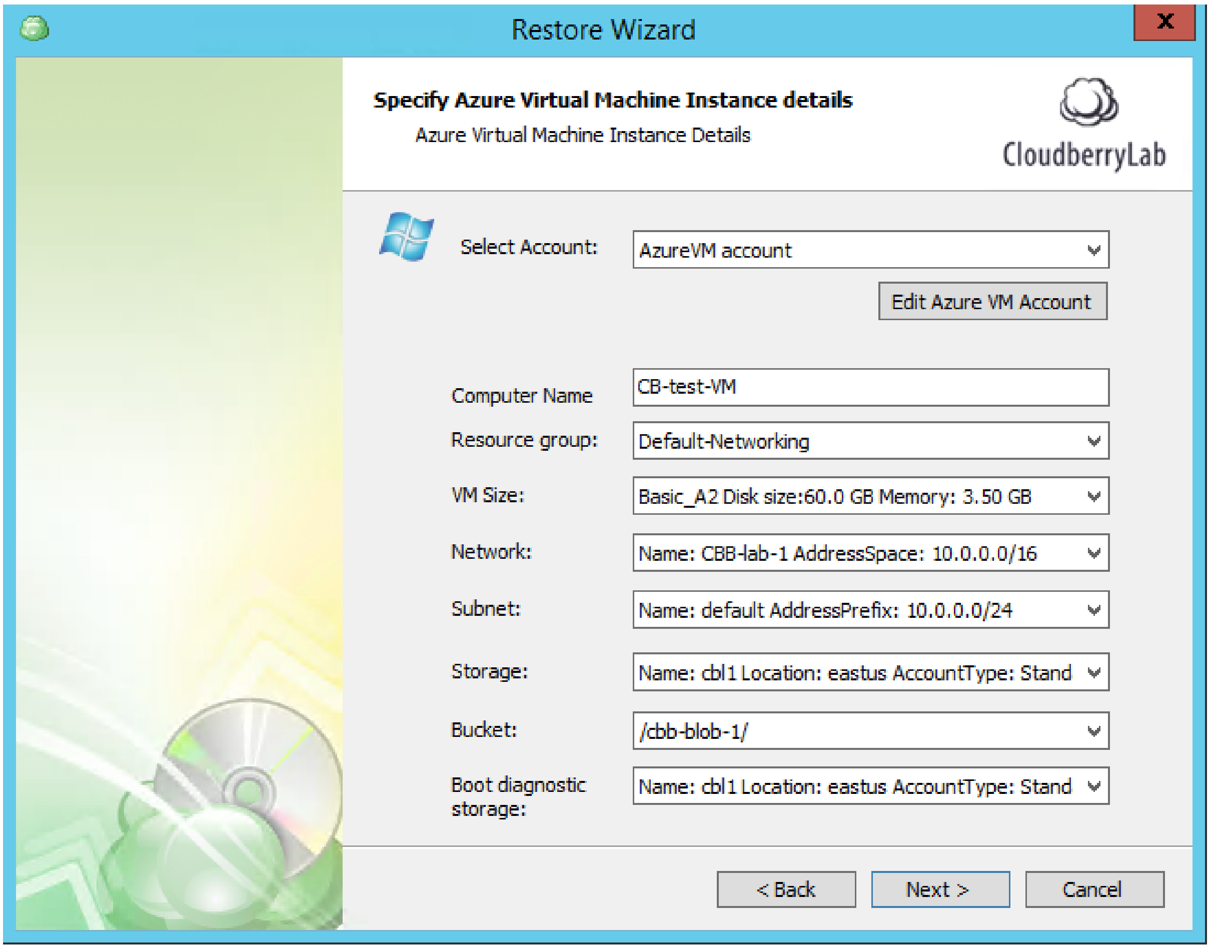
Region: US East (Northern Virginia)

Availability Zones: us-east-1b

2. Select partitions for restoration and configure deciphering, notifications options, etc.
3. After the Wizard finishes, you may find new EBS Volume in Amazon EC2 Management Console and attach it to any desired instance.

Restore as Azure Virtual Machine

1. After you choose to restore image as Azure VM, select Azure VM account registered within CloudBerry Backup or add a new one, and then specify details of the new virtual machine instance. You can find all fields parameters in the Azure Control Panel.



Specify Azure Virtual Machine Instance details

Azure Virtual Machine Instance Details

Select Account: AzureVM account

Computer Name: CB-test-VM

Resource group: Default-Networking

VM Size: Basic_A2 Disk size:60.0 GB Memory: 3.50 GB

Network: Name: CBB-lab-1 AddressSpace: 10.0.0.0/16

Subnet: Name: default AddressPrefix: 10.0.0.0/24

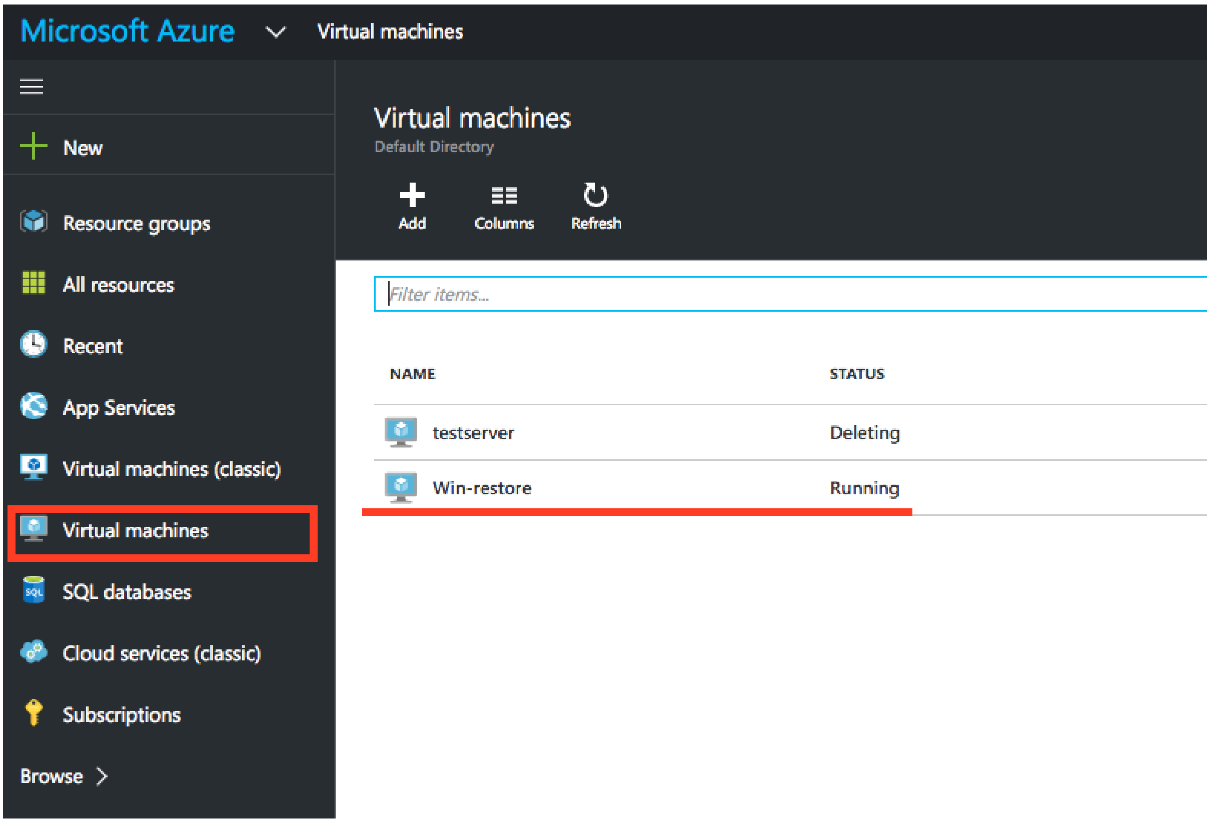
Storage: Name: cbl1 Location: eastus AccountType: Stand

Bucket: /cbb-blob-1/

Boot diagnostic storage: Name: cbl1 Location: eastus AccountType: Stand

2. Then, choose the image partitions for recovery and configure notifications, decryption, etc.

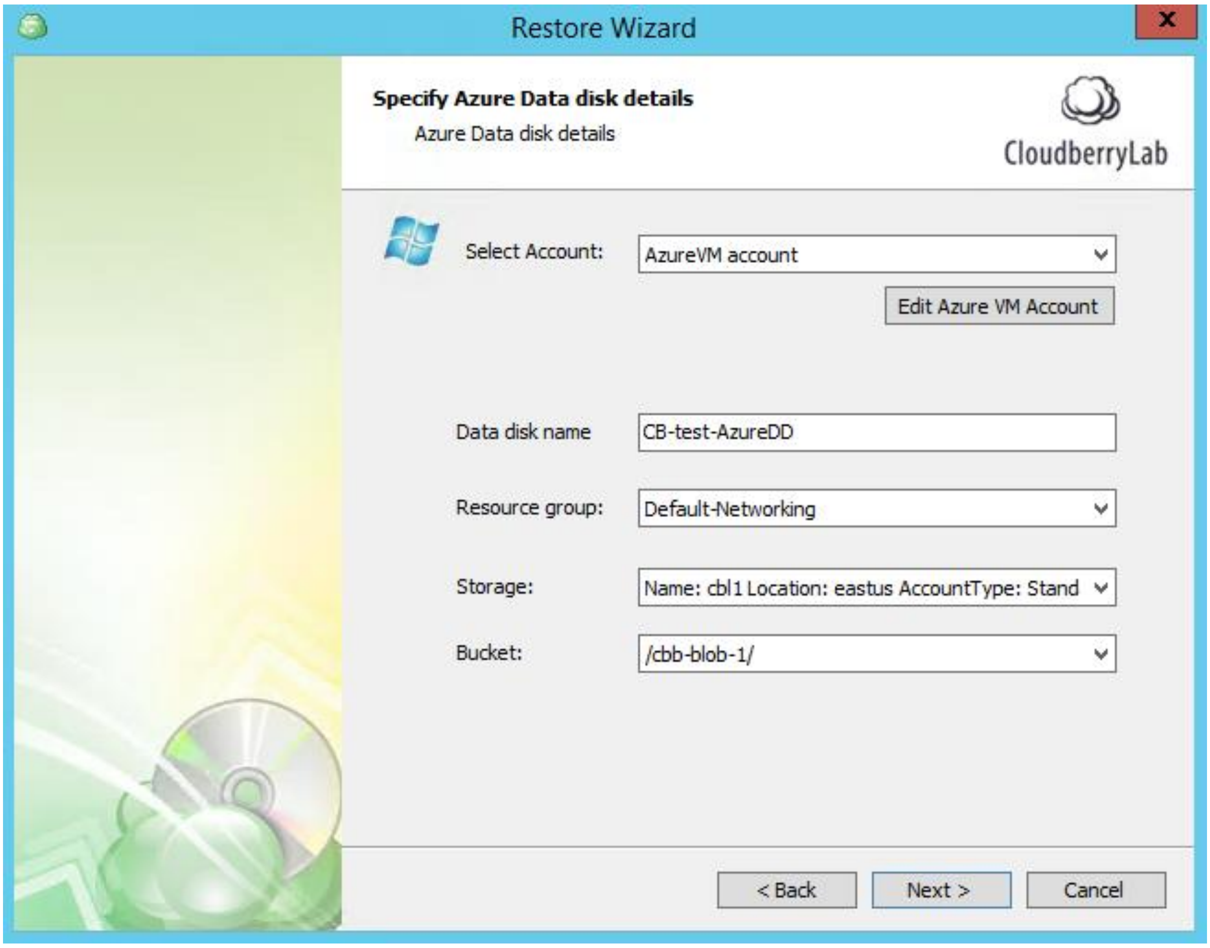
3. Finish the Wizard. One restore task completes, VM starts automatically and displays in the Microsoft Azure console.



NAME	STATUS
testserver	Deleting
Win-restore	Running

Restore as Azure Data Disk

1. If you want to create Azure Data Disk instance with the contents of the backup image, select Azure VM Account (or create a new one), and specify the custom name and other disk details.



Restore Wizard

Specify Azure Data disk details

Azure Data disk details

Select Account: AzureVM account

Data disk name CB-test-AzureDD

Resource group: Default-Networking

Storage: Name: cbl1 Location: eastus AccountType: Stand

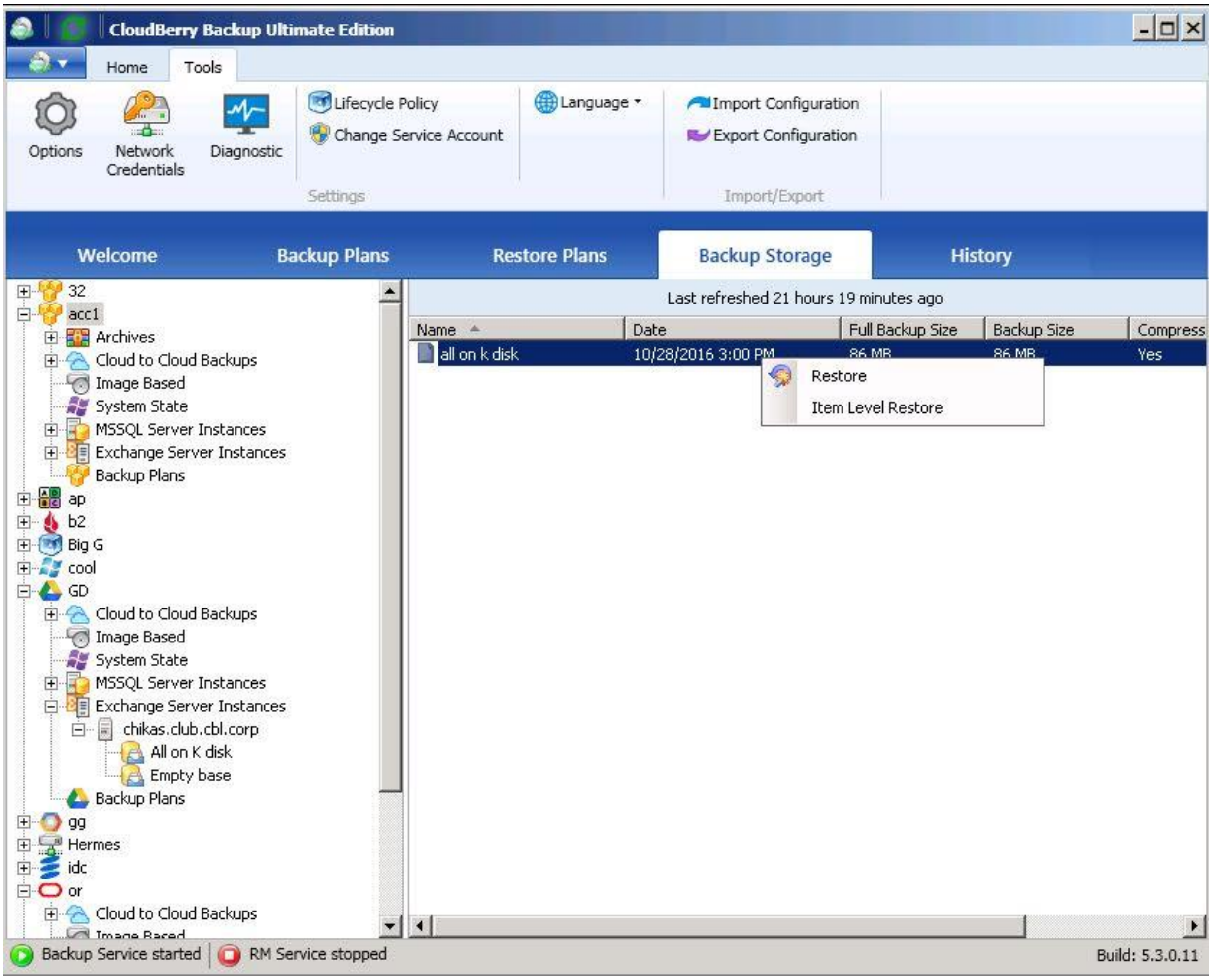
Bucket: /cbb-blob-1/

2. Next, select disk partitions to restore and set up notifications and deciphering to complete the Wizard.
3. When the recovery has finished, new disk displays in Microsoft Azure Management console. You can attach it to existing Azure VM instance or deploy a new one based on the disk data. Find out more on special Azure guide page.

Item-level restore for Microsoft Exchange.

Starting from version 5.2, CloudBerry Backup enhances support for Microsoft Exchange. Formerly, you were somewhat limited when it comes to restoring your Exchange files. To wit, you could only restore complete EDB files and logs from the Exchange server, which is sufficient for essential tasks; however, many professionals found it to be deficient. Well, no longer! Now we're gonna explain how to perform item-lever Microsoft Exchange restore.

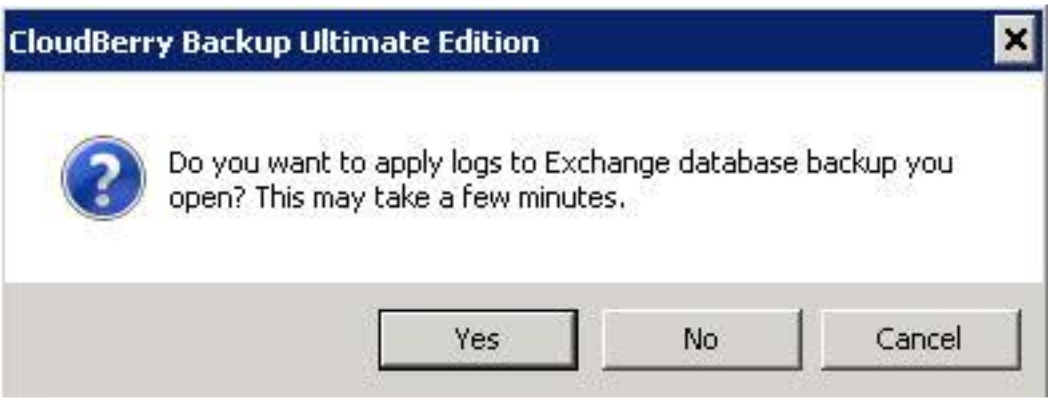
To enable the feature, you must make a new full backup of the Exchange database. It is due to significant changes in the backup format. Having done so, open CloudBerry Backup 5.2 or newer. Under **Backup Storage** locate your database. Right-click on it and click **Item Lever restore**.



Last refreshed 21 hours 19 minutes ago

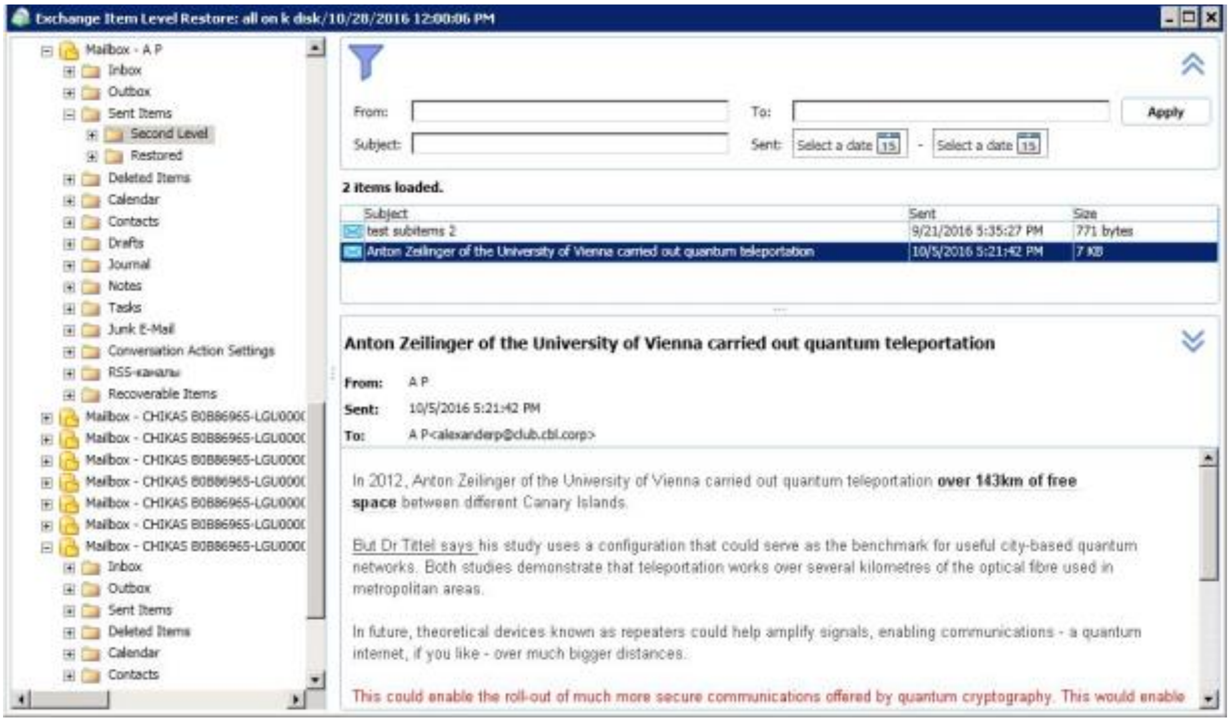
Name	Date	Full Backup Size	Backup Size	Compress
all on k disk	10/28/2016 3:00 PM	86 MB	86 MB	Yes

A pop-up window will appear and ask you if you wish to apply logs. Roughly speaking, it would add information from the logs to the database and subsequently remove unnecessary logs.


CloudBerry Backup Ultimate Edition

Do you want to apply logs to Exchange database backup you open? This may take a few minutes.

A newly appeared window is the Microsoft Exchange item-level restore assistant. On the left you can see a file structure of your mailboxes, emails, calendar events, contacts, etc. Select the files you want to restore.


Exchange Item Level Restore: all on k disk/10/28/2016 12:00:06 PM
Mailbox - A P
Inbox
Outbox
Sent Items
Second Level
Restored
Deleted Items
Calendar
Contacts
Drafts
Journal
Notes
Tasks
Junk E-Mail
Conversation Action Settings
RSS-каналы
Recoverable Items
Mailbox - CHIKAS B0B86965-LGU000(
Mailbox - CHIKAS B0B86965-LGU000(
Mailbox - CHIKAS B0B86965-LGU000(
Mailbox - CHIKAS B0B86965-LGU000(
Mailbox - CHIKAS B0B86965-LGU000(
Mailbox - CHIKAS B0B86965-LGU000(
Mailbox - CHIKAS B0B86965-LGU000(
Inbox
Outbox
Sent Items
Deleted Items
Calendar
Contacts
From:
To:
Apply
Subject:
Sent:
Select a date
Select a date

2 items loaded.

Subject	Sent	Size
test subitems 2	9/21/2016 5:35:27 PM	771 bytes
Anton Zeilinger of the University of Vienna carried out quantum teleportation	10/5/2016 5:21:42 PM	7 KB

Anton Zeilinger of the University of Vienna carried out quantum teleportation

From: A P
Sent: 10/5/2016 5:21:42 PM
To: A P<alexanderp@club.cbl.corp>

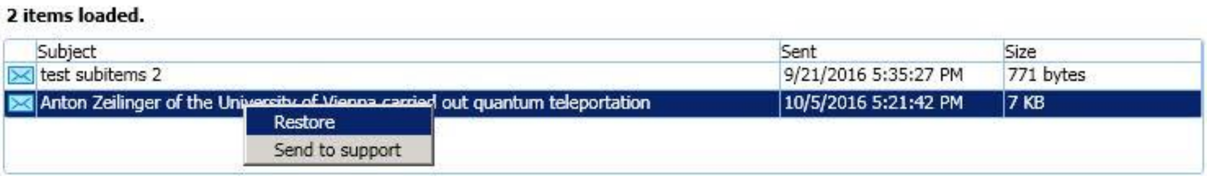
In 2012, Anton Zeilinger of the University of Vienna carried out quantum teleportation **over 143km of free space** between different Canary Islands.

But Dr Tittel says his study uses a configuration that could serve as the benchmark for useful city-based quantum networks. Both studies demonstrate that teleportation works over several kilometres of the optical fibre used in metropolitan areas.

In future, theoretical devices known as repeaters could help amplify signals, enabling communications - a quantum internet, if you like - over much bigger distances.

This could enable the roll-out of much more secure communications offered by quantum cryptography. This would enable

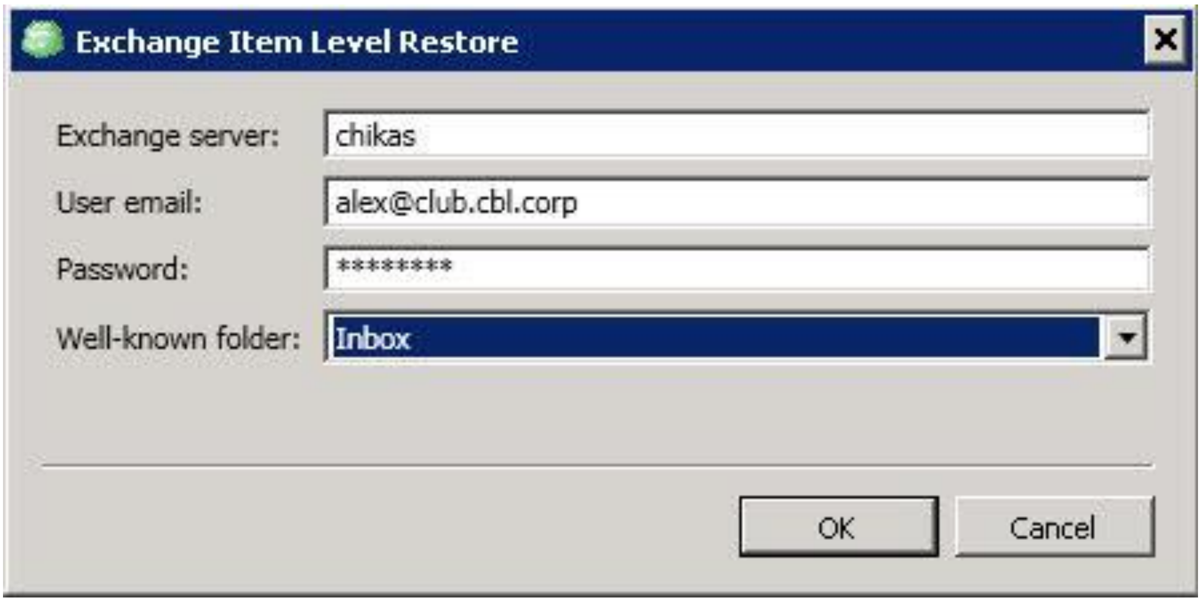
Right-click on them and click **Restore**.



2 items loaded.

Subject	Sent	Size
test subitems 2	9/21/2016 5:35:27 PM	771 bytes
Anton Zeilinger of the University of Vienna carried out quantum teleportation	10/5/2016 5:21:42 PM	7 KB

Now enter your Microsoft Exchange credentials and click **OK**.

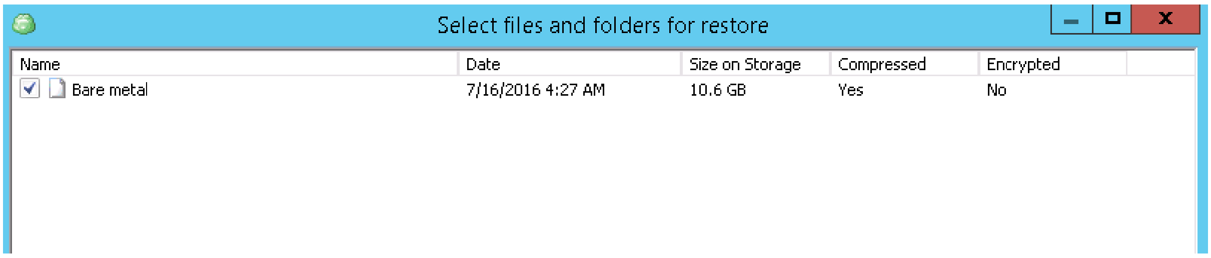


Exchange server: chikas
User email: alex@club.cbl.corp
Password: ********
Well-known folder: Inbox

Done! Your files should be successfully restored by now.
Currently, CloudBerry Backup is only compatible with MS Exchange 2010. We keep working on the Exchange Backup and will introduce a full-featured items recovery in the near future to support MS Exchange 2007, 2013 and 2016.

System Image (formerly Bare-Metal) Restore

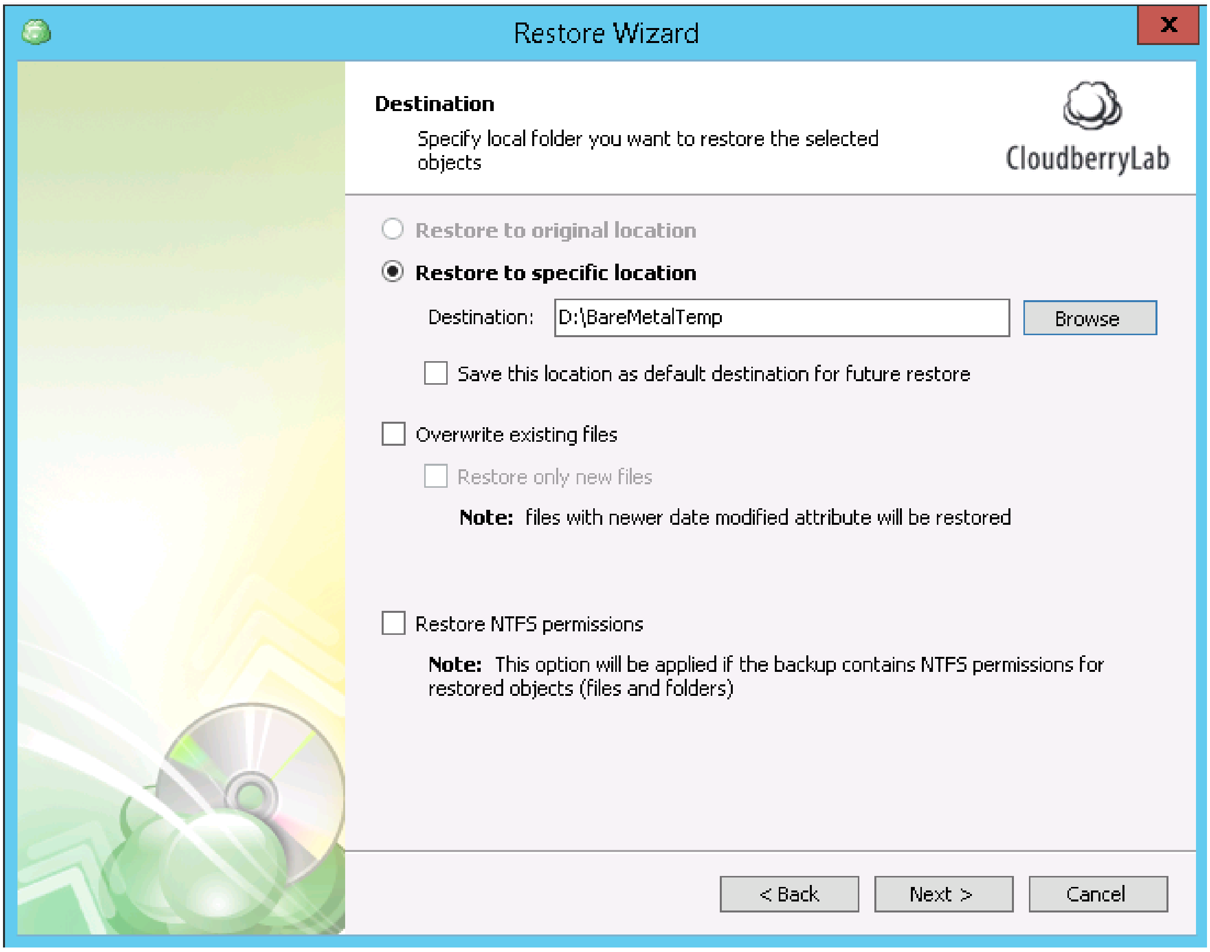
1. In the Restore Wizard, choose backup storage and the version of the image file. Then, pick up **System Image Restore** option on the **Type of Data** step and select the backup to recover.
2. On the **Restore Source** step, pick up the exact recovery file. Here one can check the backup date, the size of the image and see if the file is compressed or encrypted. You can access the properties table in a more convenient way by clicking on the **View in dialog** option.



Select files and folders for restore

Name	Date	Size on Storage	Compressed	Encrypted
☑ Bare metal	7/16/2016 4:27 AM	10.6 GB	Yes	No

3. On the **Destination** step, choose the folder on the external drive to download the system image.



Restore Wizard

Destination

Specify local folder you want to restore the selected objects

○ Restore to original location

● **Restore to specific location**

Destination: D:\BareMetalTemp

□ Save this location as default destination for future restore

□ Overwrite existing files

□ Restore only new files

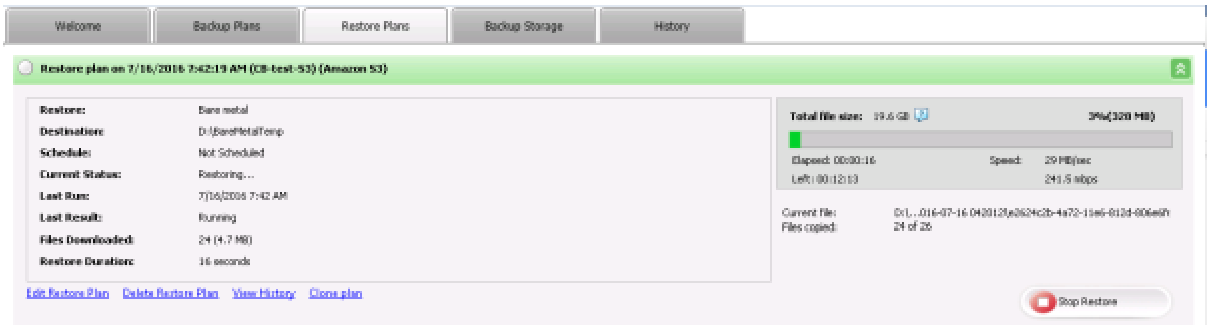
Note: files with newer date modified attribute will be restored

□ Restore NTFS permissions

Note: This option will be applied if the backup contains NTFS permissions for restored objects (files and folders)

The **Restore to specific location** option is not available because you just need to extract the recovery image for Windows native repair service.

4. Configure decryption and notification settings and review the **Summary** screen.
5. After the Wizard has finished, CloudBerry Backup will switch to the **Restore Plans** tab to track the process.



Restore plan on 7/16/2016 7:42:19 AM (CB-test-S3) (Amazon S3)

Restore:	Bare metal
Destination:	D:\BareMetalTemp
Schedule:	Not Scheduled
Current Status:	Restoring...
Last Run:	7/16/2016 7:42 AM
Last Result:	Running
Files Downloaded:	24 (4.7 MB)
Restore Duration:	16 seconds

Total file size: 19.6 GB 3%(320 MB)

Elapsed: 00:00:16 Speed: 29 MB/sec
Left: 00:12:13 241.5 mbps

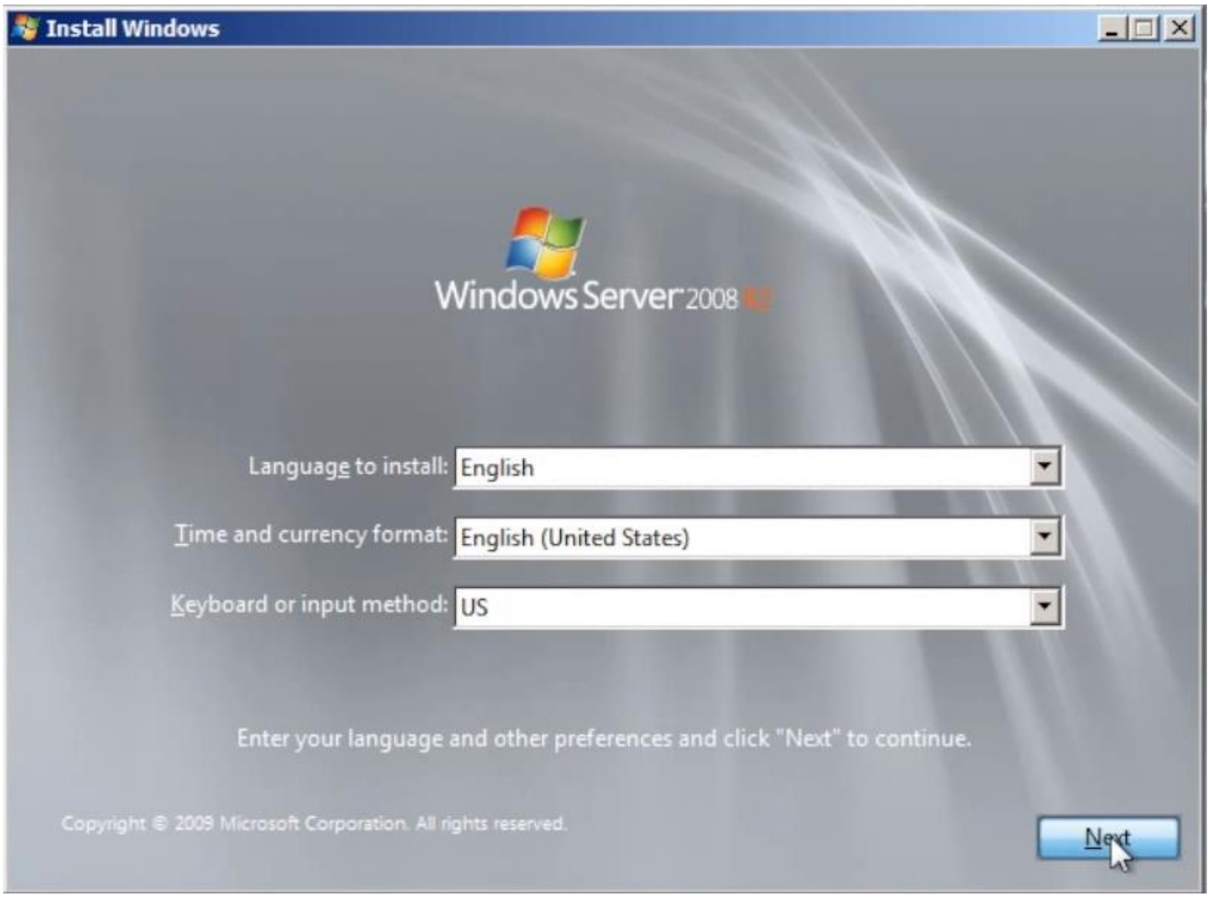
Current file: D:\...016-07-16 042012\a2624c2b-4a72-11e6-812d-806e6f
Files copied: 24 of 26

When the download completes, check the **WindowsImageBackup** folder on the external drive.

6. Connect this drive to the machine you want to recover. Then, do the next:
   a. If there is no OS on the computer, just reboot it.
   b. If there is an OS installed, plug in Windows installation disk and choose to boot from it in your firmware settings. Then, reboot the machine.
   c. Otherwise, reboot the computer, press **F8** while firmware starts and select **Repair Your Computer** option.

Windows Install & Repair Wizard will initialize. The System-Image recovery goes in a few steps:

1. Choose **language, time format, and input** method.



Install Windows

Language to install: English

Time and currency format: English (United States)

Keyboard or input method: US

Enter your language and other preferences and click "Next" to continue.

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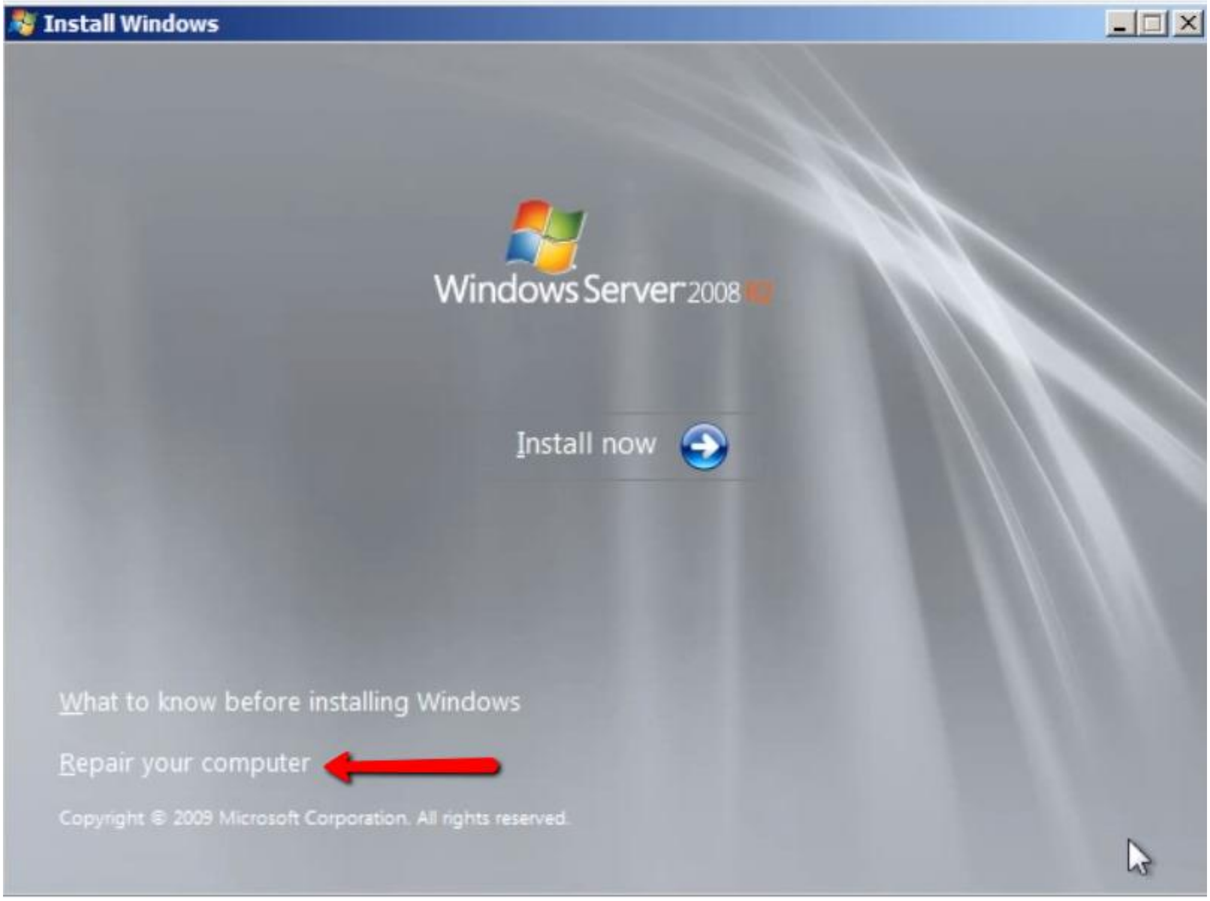
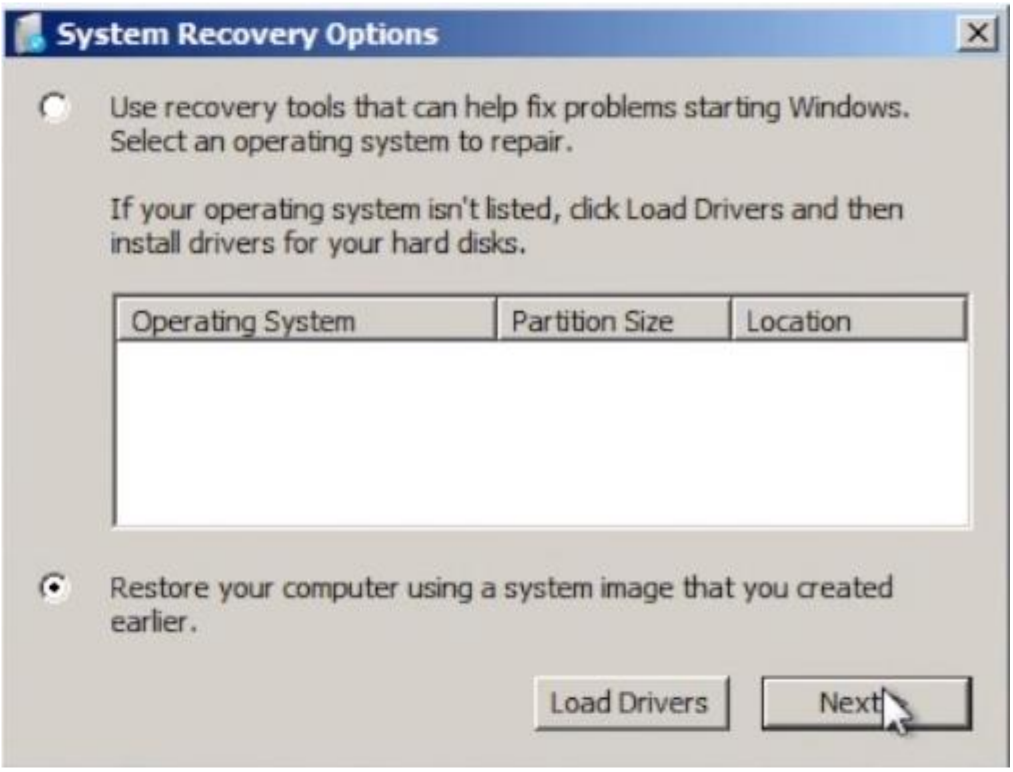
2. Select **Repair your computer** option.



Install Windows
Windows Server 2008 R2
Install now
What to know before installing Windows
Repair your computer
Copyright © 2009 Microsoft Corporation. All rights reserved.

3. Check **Restore your computer using a system image that you created earlier** option.



System Recovery Options

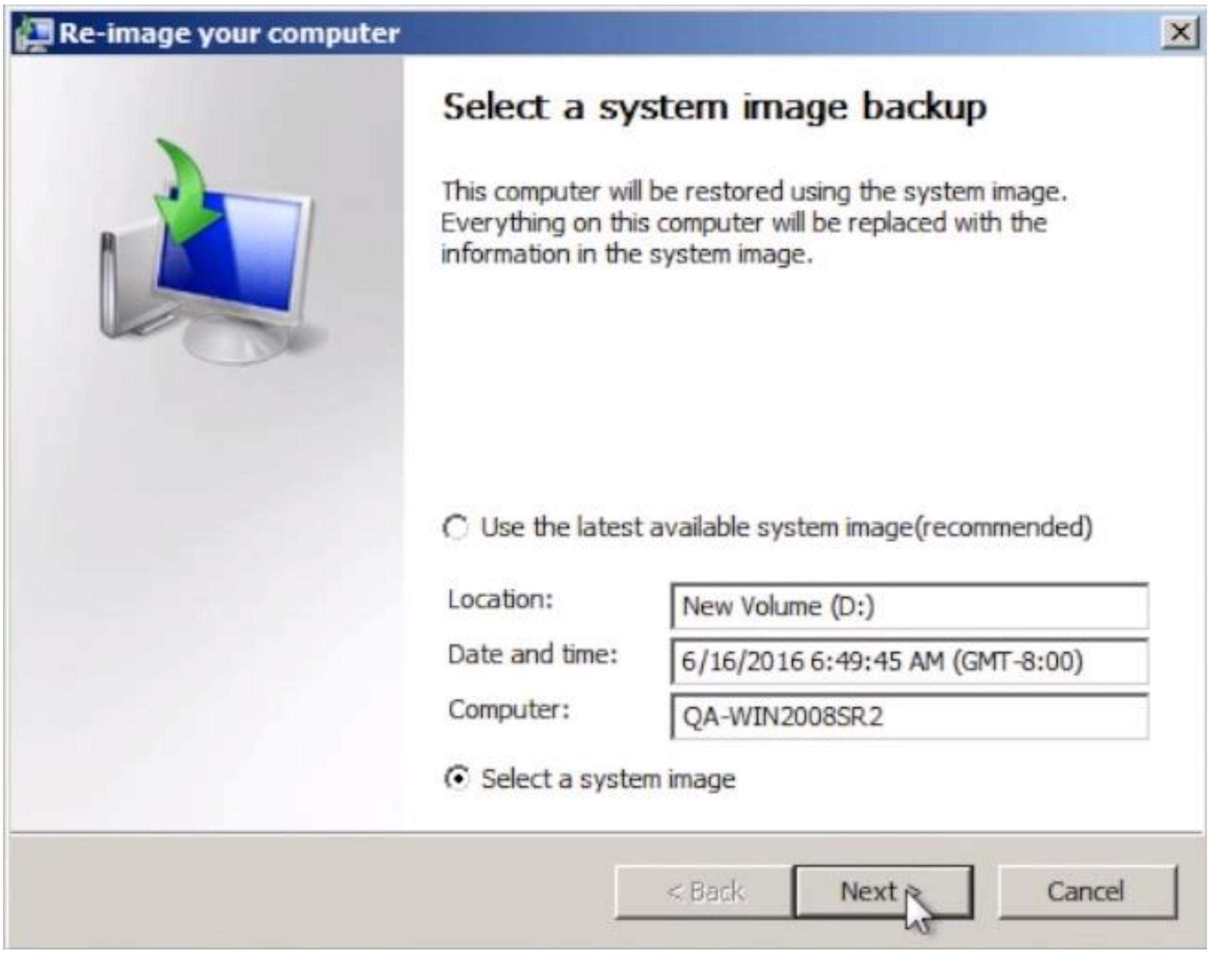
○ Use recovery tools that can help fix problems starting Windows. Select an operating system to repair.

If your operating system isn't listed, click Load Drivers and then install drivers for your hard disks.

Operating System	Partition Size	Location

● Restore your computer using a system image that you created earlier.

4. Choose **Select a system image** option.



Re-image your computer

Select a system image backup

This computer will be restored using the system image. Everything on this computer will be replaced with the information in the system image.

○ Use the latest available system image(recommended)

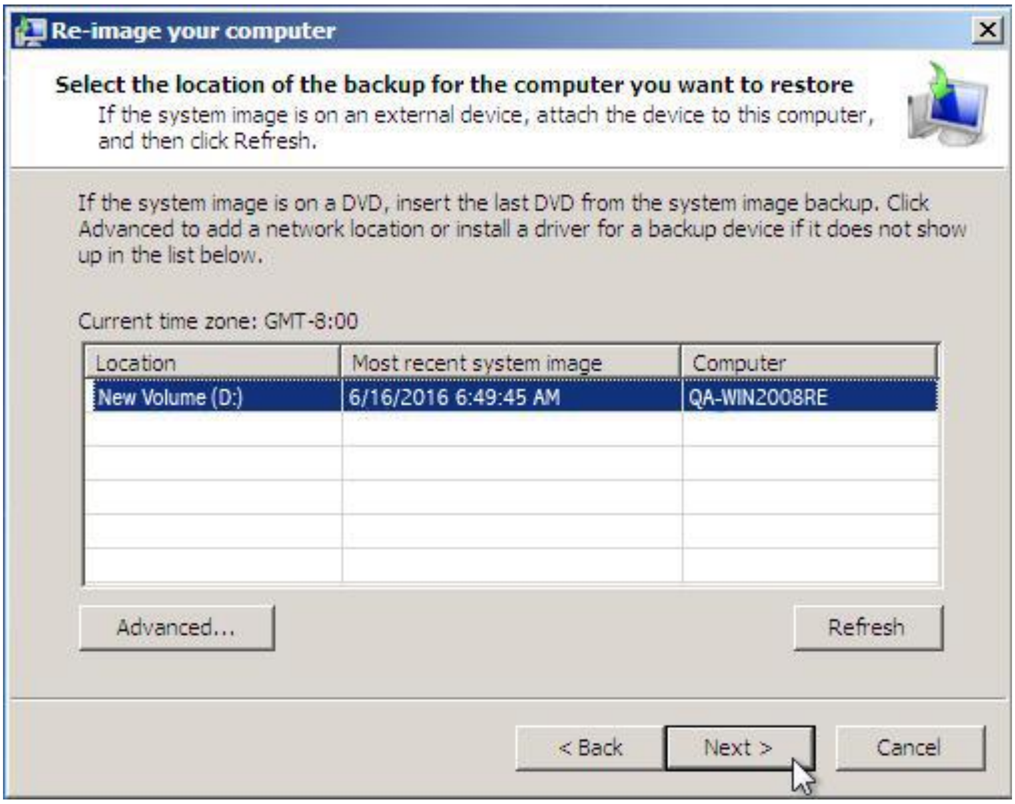
Location: New Volume (D:)

Date and time: 6/16/2016 6:49:45 AM (GMT-8:00)

Computer: QA-WIN2008SR2

● Select a system image

5. Select the system image from the connected drive.



Re-image your computer

Select the location of the backup for the computer you want to restore

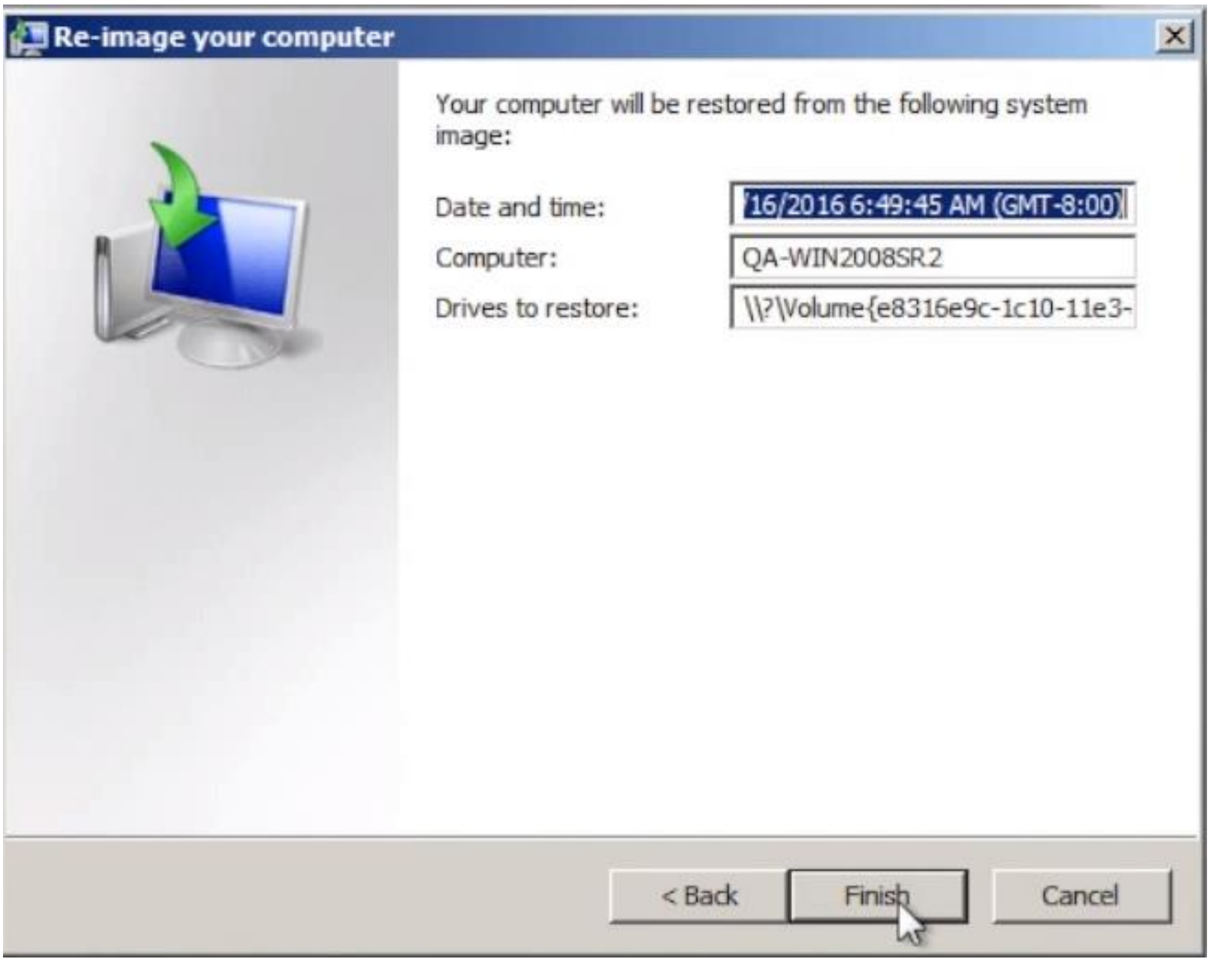
If the system image is on an external device, attach the device to this computer, and then click Refresh.

If the system image is on a DVD, insert the last DVD from the system image backup. Click Advanced to add a network location or install a driver for a backup device if it does not show up in the list below.

Current time zone: GMT-8:00

Location	Most recent system image	Computer
New Volume (D:)	6/16/2016 6:49:45 AM	QA-WIN2008RE

6. Check the image credentials and click **Finish** to launch the restoration.



Re-image your computer

Your computer will be restored from the following system image:

Date and time: 16/2016 6:49:45 AM (GMT-8:00)

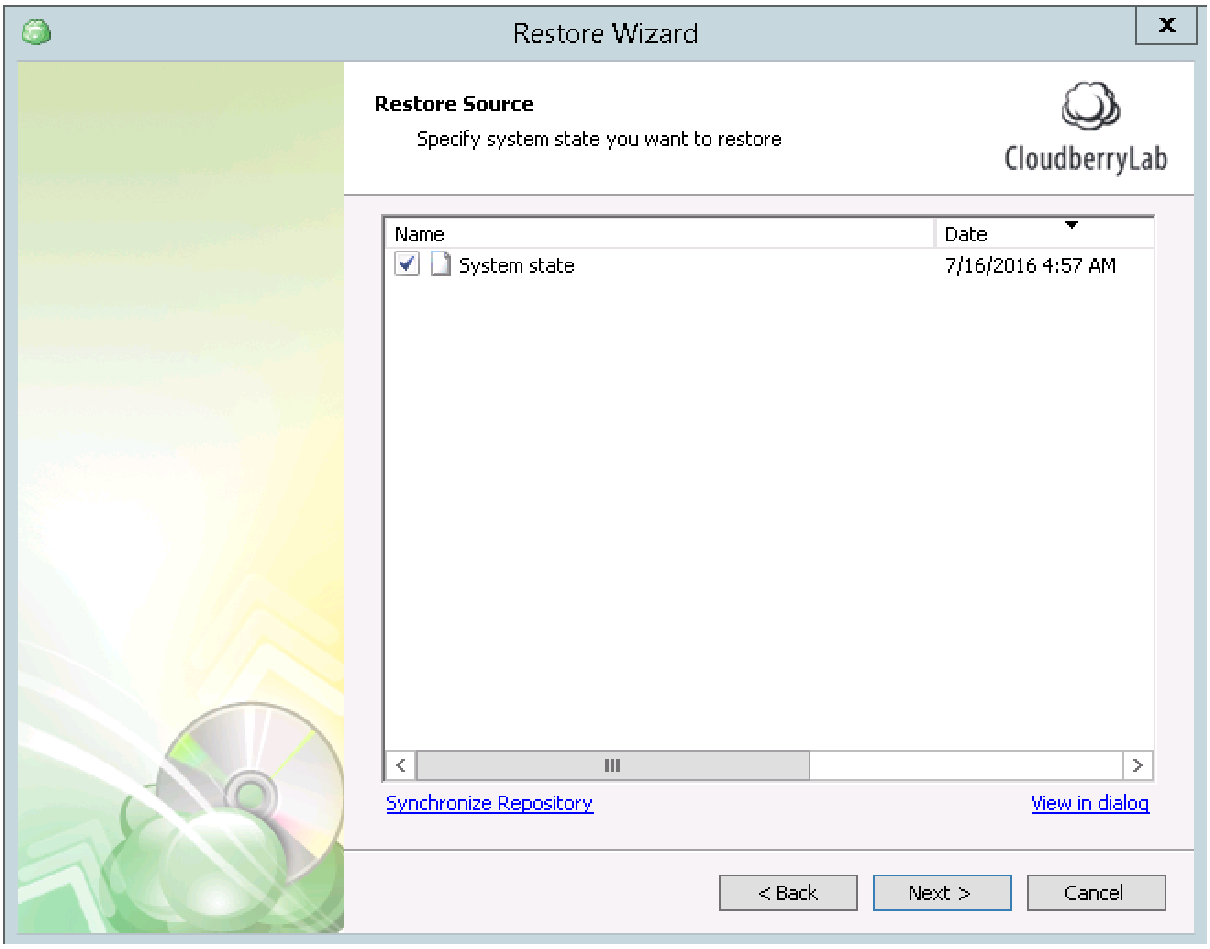
Computer: QA-WIN2008SR2

Drives to restore: \\?\Volume{e8316e9c-1c10-11e3-

7. When the restoration is completed, relaunch the machine.

System State Restore

1. If you want to recover the system state, specify the backup version and the exact image file.

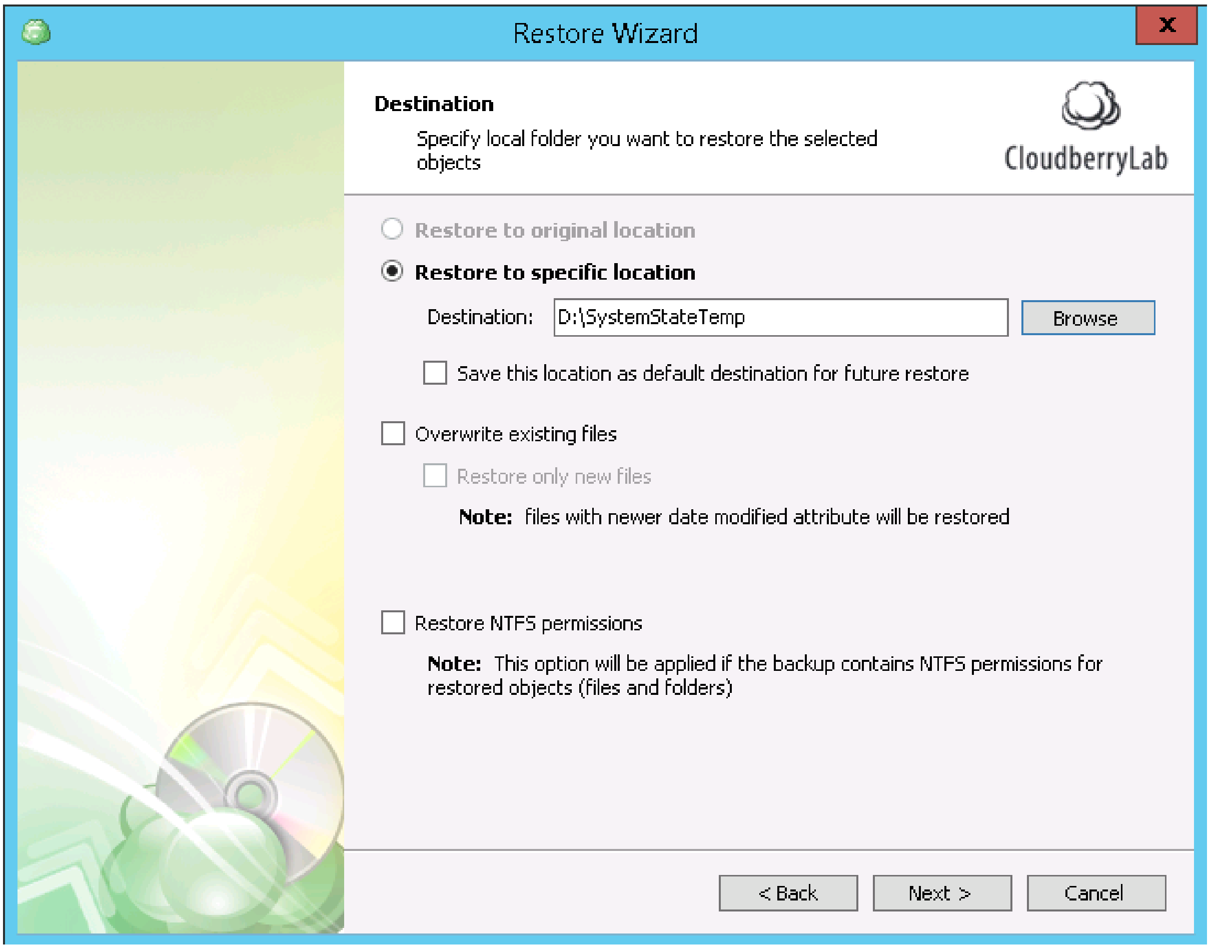


Restore Source

Specify system state you want to restore

Name	Date
☑ System state	7/16/2016 4:57 AM

2. Then, you need to choose the external drive to deploy the recovery data kit.



Destination

Specify local folder you want to restore the selected objects

○ Restore to original location

● **Restore to specific location**

Destination: D:\SystemStateTemp

□ Save this location as default destination for future restore

□ Overwrite existing files

□ Restore only new files

Note: files with newer date modified attribute will be restored

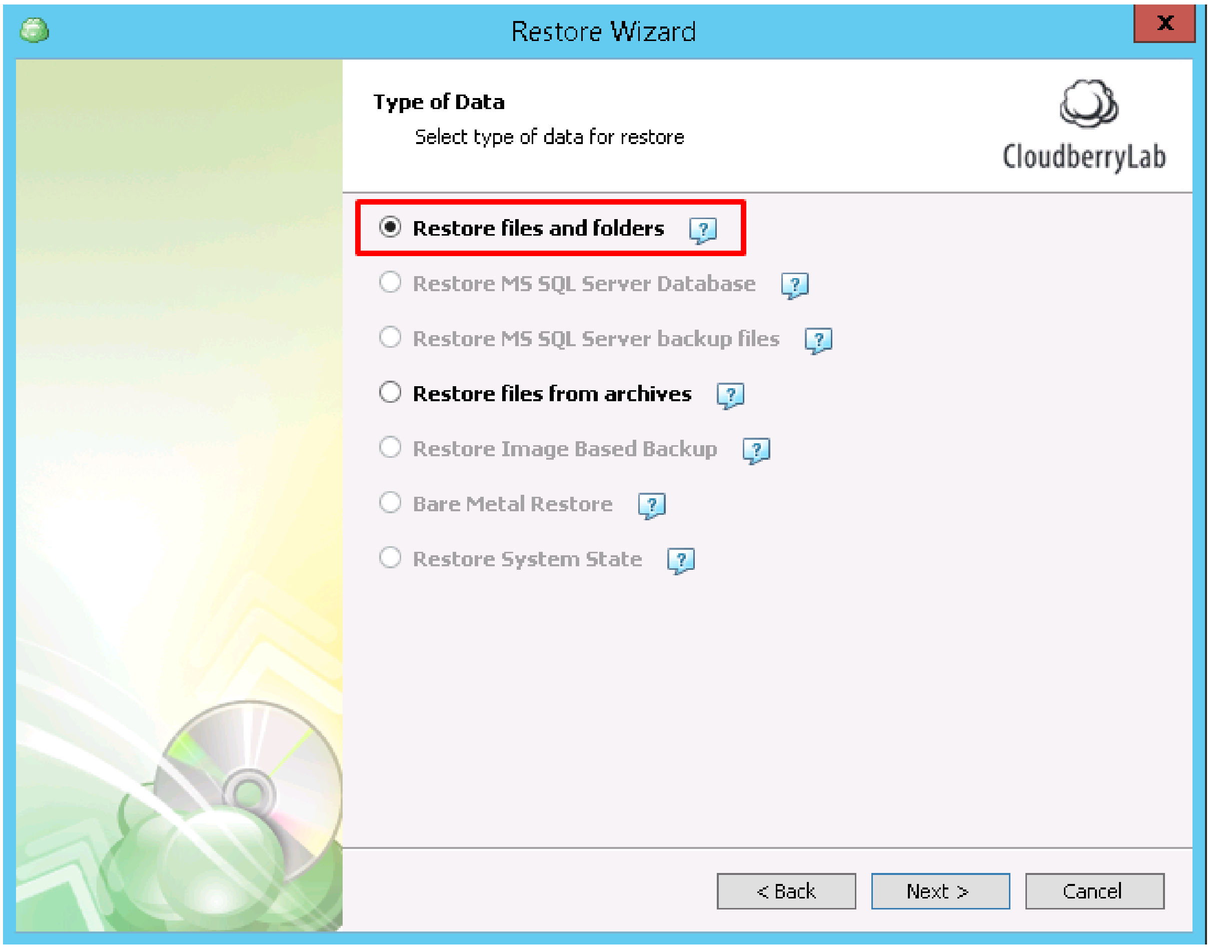
□ Restore NTFS permissions

Note: This option will be applied if the backup contains NTFS permissions for restored objects (files and folders)

3. After notification and deciphering options setup, check recovery configuration on the **Summary** screen. Than CloudBerry Backup will download the restoration pack to the external drive.
4. Next, launch the Windows Recovery Wizard in the next ways:
   a. Plug in Windows installation disk and choose to boot from it in the firmware settings, reboot the machine.
   b. Reboot the computer, press **F8** while firmware starts and select **Repair Your Computer** option.
5. The Wizard will start. Proceed its steps to complete the recovery.

Microsoft Exchange Server Restore

1. If you want to recover Microsoft Exchange data, choose **Restore files and folders** option on the **Type of Data** step of the Wizard.



Restore Wizard

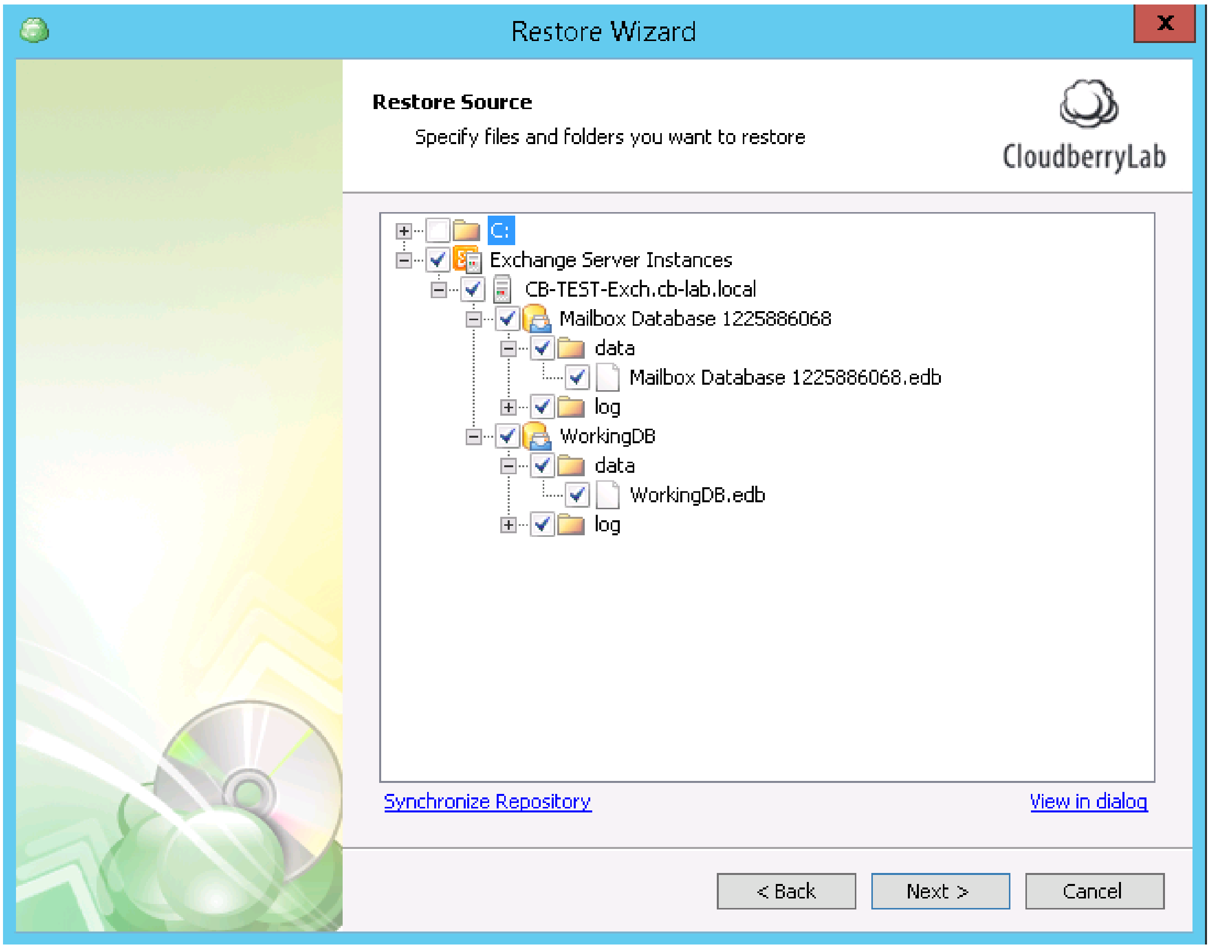
Type of Data

Select type of data for restore

- ● Restore files and folders
- ○ Restore MS SQL Server Database
- ○ Restore MS SQL Server backup files
- ○ Restore files from archives
- ○ Restore Image Based Backup
- ○ Bare Metal Restore
- ○ Restore System State

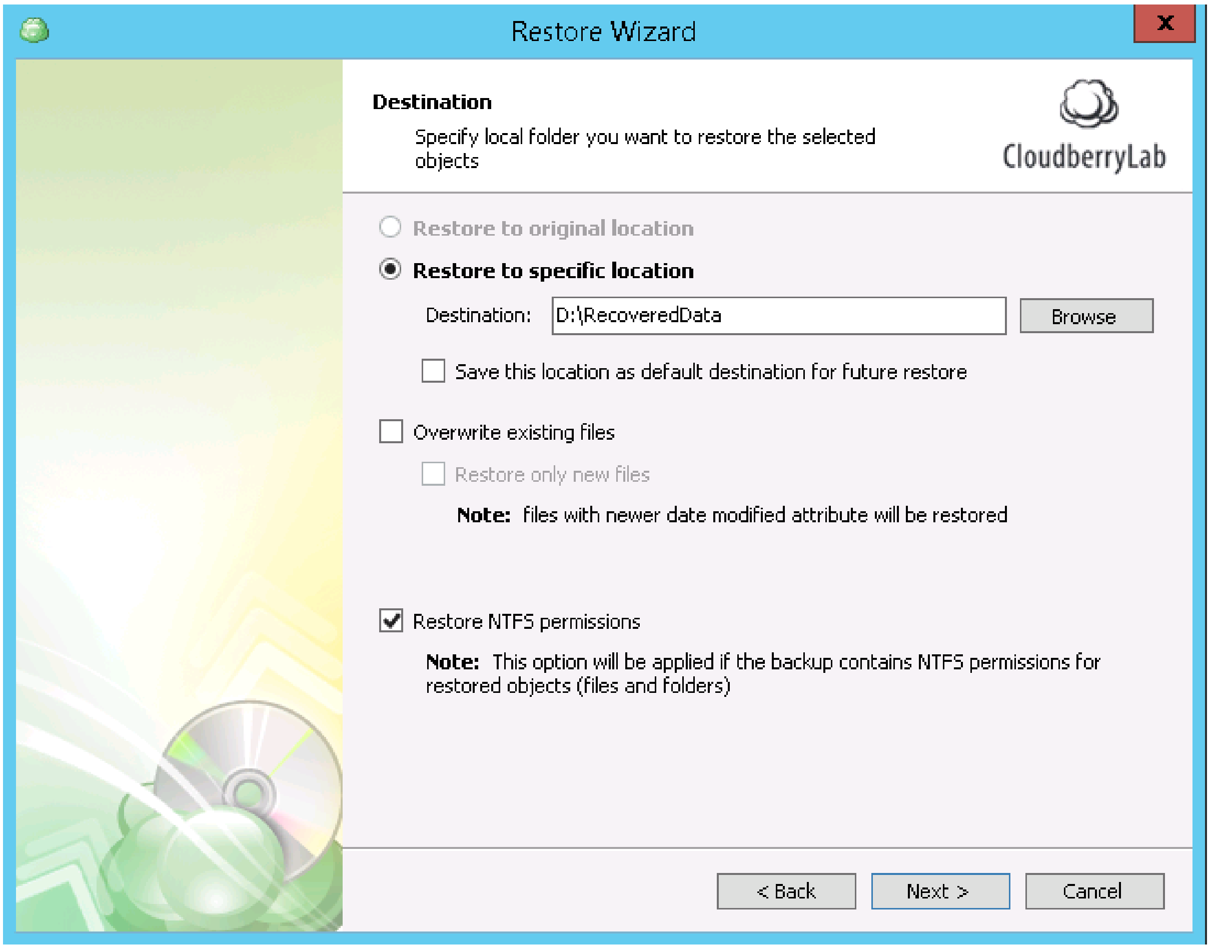
2. Choose the version of Exchange to recover and proceed to **Restore Source** step, where all data on backup storage exposed. Choose **Exchange Server Instances** and check the files to

recover.



- ☐ C:
- ☑ Exchange Server Instances
  - ☑ CB-TEST-Exch.cb-lab.local
    - ☑ Mailbox Database 1225886068
      - ☑ data
        - ☑ Mailbox Database 1225886068.edb
      - ☑ log
    - ☑ WorkingDB
      - ☑ data
        - ☑ WorkingDB.edb
      - ☑ log

3. Specify the folder to download the databases.



Destination

Specify local folder you want to restore the selected objects

○ Restore to original location

● **Restore to specific location**

Destination: D:\RecoveredData

□ Save this location as default destination for future restore

□ Overwrite existing files

□ Restore only new files

Note: files with newer date modified attribute will be restored

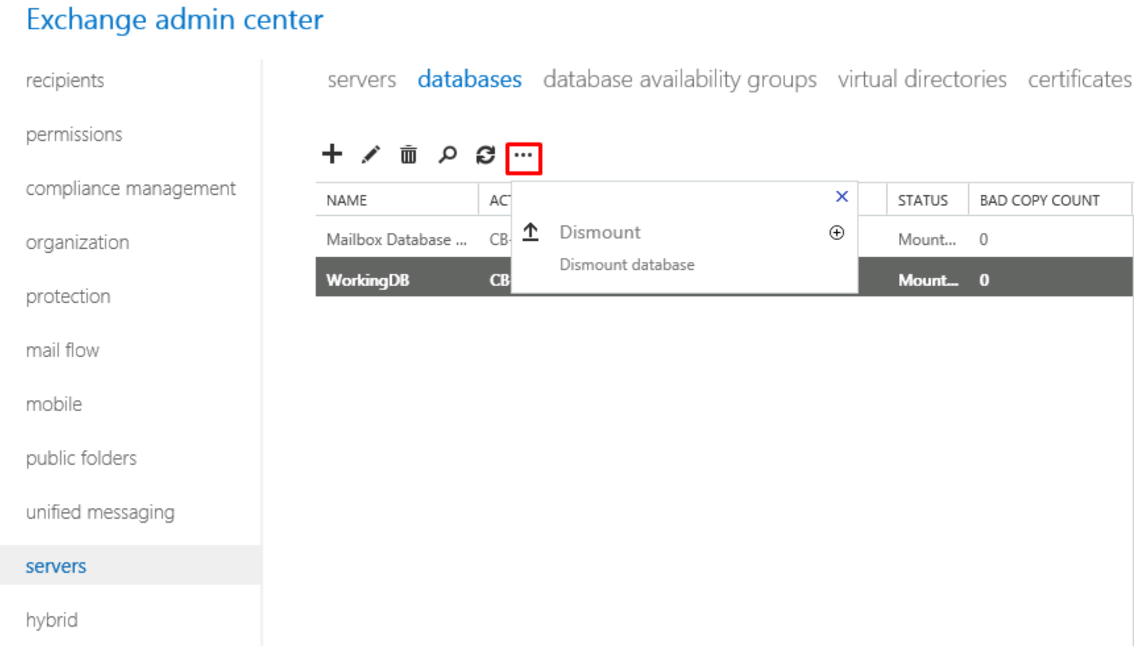
☑ Restore NTFS permissions

Note: This option will be applied if the backup contains NTFS permissions for restored objects (files and folders)

The Wizard can't restore data to the original folder directly. To recover to the original location, dismount current databases and replace existing files with the restored ones manually. You can do it in a few ways:

a. Login to Exchange Admin Center (EAC) and choose **Servers** in console management tree on the right. Go under **Databases** tab, click on the desired database, press **Three**

Dots button above items table and select **Dismount.**



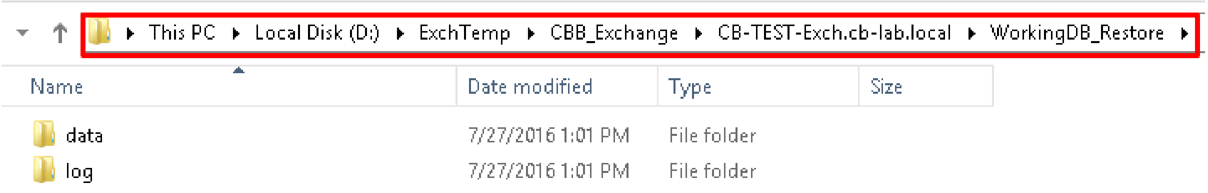
NAME	AC	STATUS	BAD COPY COUNT
Mailbox Database ...	CB-	Mount...	0
WorkingDB	CB	Mount...	0

b. Use Exchange Management Shell command: **Dismount-Database -Identity DBNAME -Confirm:$False** Where **DBNAME** is the name of the database to dismount. It can also dismount all the databases via the next command: **Get-MailboxDatabase -Server SERVERNAME | Dismount-Database -Confirm:$False** Where **SERVERNAME** is the name of Exchange instance.

4. Finally, specify decryption and notification options. Recovery configuration will be reported on the **Summary** screen.

To mount restored databases, do the next:

1. Open EAC and dismount the database instances you want to recover.
2. Open the temporary download folder specified in Restore Wizard. There is recovery data kit on the path **%Download Folder Name%/CBB_Exchange/%Your Exchange Instance Name%**. Rename the repository you want to recover, e.g. add the prefix **Restore** to the **%Your Exchange Instance Name%.**

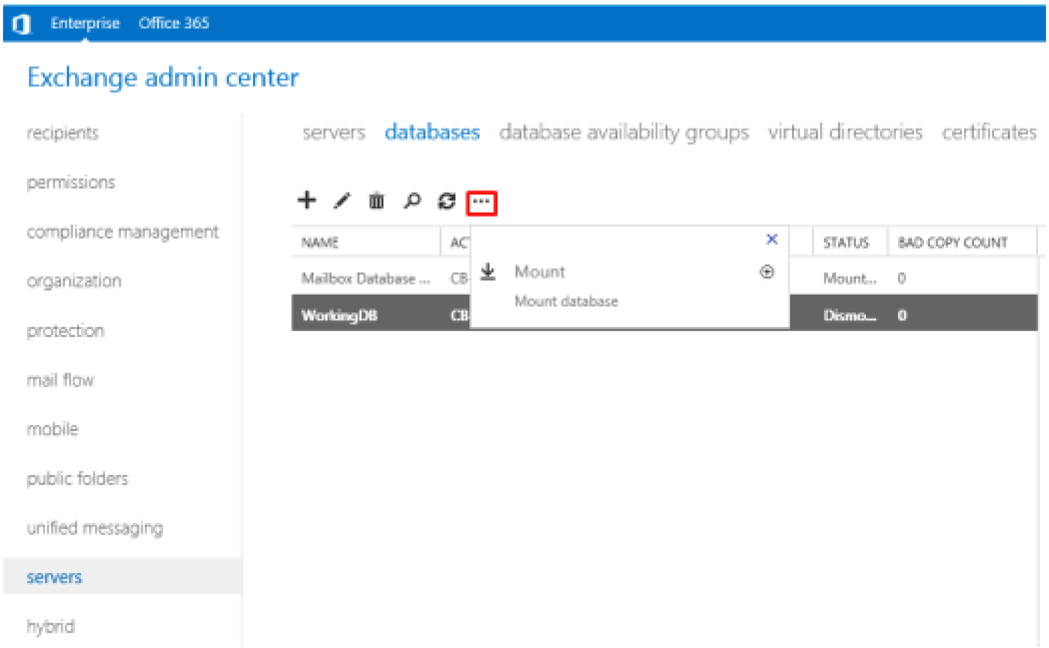


This PC ▸ Local Disk (D:) ▸ ExchTemp ▸ CBB_Exchange ▸ CB-TEST-Exch.cb-lab.local ▸ WorkingDB_Restore ▸

Name	Date modified	Type	Size
data	7/27/2016 1:01 PM	File folder	
log	7/27/2016 1:01 PM	File folder	

3. Paste **data** and **log** folders' contents from recovery data kit to **Mailbox/%Your Instance Name%** folder in the Exchange directory. Override the existing files.
4. To mount the recovered database, do the next:

a. Open EAC, choose **Servers** on the management tree, move under **Databases** tab. Then, select the database, press on the **Three Dots** button and choose **Mount.**



b. Use Exchange Management Shell command: **Mount-Database -Identity DBNAME -Confirm:$False** Where **DBNAME** is the database name. To mount all the available databases, use the next command: **Get-MailboxDatabase -Server SERVERNAME | Mount-Database -Confirm:$False**

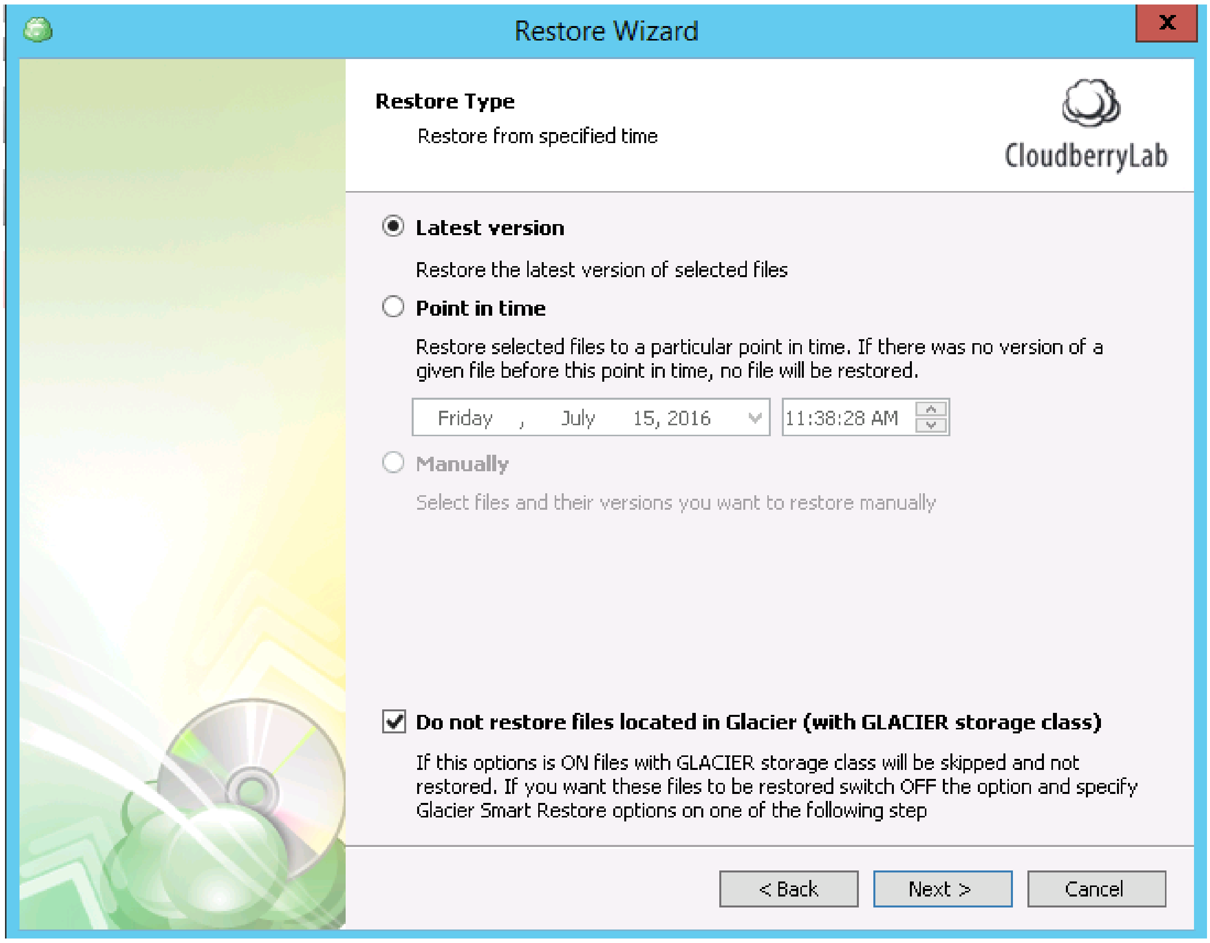
Microsoft SQL Server Restore

Microsoft SQL Server Restore option of CloudBerry Backup comes in two variants:

- **Restore Microsoft SQL Server Database** – this option restores backed up databases to the active database engine using REPLACE method.
- **Restore Microsoft SQL Server backup files** – this option recovers database files to the specific location.

Restore Microsoft SQL Database

1. If you want to recover the active database server, the Wizard will offer to choose the backup version.



Restore Type

Restore from specified time

● **Latest version**

Restore the latest version of selected files

○ **Point in time**

Restore selected files to a particular point in time. If there was no version of a given file before this point in time, no file will be restored.

Friday , July 15, 2016 | 11:38:28 AM

○ **Manually**

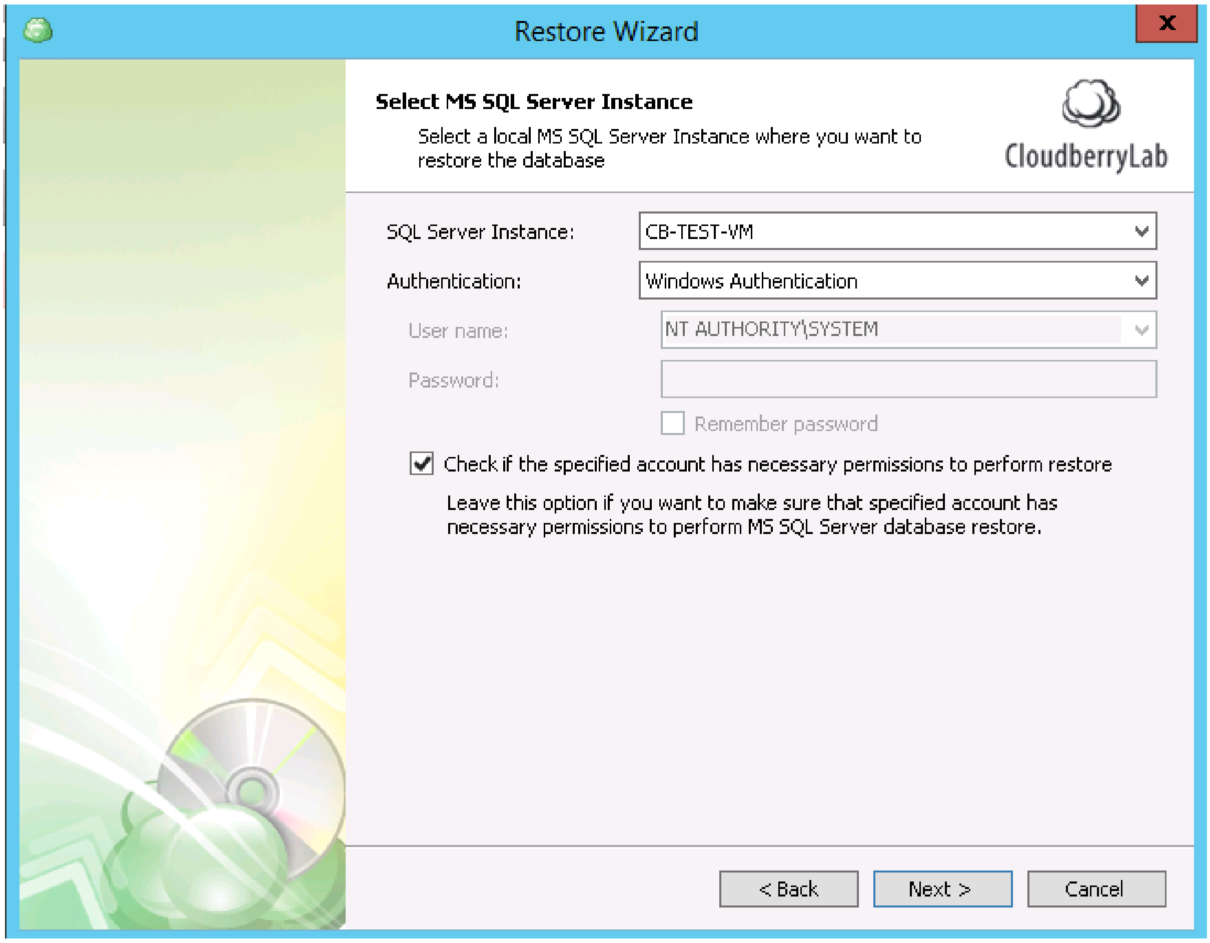
Select files and their versions you want to restore manually

☑ **Do not restore files located in Glacier (with GLACIER storage class)**

If this options is ON files with GLACIER storage class will be skipped and not restored. If you want these files to be restored switch OFF the option and specify Glacier Smart Restore options on one of the following step

Like in file-level restore, you can select among the latest database version, point in time and manual version management.

2. Next, you need to select SQL instance and authentication method.



Select MS SQL Server Instance

Select a local MS SQL Server Instance where you want to restore the database

SQL Server Instance: CB-TEST-VM

Authentication: Windows Authentication

User name: NT AUTHORITY\SYSTEM

Password:

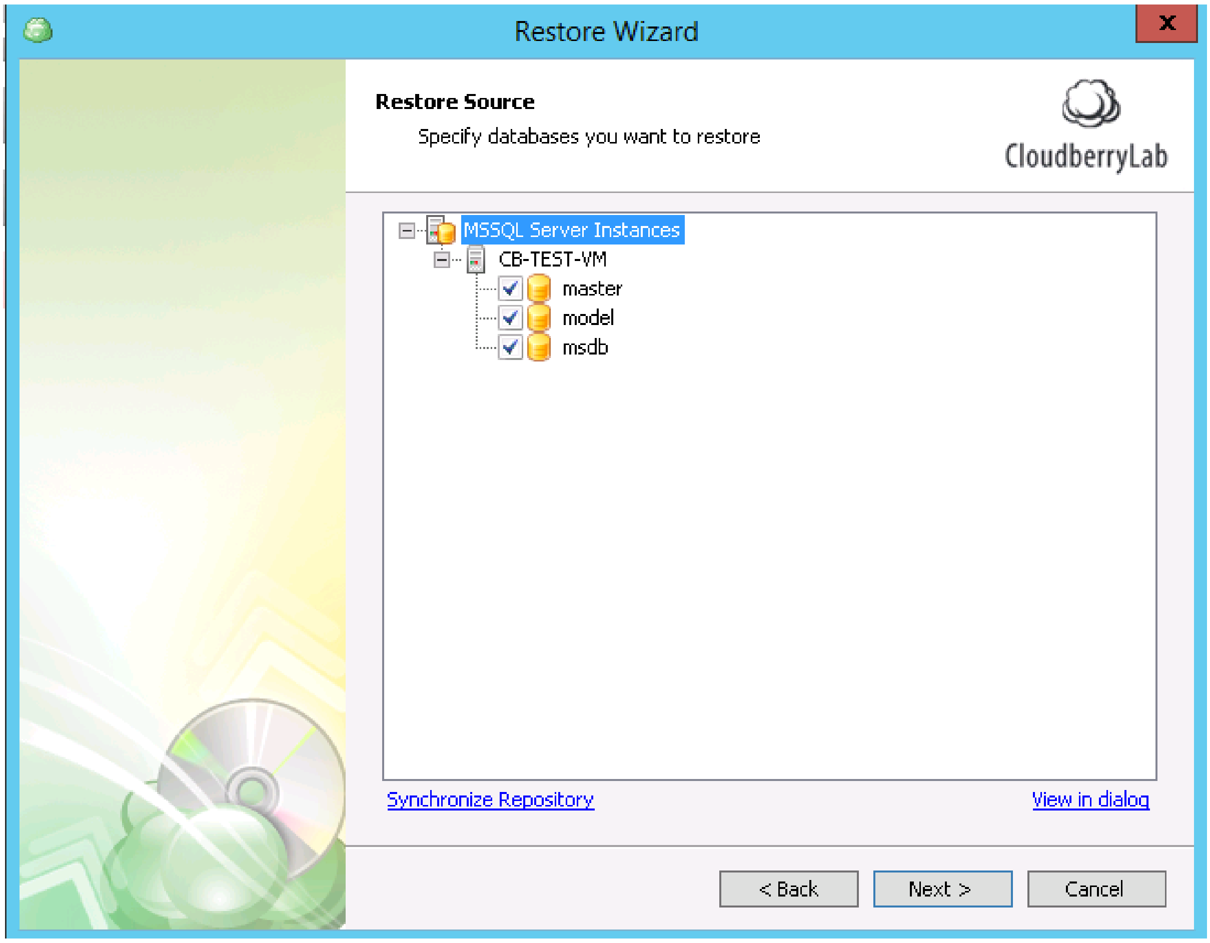
□ Remember password

☑ Check if the specified account has necessary permissions to perform restore

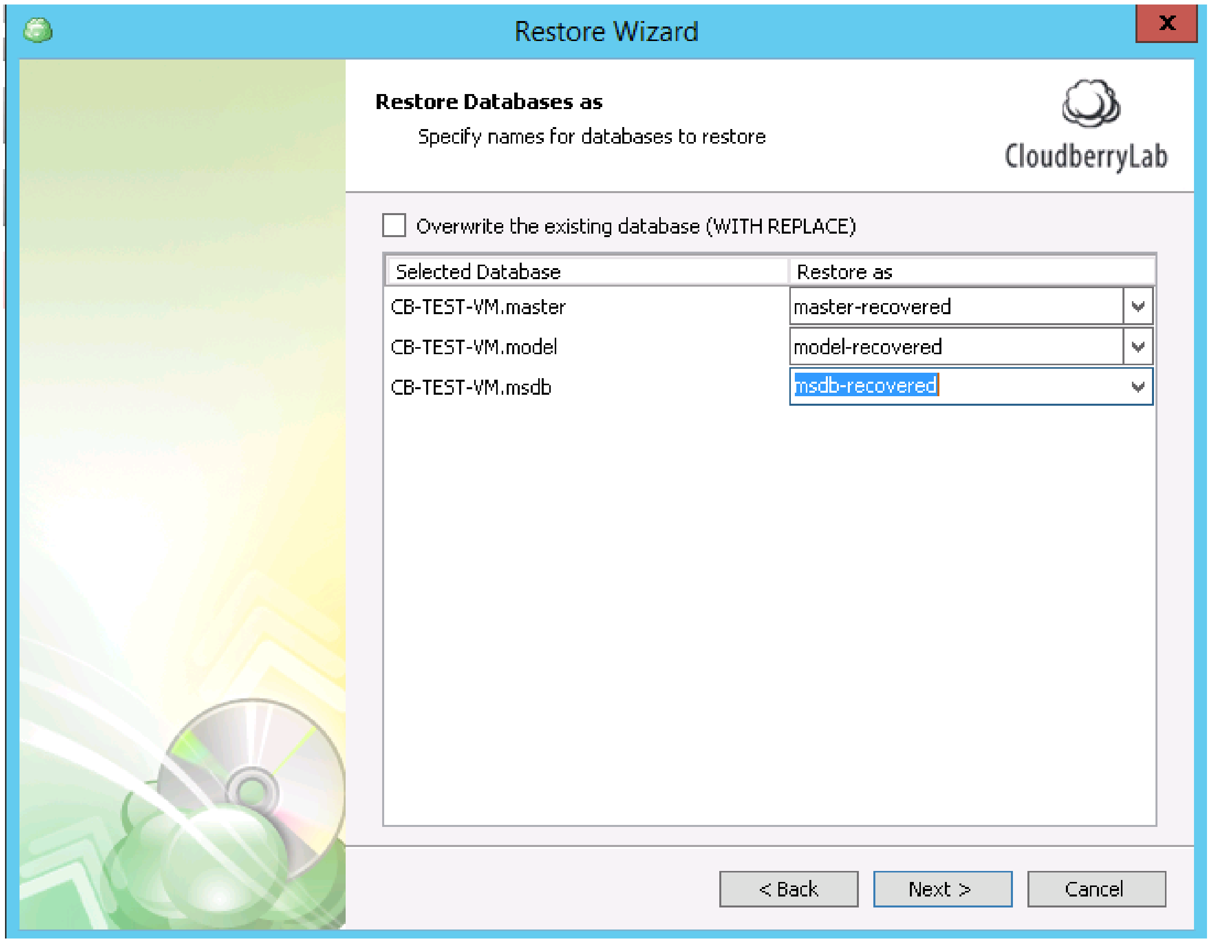
Leave this option if you want to make sure that specified account has necessary permissions to perform MS SQL Server database restore.

Keep in mind that the account must have SQL **sysadmin** role to perform the restoration. To verify it before proceeding, enable **Check if the specified account has necessary permissions to perform restore** option.

3. After selecting the instance, you can choose the databases for restoration.



4. Then you may specify names for recovered databases, or allow them to overwrite the existing ones. Renamed databases will attach automatically to the server.



Restore Wizard

Restore Databases as

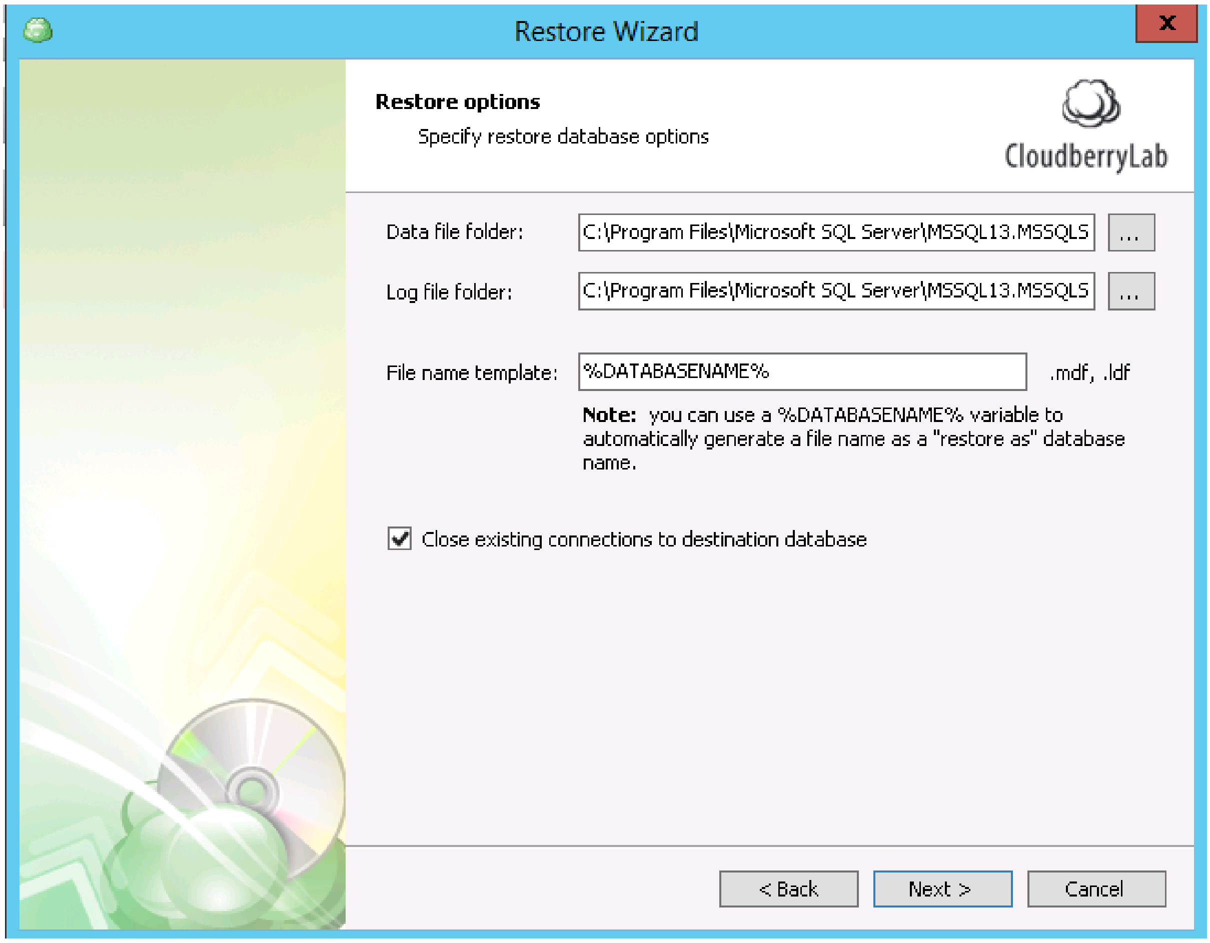
Specify names for databases to restore

☐ Overwrite the existing database (WITH REPLACE)

Selected Database	Restore as
CB-TEST-VM.master	master-recovered
CB-TEST-VM.model	model-recovered
CB-TEST-VM.msdb	msdb-recovered

5. On the next step, you need to specify data and log file folders. By default, these are the folders of your active database. It's also possible to close connections to Microsoft SQL server

to avoid accidental data corruption while recovery.



Data file folder: C:\Program Files\Microsoft SQL Server\MSSQL13.MSSQLS

Log file folder: C:\Program Files\Microsoft SQL Server\MSSQL13.MSSQLS

File name template: %DATABASENAME% .mdf, .ldf

Note: you can use a %DATABASENAME% variable to automatically generate a file name as a "restore as" database name.

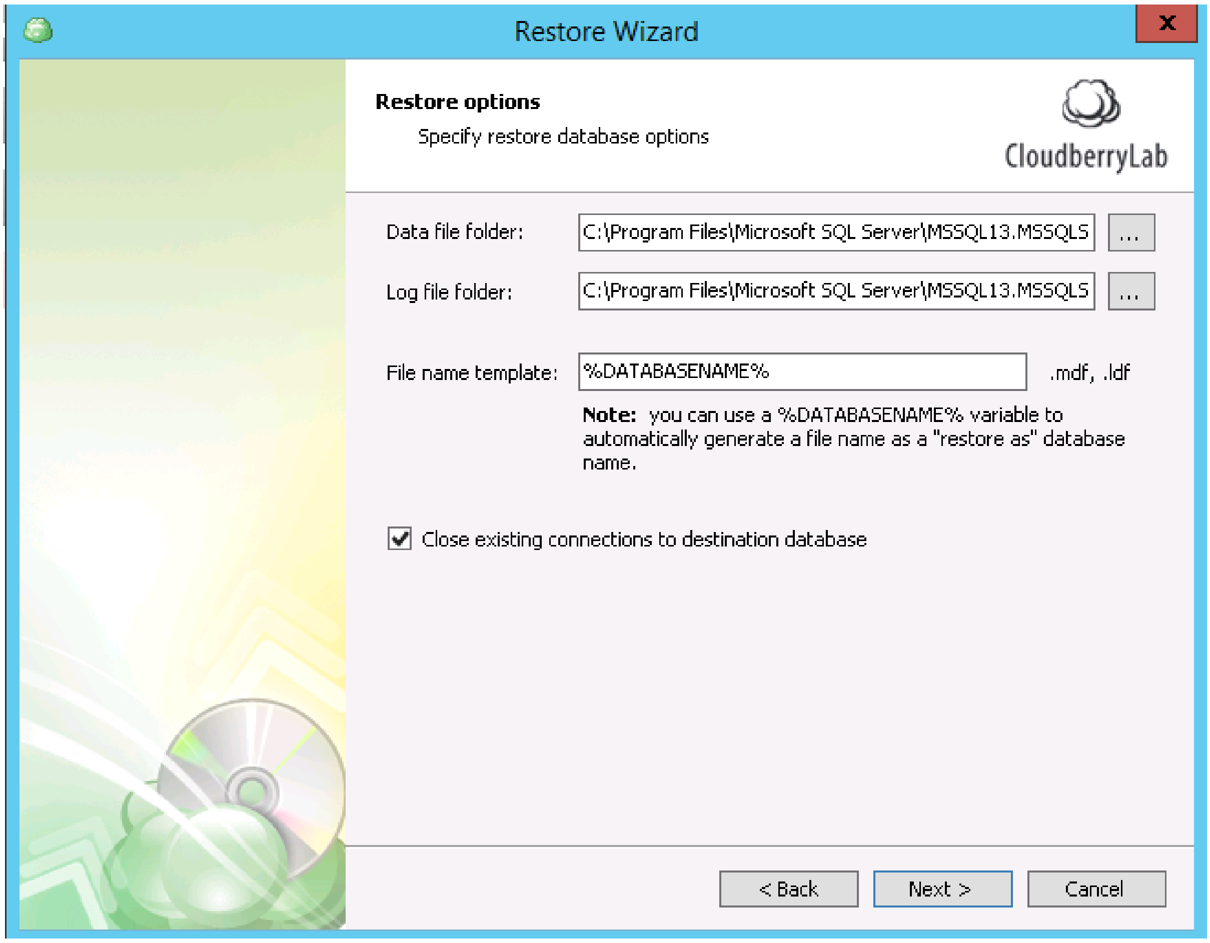
☑ Close existing connections to destination database

6. To finish the recovery configuration, set up notification and deciphering options. On the Summary screen, you'll see all the enabled tasks and options for restoration.

Restore Microsoft SQL Database Files

1. Firstly, specify the backup version and exact databases for recovery. On the **Restore Options** screen, select the **folder to save the files**. You can also create the file name template and

distribute the databases among separate folders.



Data file folder: C:\Program Files\Microsoft SQL Server\MSSQL13.MSSQLS

Log file folder: C:\Program Files\Microsoft SQL Server\MSSQL13.MSSQLS

File name template: %DATABASENAME% .mdf, .ldf

Note: you can use a %DATABASENAME% variable to automatically generate a file name as a "restore as" database name.

☑ Close existing connections to destination database

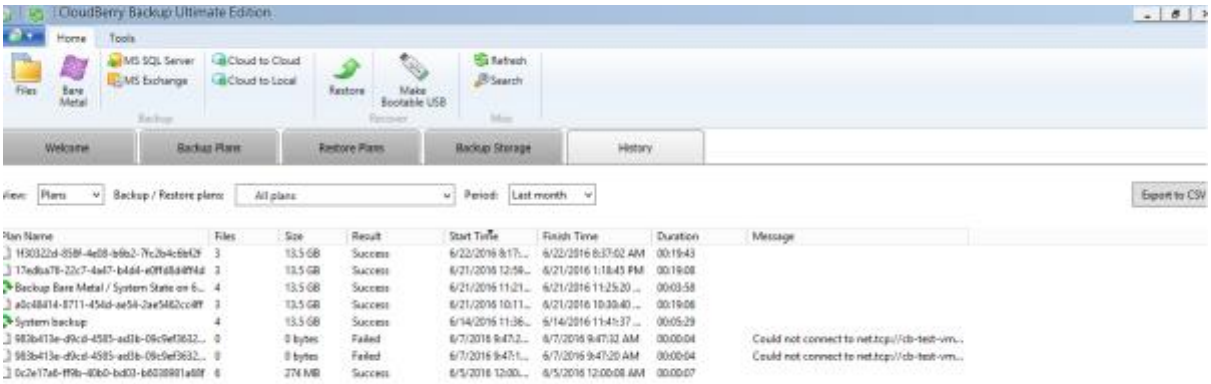
2. On the next steps, adjust notification and decryption options.
3. Then, you can attach downloaded databases to Microsoft SQL database engine. See the complete guide on the Microsoft Developers Network page.

Additional Features

CloudBerry Backup provides a number of tools to keep in touch with the backup process and track down modifications made in the system.

History

The **History** tab contains an overview of a backup and restores operations for a chosen period: last day, last week or last month.



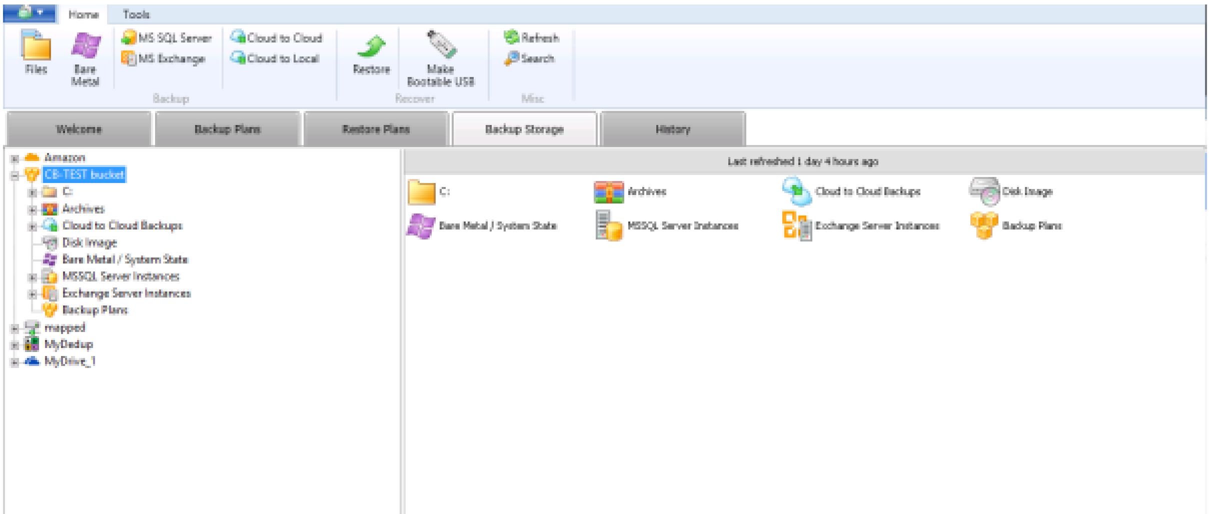
View: Plans Backup / Restore plans: All plans Period: Last month

Plan Name	Files	Size	Result	Start Time	Finish Time	Duration	Message
1f30322d-858f-4e08-b6b2-7fc2b4c6bf2f	3	13.5 GB	Success	6/22/2016 8:17...	6/22/2016 8:37:02 AM	00:19:43	
17edba78-22c7-4a47-b4d4-e0ffd8d4ff4d	3	13.5 GB	Success	6/21/2016 12:59...	6/21/2016 1:18:45 PM	00:19:08	
Backup Bare Metal / System State on 6...	4	13.5 GB	Success	6/21/2016 11:21...	6/21/2016 11:25:20 ...	00:03:58	
a0c48414-8711-454d-ae54-2ae5482cc4ff	3	13.5 GB	Success	6/21/2016 10:11...	6/21/2016 10:30:40 ...	00:19:06	
System backup	4	13.5 GB	Success	6/14/2016 11:36...	6/14/2016 11:41:37 ...	00:05:29	
983b413e-d9cd-4585-ad3b-09c9ef3632...	0	0 bytes	Failed	6/7/2016 9:47:2...	6/7/2016 9:47:32 AM	00:00:04	Could not connect to net.tcp://cb-test-vm...
983b413e-d9cd-4585-ad3b-09c9ef3632...	0	0 bytes	Failed	6/7/2016 9:47:1...	6/7/2016 9:47:20 AM	00:00:04	Could not connect to net.tcp://cb-test-vm...
0c2e17a6-ff9b-40b0-bd03-b6038981a60f	6	274 MB	Success	6/5/2016 12:00...	6/5/2016 12:00:08 AM	00:00:07	

Here you can see how many files were transferred, how much traffic did it take, and also check a possible failure details. You can also export the data in comma-separated format using the button **Export to CSV**.

Backup Storage Explorer

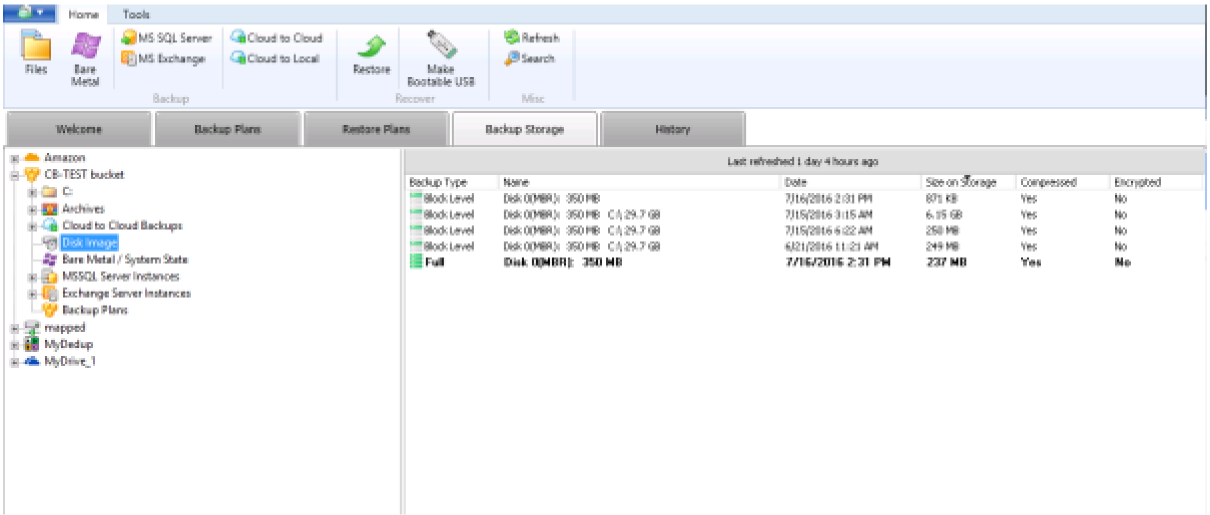
Under **Backup Storage** tab, you can overview existing storage destinations. At the left, there is a list of cloud buckets previously registered in the CloudBerry client, as well as disks and servers available at the working instance.



It has a number of useful features that make data backup experience better.

Block-Level Backup Monitor

If the selected item supports block-level backup, you can also see the list of its full and incremental backups. Click on the item in the management tree on the right (e.g. **Disk Image**) to open the list.

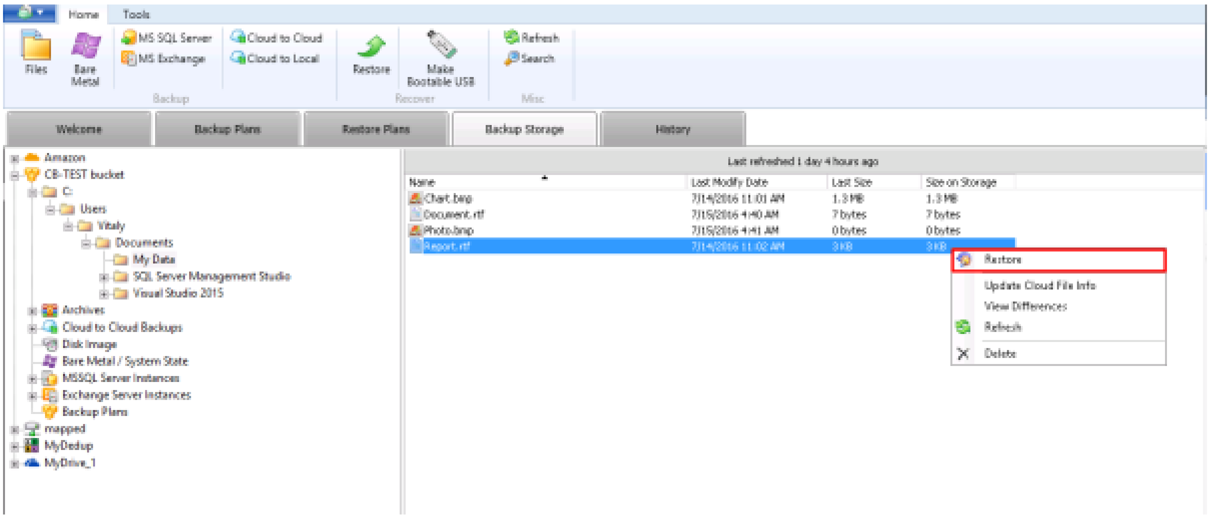


Last refreshed 1 day 4 hours ago

Backup Type	Name	Date	Size on Storage	Compressed	Encrypted
Block Level	Disk 0(MBR): 350 MB	7/16/2016 2:31 PM	871 KB	Yes	No
Block Level	Disk 0(MBR): 350 MB C:\ 29.7 GB	7/15/2016 3:15 AM	6.15 GB	Yes	No
Block Level	Disk 0(MBR): 350 MB C:\ 29.7 GB	7/15/2016 6:22 AM	258 MB	Yes	No
Block Level	Disk 0(MBR): 350 MB C:\ 29.7 GB	6/21/2016 11:21 AM	249 MB	Yes	No
Full	**Disk 0(MBR): 350 MB**	**7/16/2016 2:31 PM**	**237 MB**	**Yes**	**No**

Manual Data Recovery

At the **Backup Storage** tab you can manually recover files. Just find the file you want to retrieve, right-click on it and choose **Restore** from the context menu.



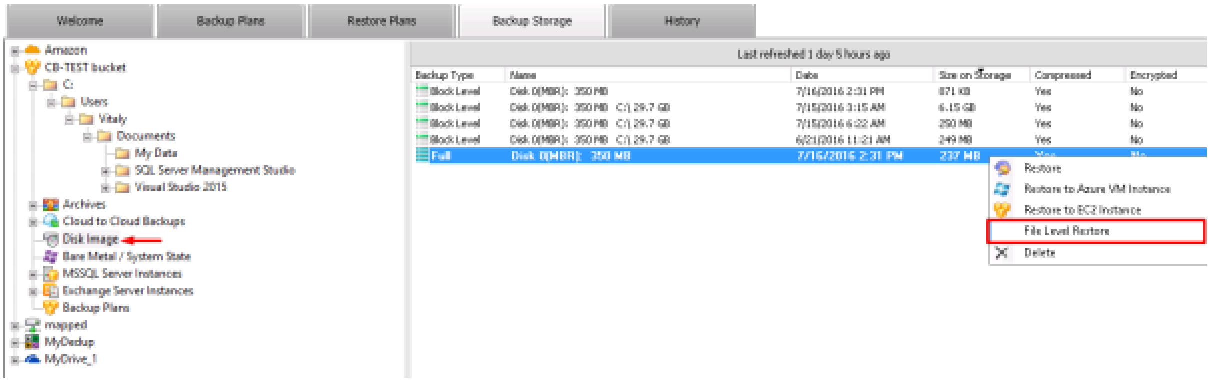
Last refreshed 1 day 4 hours ago

Name	Last Modify Date	Last Size	Size on Storage
Chart.bmp	7/14/2016 11:01 AM	1.3 MB	1.3 MB
Document.rtf	7/15/2016 4:40 AM	7 bytes	7 bytes
Photo.bmp	7/15/2016 4:41 AM	0 bytes	0 bytes
Report.rtf	7/14/2016 11:02 AM	3 KB	3 KB

Recover Files from Backup Images

It’s also possible to recover separate files and folders from the backup images:

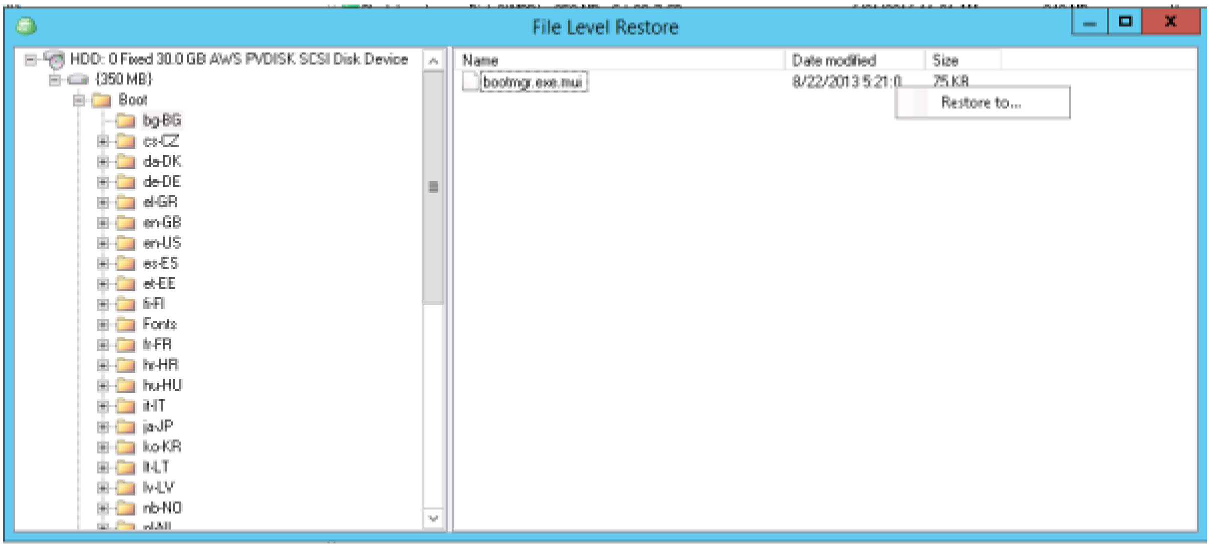
1. Switch to **Disk Image** section, right-click on the desired image and choose **File Level Restore**.



Last refreshed 1 day 5 hours ago

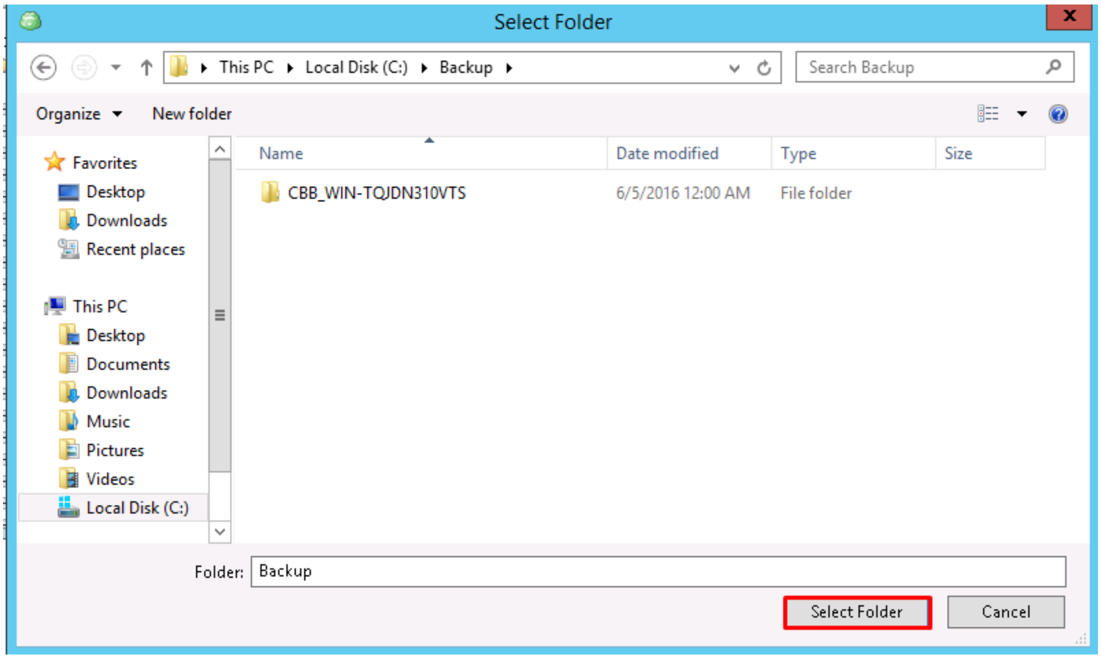
Backup Type	Name	Date	Size on Storage	Compressed	Encrypted
Block Level	Disk 0(MBR): 350 MB	7/16/2016 2:31 PM	871 KB	Yes	No
Block Level	Disk 0(MBR): 350 MB C:\ 29.7 GB	7/15/2016 3:15 AM	6.15 GB	Yes	No
Block Level	Disk 0(MBR): 350 MB C:\ 29.7 GB	7/15/2016 6:22 AM	250 MB	Yes	No
Block Level	Disk 0(MBR): 350 MB C:\ 29.7 GB	6/21/2016 11:21 AM	249 MB	Yes	No
Full	Disk 0(MBR): 350 MB	7/16/2016 2:31 PM	237 MB	Yes	No

2. This will launch the relevant Wizard, where you can look through image contents. To recover the file or folder, right-click on it and select **Restore to**.



Name	Date modified	Size
bootmgr.exe.mui	8/22/2013 5:21:0	75 KB

3. Then, choose the place where to recover the data.



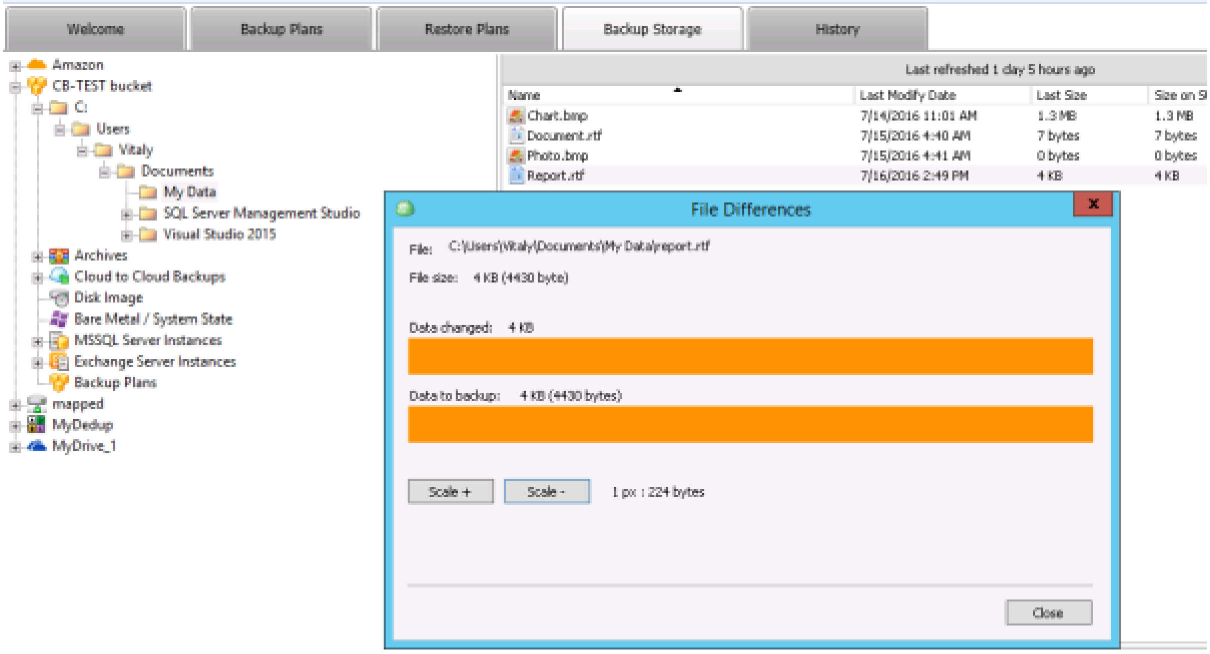
Name	Date modified	Type	Size
CBB_WIN-TQJDN310VTS	6/5/2016 12:00 AM	File folder	

Folder: Backup

Press **Select Folder** button to complete the restoration.

File Difference Monitor

You may also check if there were any item modifications. Right-click on the file, choose **View Difference** from the context menu, and CBB will compare the existing file and the file in the storage facility.



Last refreshed 1 day 5 hours ago

Name	Last Modify Date	Last Size	Size on S
Chart.bmp	7/14/2016 11:01 AM	1.3 MB	1.3 MB
Document.rtf	7/15/2016 4:40 AM	7 bytes	7 bytes
Photo.bmp	7/15/2016 4:41 AM	0 bytes	0 bytes
Report.rtf	7/16/2016 2:49 PM	4 KB	4 KB

File Differences

File: C:\Users\Vitaly\Documents\My Data\report.rtf

File size: 4 KB (4430 byte)

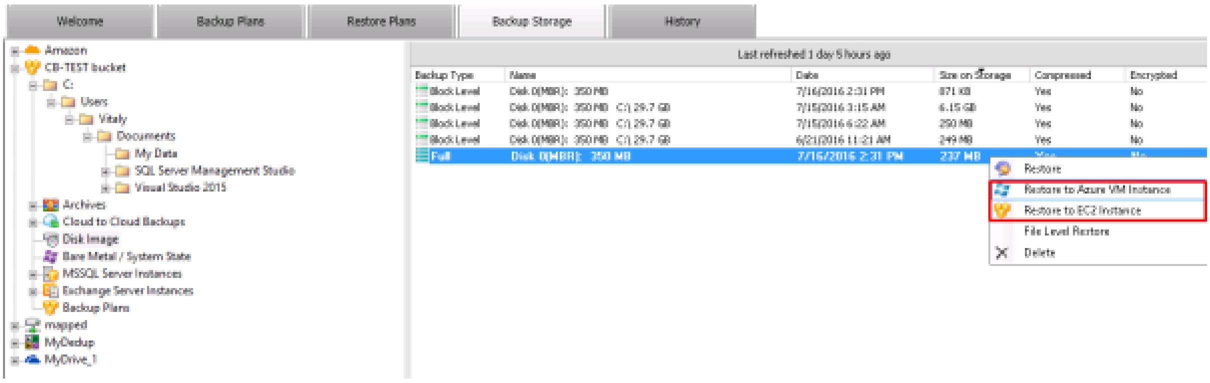
Data changed: 4 KB

Data to backup: 4 KB (4430 bytes)

1 px : 224 bytes

Manual Restore to the Virtual Machine

CBB can recover computer images as Azure VM or EC2 virtual machine straight away. Just right-click on the image and pick the desired variant to launch the deployment Wizard (described in **How to Restore – Image-level Restore – Image and Virtual Machine Restore** section). Proceed its steps to complete the recovery.

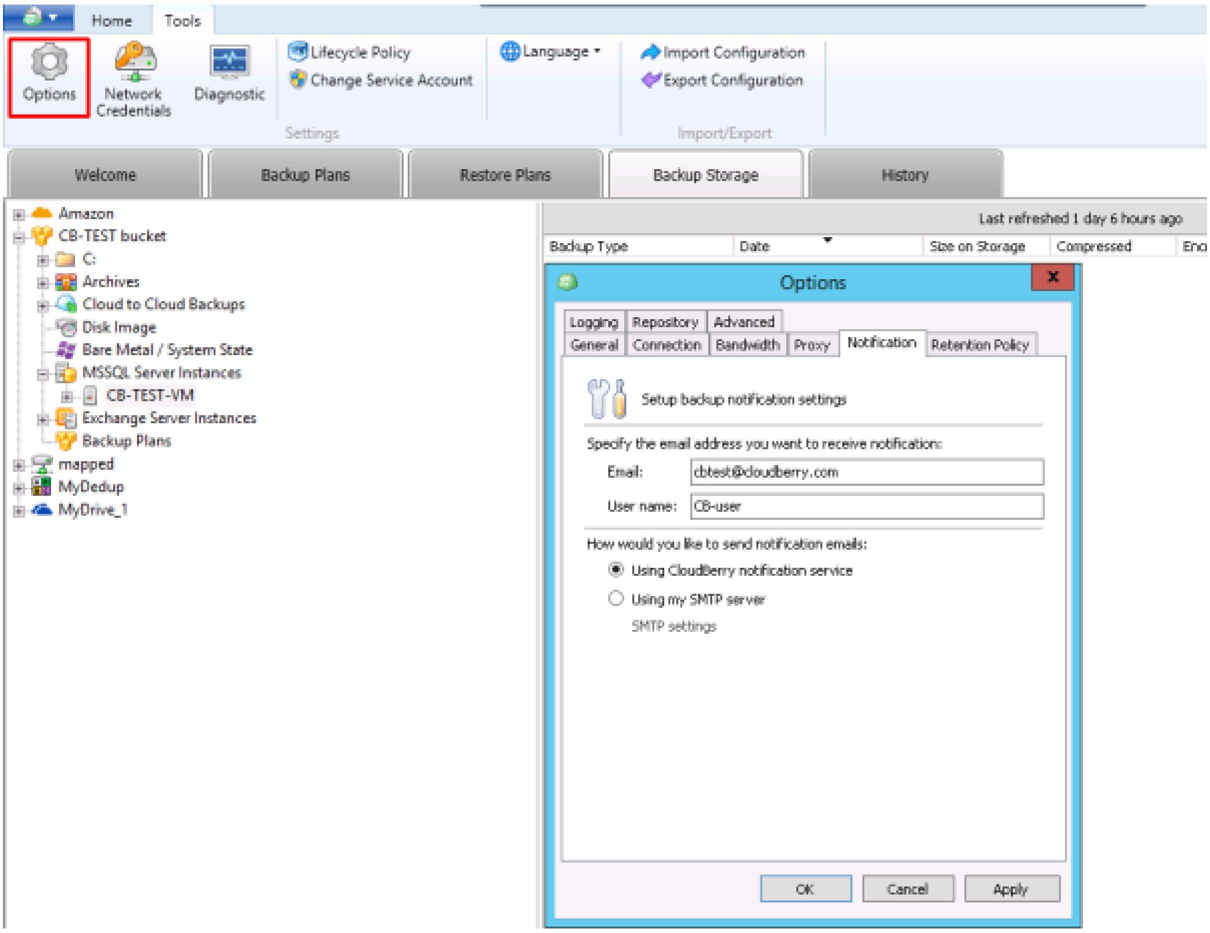


Last refreshed 1 day 5 hours ago

Backup Type	Name	Date	Size on Storage	Compressed	Encrypted
Block Level	Disk 0(MBR): 350 MB	7/16/2016 2:31 PM	871 KB	Yes	No
Block Level	Disk 0(MBR): 350 MB C:\ 29.7 GB	7/15/2016 3:15 AM	6.15 GB	Yes	No
Block Level	Disk 0(MBR): 350 MB C:\ 29.7 GB	7/15/2016 6:22 AM	250 MB	Yes	No
Block Level	Disk 0(MBR): 350 MB C:\ 29.7 GB	6/21/2016 11:21 AM	249 MB	Yes	No
Full	Disk 0(MBR): 350 MB	7/16/2016 2:31 PM	237 MB	Yes	No

Email Notifications

CloudBerry Backup can also inform you about the backup progress via email. Notification policy can be configured for each backup plan, but you can also set up global settings in the **Options** menu under the **Tools** tab.



Setup backup notification settings

Specify the email address you want to receive notification:

Email: cbtest@cloudberry.com

User name: CB-user

How would you like to send notification emails:

● Using CloudBerry notification service

○ Using my SMTP server

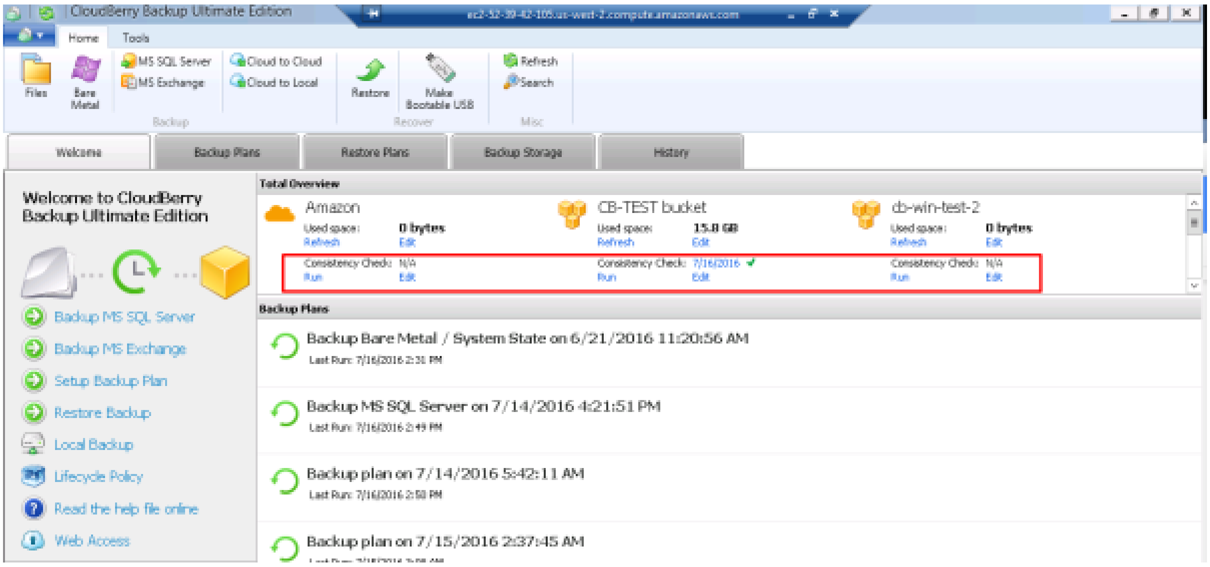
SMTP settings

Here you can specify your email as a default option for new backup plans or mount an SMTP server. It’s possible to use SSL (Secure Socket Layer) protocol to increase privacy level.

Consistency Check

You can increase the durability of your backup by using the **Consistency Check** feature. It checks the backup storage for file modifications made beyond CloudBerry Backup. Its interface displays under the

Welcome tab near the storage accounts overviews.



Press **Run** to see if everything is alright. If the backup data has been deleted or modified, Consistency Check status will change to the warning sign, and the exact consistency differences will display under the **History** tab.

Advanced Solutions

Nowadays, there is a great variety of IT-infrastructure configurations and data types, and its backup often requires sophisticated tools. CloudBerry Backup supports a variety of advanced features that can facilitate such tasks.

Big Data Transfer

Business often generates terabytes of data, which collects dust in the archive. It’s easy to keep onsite, but uploading to the cloud storage is a good option that may be issued by network bandwidth. If you have 100TB of data, it may take 120 days to send them to the cloud storage via 100-Mbps channel, which is unaffordable for initial data seeding. In the real life, it would take even longer, because other corporate services also use bandwidth resources.

If you use Amazon Web Services (AWS), it is possible to accelerate data migration. There are a hardware solution **Amazon S3 Snowball** and networking improvement service called **S3 Transfer Acceleration**. CloudBerry Backup support both features, making transfer tasks convenient and efficient.

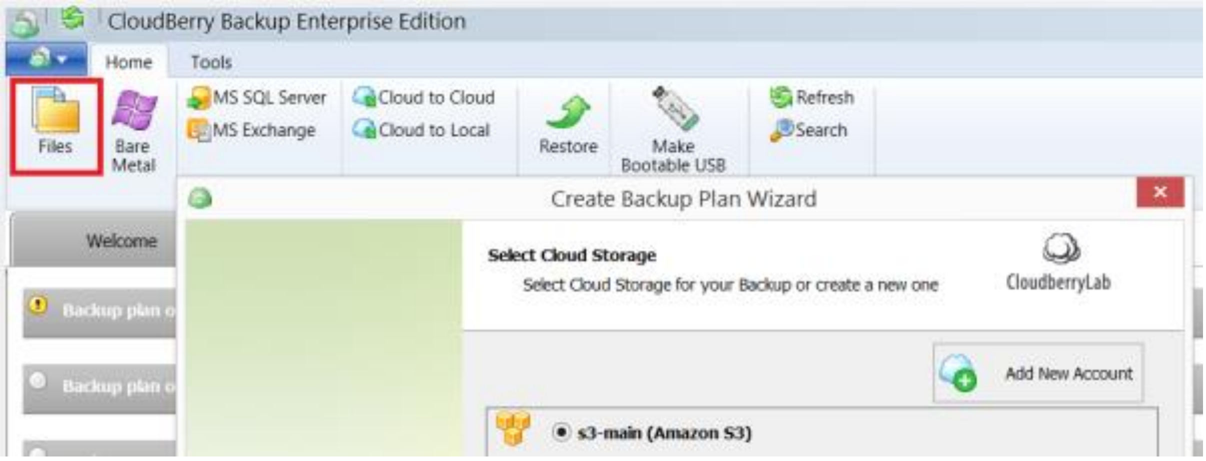
Amazon Snowball

Amazon Snowball is a hardware solution for an offline data transfer, which can fit up to 80TB of data per device. It connects to the local network via high-speed interfaces, has physical armor-case protection and strong encryption. You don't need to purchase it – Amazon sends it to your place, and then you transfer it back to the datacenter. Find out details on the official page.

You can request Snowball via AWS Management Console (press here to open the guide) or via the CloudBerry Backup interface. CBB can also manage data import to Snowball device. It works on the file level, so make images and snapshots beforehand and place it on the local storage.

Here is a guide how to manage Snowball Export Job with CBB:

1. To create an export task, start **Create Backup Plan** Wizard for files, and choose or add **Amazon S3 storage** account on which you want to upload the data.

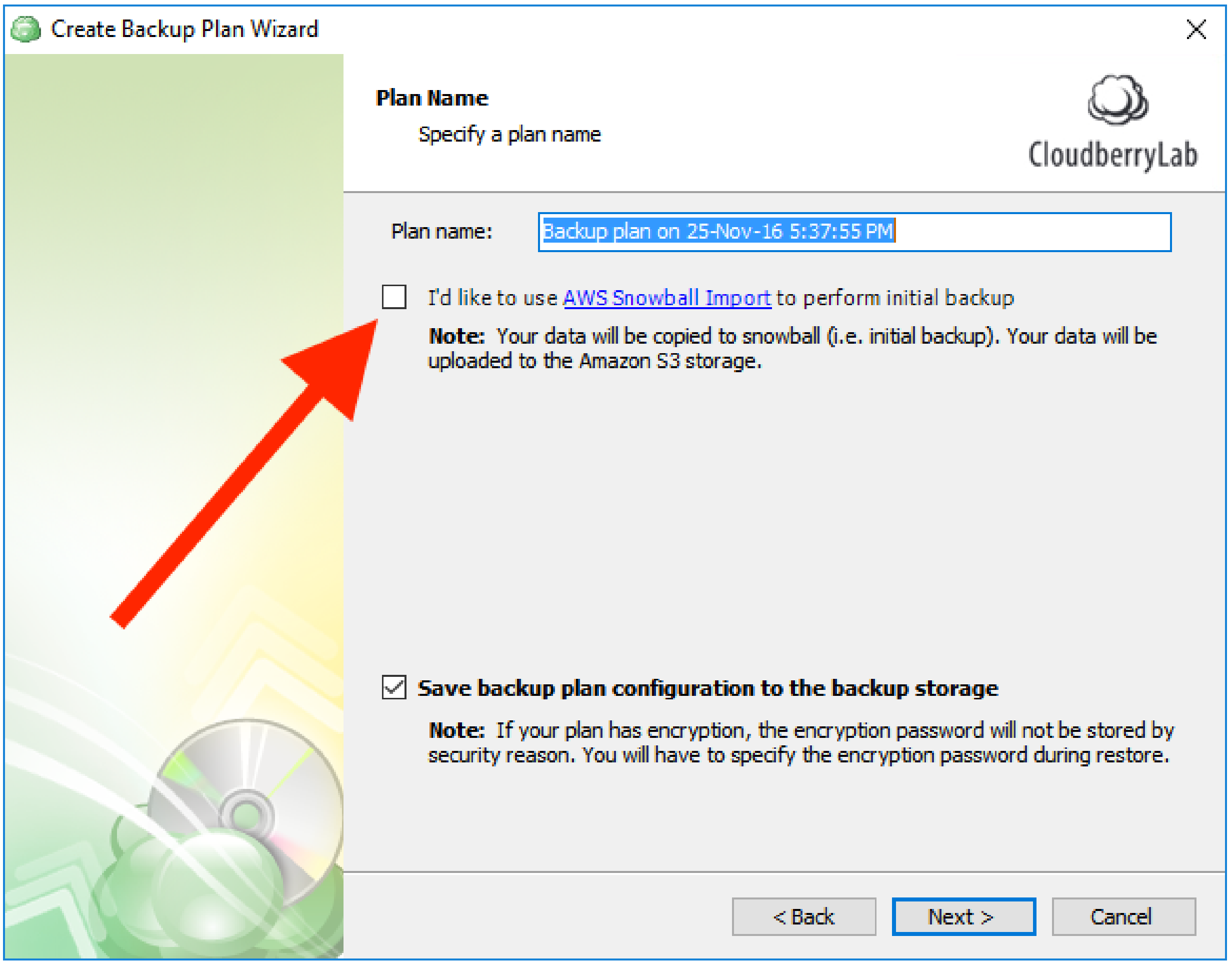


Select Cloud Storage

Select Cloud Storage for your Backup or create a new one

● s3-main (Amazon S3)

2. On the **Plan Name** step, choose the "**I'd like to use AWS Import / Export feature to make initial backup**" option.



Create Backup Plan Wizard

Plan Name

Specify a plan name

Plan name: Backup plan on 25-Nov-16 5:37:55 PM

□ I'd like to use AWS Snowball Import to perform initial backup

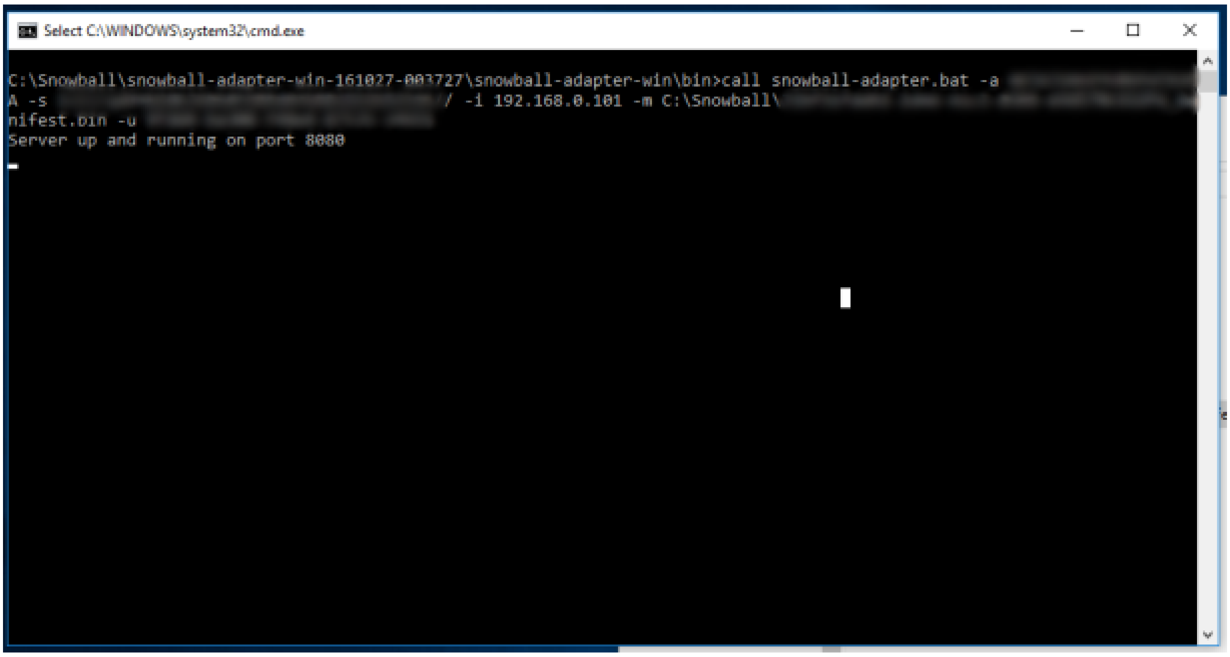
Note: Your data will be copied to snowball (i.e. initial backup). Your data will be uploaded to the Amazon S3 storage.

☑ **Save backup plan configuration to the backup storage**

Note: If your plan has encryption, the encryption password will not be stored by security reason. You will have to specify the encryption password during restore.

3. Specify the data for backup and configure other options like file-filter and notifications. ***Note**: compression and encryption won't work with Snowball because it uses its own equivalents. Schedule option doesn't make sense either; moreover, it can corrupt the data on the attached Snowball device.*

4. Continue setting up the plan. Soon enough you'll reach the **AWS Snowball** step that describes further procedures. Click on the link in step №2 to download Amazon S3 adapter. Once downloaded, unzip it and launch the command line. Navigate to the folder that contains Amazon S3 adapter and execute the following command:



```
C:\Snowball\snowball-adapter-win-161027-003727\snowball-adapter-win\bin>call snowball-adapter.bat -a [redacted]
A -s [redacted]/ -i 192.168.0.101 -m C:\Snowball\[redacted]
nifest.bin -u [redacted]
Server up and running on port 8080
```

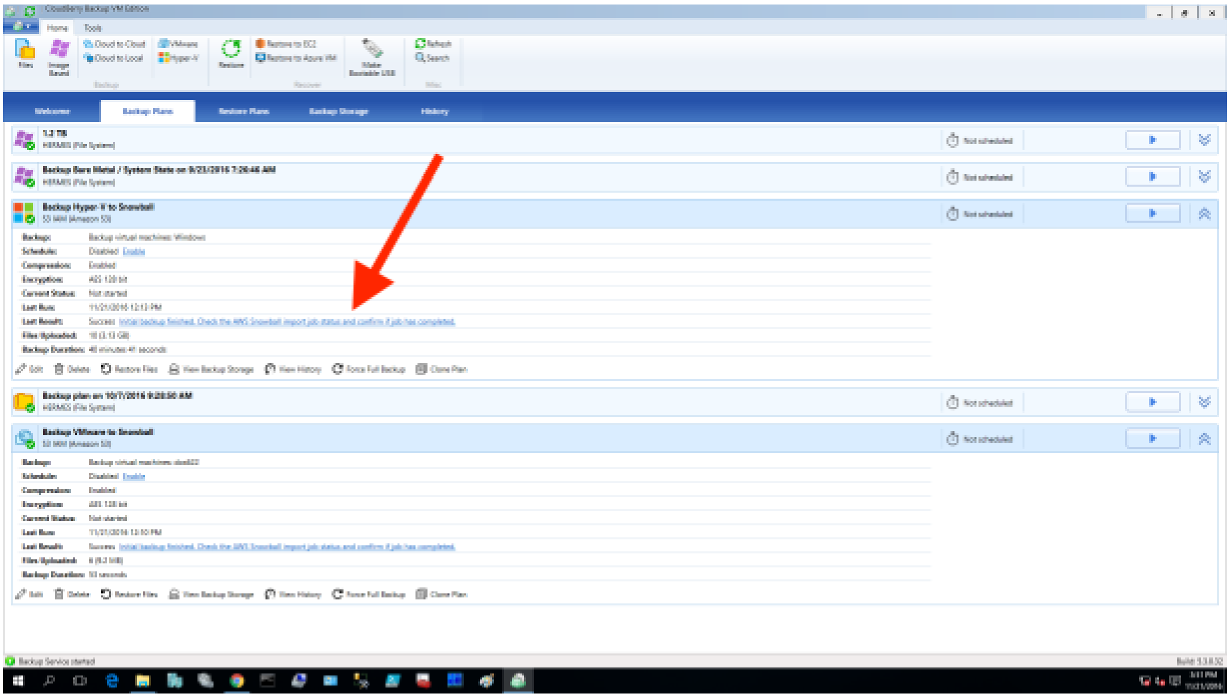
where:

- **-a** and **-s** are the **access and security keys**, respectively.
- **-i** is the IP address (can be looked up on the box)
- **-m** and **-u** are the **path to the manifest file and the client unlock code**, respectively. Both of these can be found in your **AWS Console**.

If you've done everything correctly, you should see a message in the terminal akin to **"Server up and running on port 8080"**.

Do not close the command line! It should be running all throughout the process. Now go back to CloudBerry Backup and conclude setting up the backup plan. Upon finishing, run it and wait for it to complete.

When the data has been successfully transferred to the AWS Snowball, ship the box back to Amazon. When they notify you of your data having been moved to your bucket, go ahead and confirm it in CloudBerry Backup. Click on **"Initial backup finished…"**.



1.2 TB
HERMES (File System)

Backup Bare Metal / System State on 9/23/2016 7:26:46 AM
HERMES (File System)

Backup Hyper-V to Snowball
S3 WM (Amazon S3)

Backup: Backup virtual machines: Windows
Schedule: Disabled Enable
Compression: Enabled
Encryption: AES 128 bit
Current Status: Not started
Last Run: 11/21/2016 12:13 PM
Last Result: Success Initial backup finished. Check the AWS Snowball import job status and confirm if job has completed.
Files Uploaded: 18 (3.13 GB)
Backup Duration: 40 minutes 47 seconds

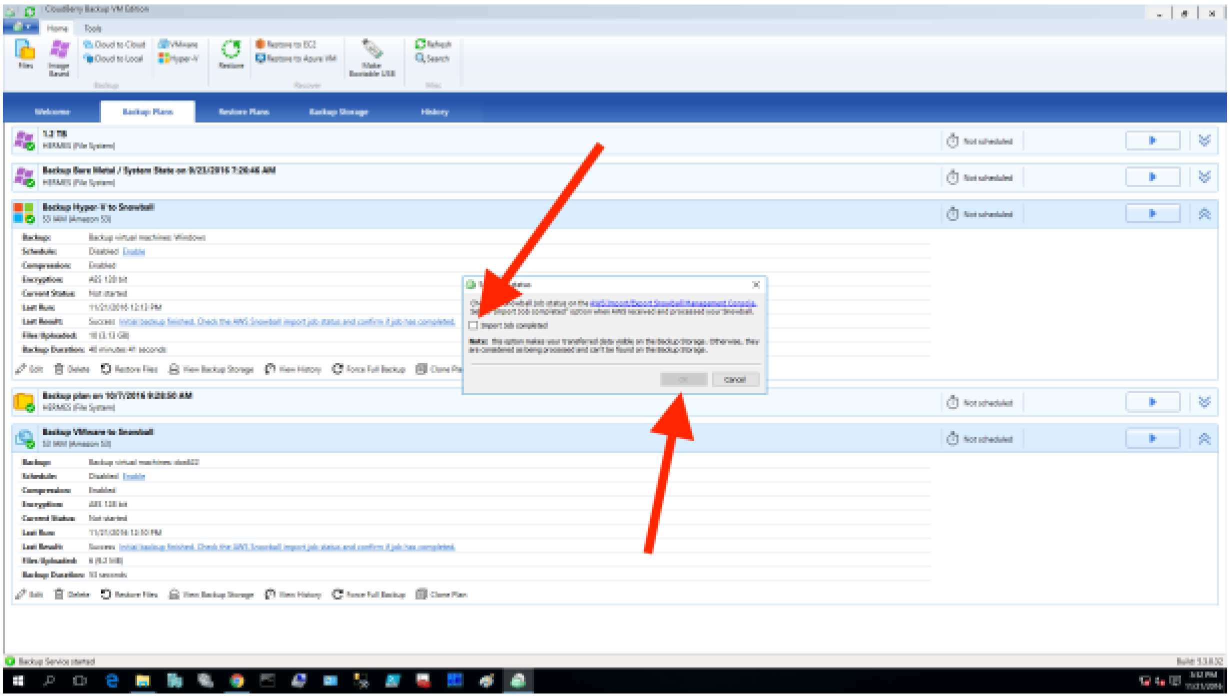
Backup plan on 10/7/2016 9:28:50 AM
HERMES (File System)

Backup VMware to Snowball
S3 WM (Amazon S3)

Backup: Backup virtual machines: [illegible]
Schedule: Disabled Enable
Compression: Enabled
Encryption: AES 128 bit
Current Status: Not started
Last Run: 11/21/2016 12:50 PM
Last Result: Success Initial backup finished. Check the AWS Snowball import job status and confirm if job has completed.
Files Uploaded: 6 (8.2 MB)
Backup Duration: 53 seconds

Backup Service started

Select the **Import Job Completed** checkbox and click **OK**.



Check Snowball job status on the AWS Import/Export Snowball Management Console. Select "Import Job completed" option when AWS received and processed your Snowball.

□ Import Job completed

Note: this option makes your transferred data visible on the backup storage. Otherwise, they are considered as being processed and can't be found on the backup storage.

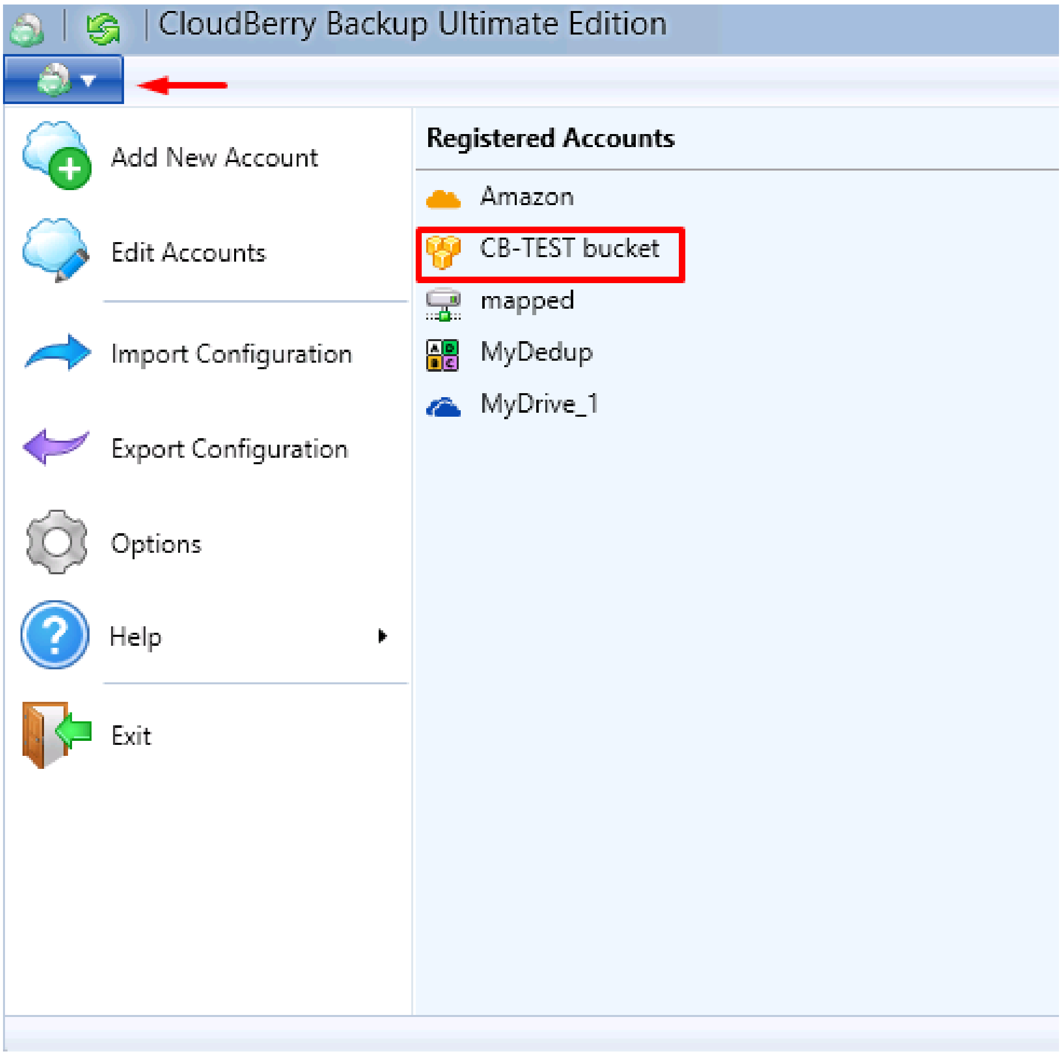
Your files are now being renamed in the cloud. This process takes place because of certain peculiarities of CloudBerry Backup and the way our software works with file structures. Afterward, there is nothing else to be done! Voila! Your initial backup has been successfully performed with the help of AWS Snowball. All future backups will be performed as usual from your PC into the cloud by means of CloudBerry Backup.

NB: Do NOT Sync Repository before the files are all renamed in the cloud. This may lead to unintended repercussions.

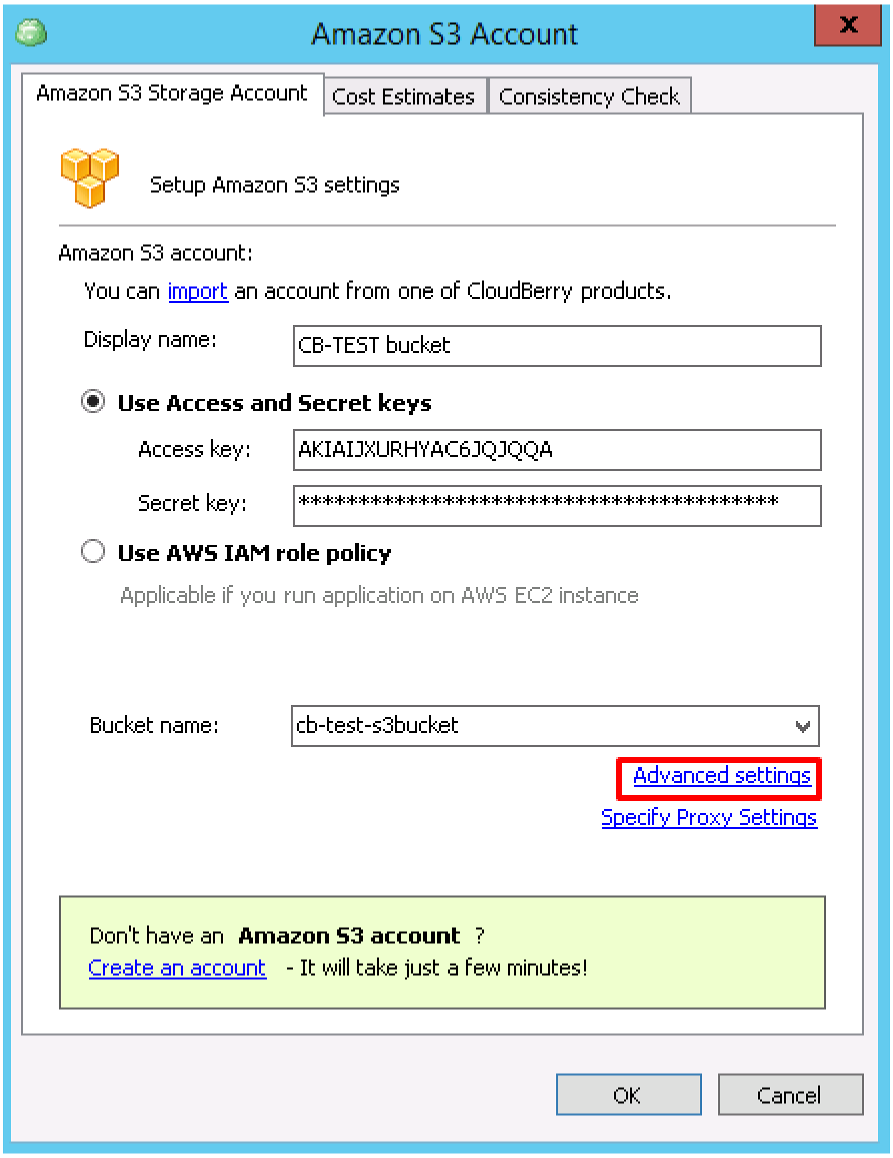
AWS S3 Transfer Acceleration

Amazon S3 Transfer Acceleration is a bandwidth speed-up solution, which can make the connection with the data center up to 6 times faster. The acceleration is achieved by using the optimized network routes between Amazon S3 storage facilities and AWS Edge Locations. Find out more information on AWS S3 FAQ page.

1. You can enable Transfer Acceleration for any of S3 buckets registered in CloudBerry Backup by pressing the **Main Menu** button and selecting the relevant account.



2. On the configuration page, choose **Advanced settings** option.



Amazon S3 Account

Setup Amazon S3 settings

Amazon S3 account:

You can import an account from one of CloudBerry products.

Display name: CB-TEST bucket

● **Use Access and Secret keys**

Access key: AKIAIJXURHYAC6JQJQQA

Secret key: **

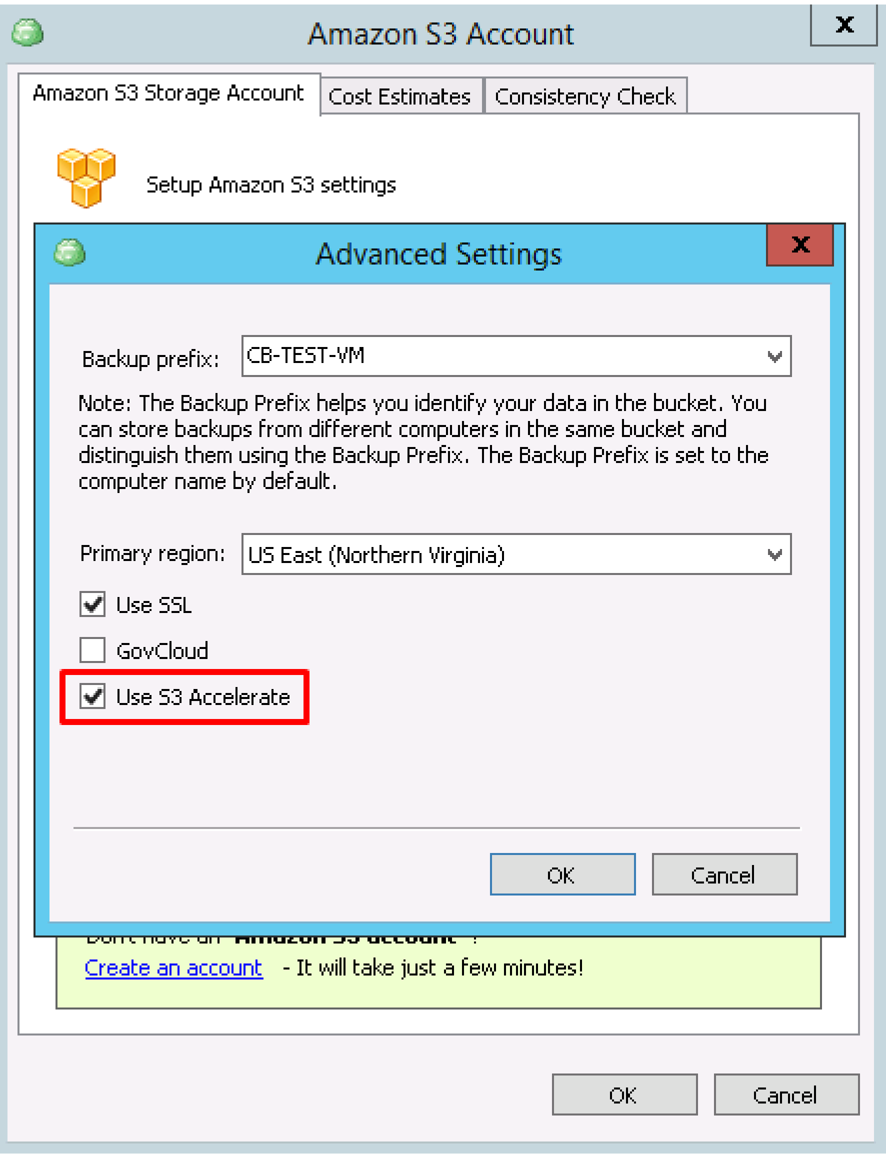
○ **Use AWS IAM role policy**

Applicable if you run application on AWS EC2 instance

Bucket name: cb-test-s3bucket

Don't have an **Amazon S3 account** ?
Create an account - It will take just a few minutes!

3. Click on the **Use S3 Accelerate** box. Now Transfer Acceleration is enabled.



Amazon S3 Account

Backup prefix: CB-TEST-VM

Note: The Backup Prefix helps you identify your data in the bucket. You can store backups from different computers in the same bucket and distinguish them using the Backup Prefix. The Backup Prefix is set to the computer name by default.

Primary region: US East (Northern Virginia)

☑ Use SSL

□ GovCloud

☑ Use S3 Accelerate

Create an account - It will take just a few minutes!

You can switch it off in the CBB Account options or via Amazon Management Console.

Archive to Glacier and Lifecycle Policies

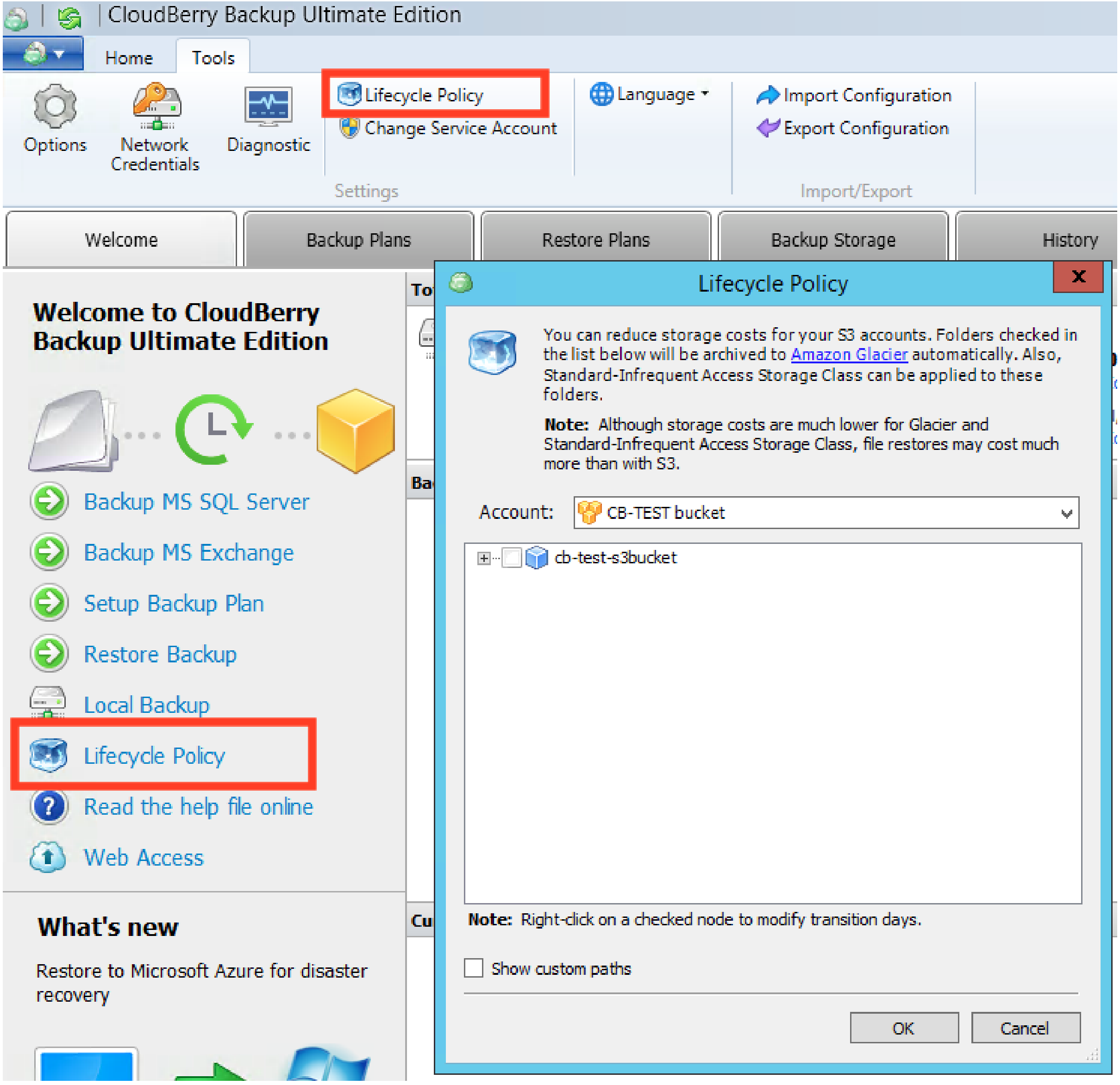
If you use AWS services, you can make a profit of storing the archive data on the Amazon Glacier. It's a low-cost storage for infrequently accessed data. The point is that one cannot access data on Glacier immediately – it may take 3-5 hours to create the link. The data can automatically move to Glacier from other AWS facilities according Lifecycle Policies. Find out more about this feature on the AWS page.

CloudBerry Backup supports native AWS Lifecycle Policies feature, so CBB settings won't conflict with Amazon Management Console presets. It's also possible to upload data directly to the Glacier.

How to Configure Lifecycle Policies

Here is a guide on transferring data to Amazon Glacier using CloudBerry Backup user interface:

1. Go to the **Tools** menu and click **Lifecycle Policy** or use the same option on the left panel.



Welcome to CloudBerry Backup Ultimate Edition

What's new

Restore to Microsoft Azure for disaster recovery

You can reduce storage costs for your S3 accounts. Folders checked in the list below will be archived to Amazon Glacier automatically. Also, Standard-Infrequent Access Storage Class can be applied to these folders.

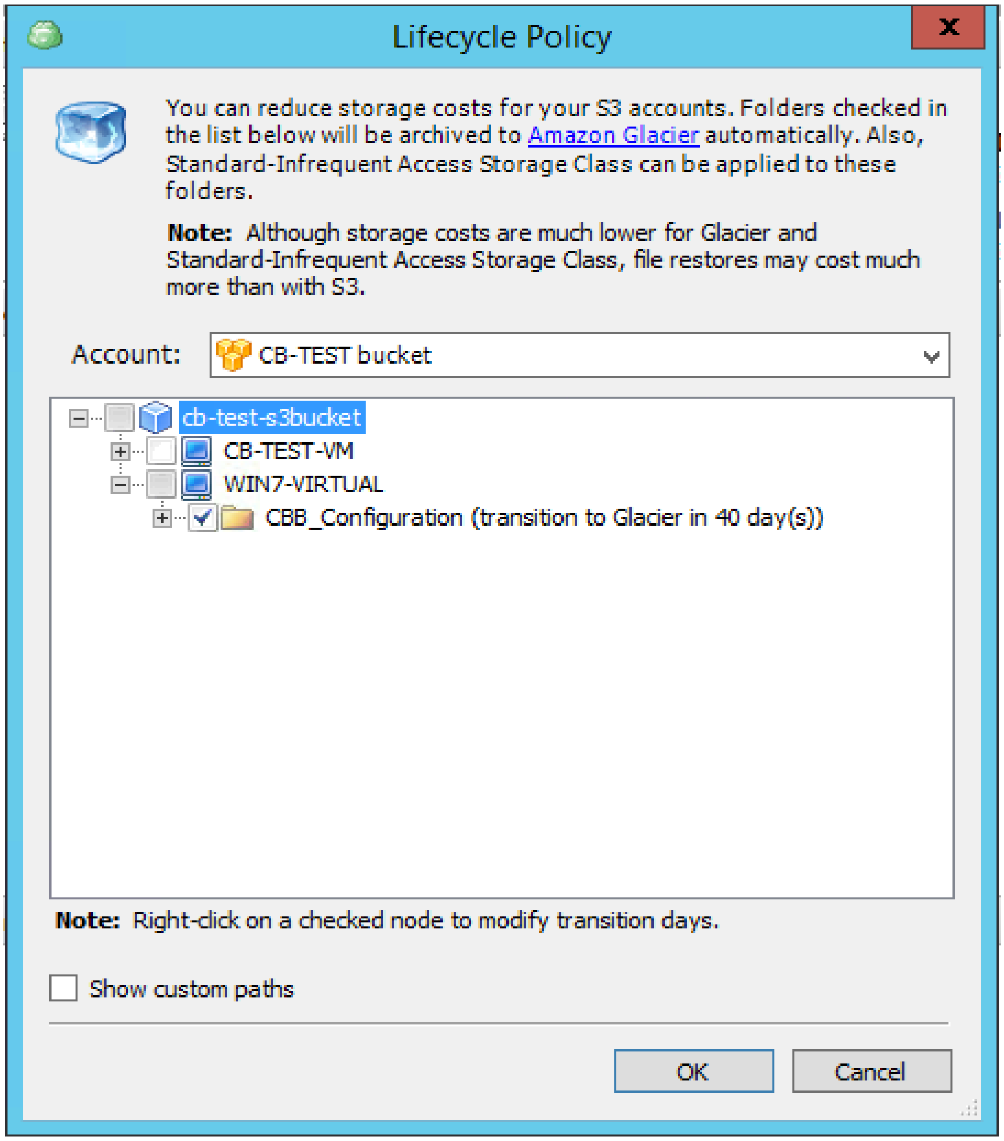
Note: Although storage costs are much lower for Glacier and Standard-Infrequent Access Storage Class, file restores may cost much more than with S3.

Account: CB-TEST bucket

Note: Right-click on a checked node to modify transition days.

□ Show custom paths

2. Use **Lifecycle Policy** dialog window to choose data to be automatically uploaded to Amazon Glacier. It is possible to specify transition timeouts for each item and choose source data to be transferred to Amazon IA storage first (here is the article about Amazon storage classes).



You can reduce storage costs for your S3 accounts. Folders checked in the list below will be archived to Amazon Glacier automatically. Also, Standard-Infrequent Access Storage Class can be applied to these folders.

Note: Although storage costs are much lower for Glacier and Standard-Infrequent Access Storage Class, file restores may cost much more than with S3.

Account: CB-TEST bucket

- □ cb-test-s3bucket
  - □ CB-TEST-VM
  - □ WIN7-VIRTUAL
    - ☑ CBB_Configuration (transition to Glacier in 40 day(s))

Note: Right-click on a checked node to modify transition days.

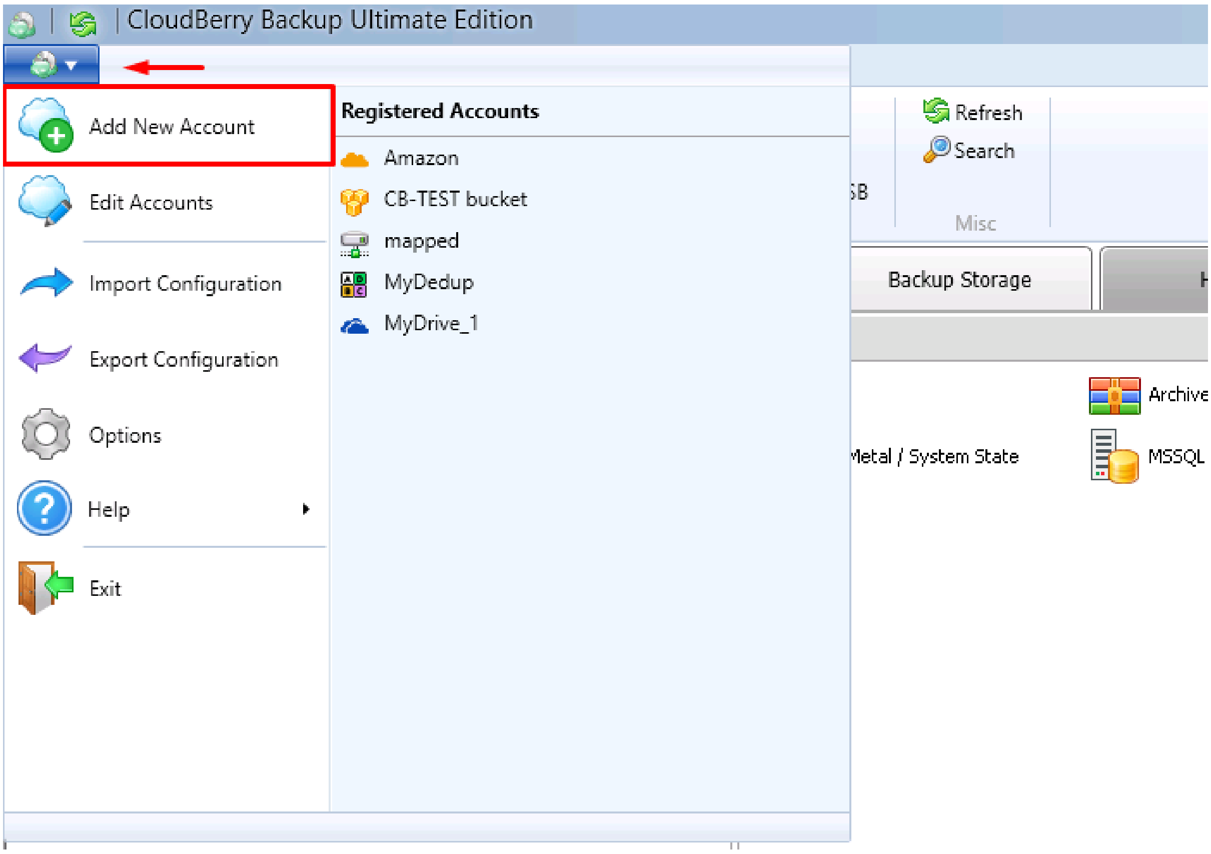
□ Show custom paths

After completion of the transfer operation, the backups will appear in the Archives section. From Amazon AWS control panel perspective, the data transferred are not displayed in Glacier storage, but it is still available in the S3 bucket.

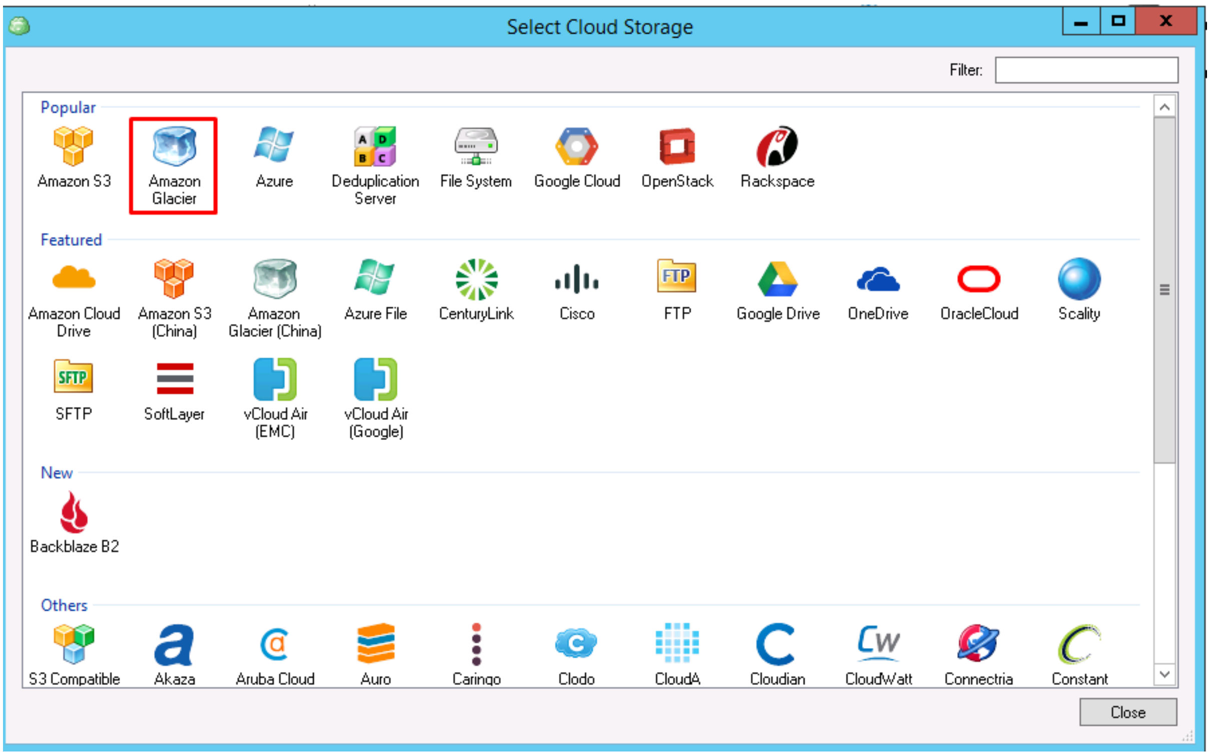
Backup to Glacier

You can also set up Glacier as a standard CloudBerry Backup storage:

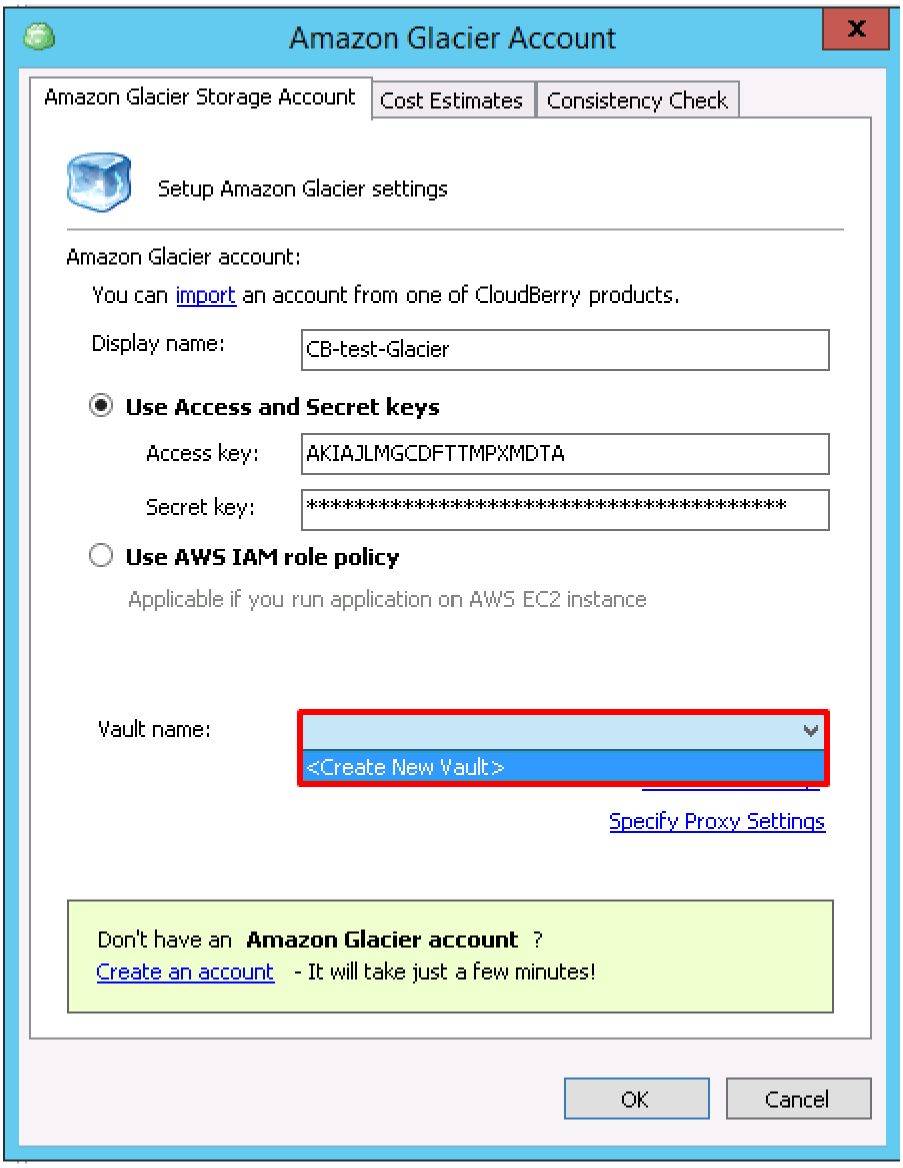
1. Click on the **Main Menu** button and choose **Add New Account.**



2. Select **Amazon Glacier** storage facility.



3. On the next step, specify the AWS account credentials and select the Glacier vault.



Setup Amazon Glacier settings

Amazon Glacier account:

You can import an account from one of CloudBerry products.

Display name: CB-test-Glacier

● Use Access and Secret keys

Access key: AKIAJLMGCDFTTMPXMDTA

Secret key: **

○ Use AWS IAM role policy

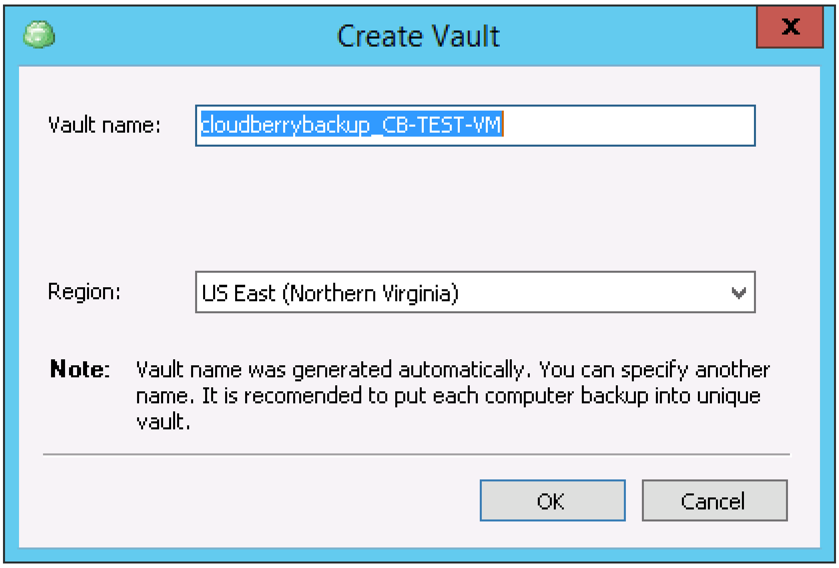
Applicable if you run application on AWS EC2 instance

Vault name: <Create New Vault>

Specify Proxy Settings

Don't have an **Amazon Glacier account** ?
Create an account - It will take just a few minutes!

a. If you don't have a vault yet, you can create a new one from CBB interface. Press on **Create New Vault** and choose its name and location region.



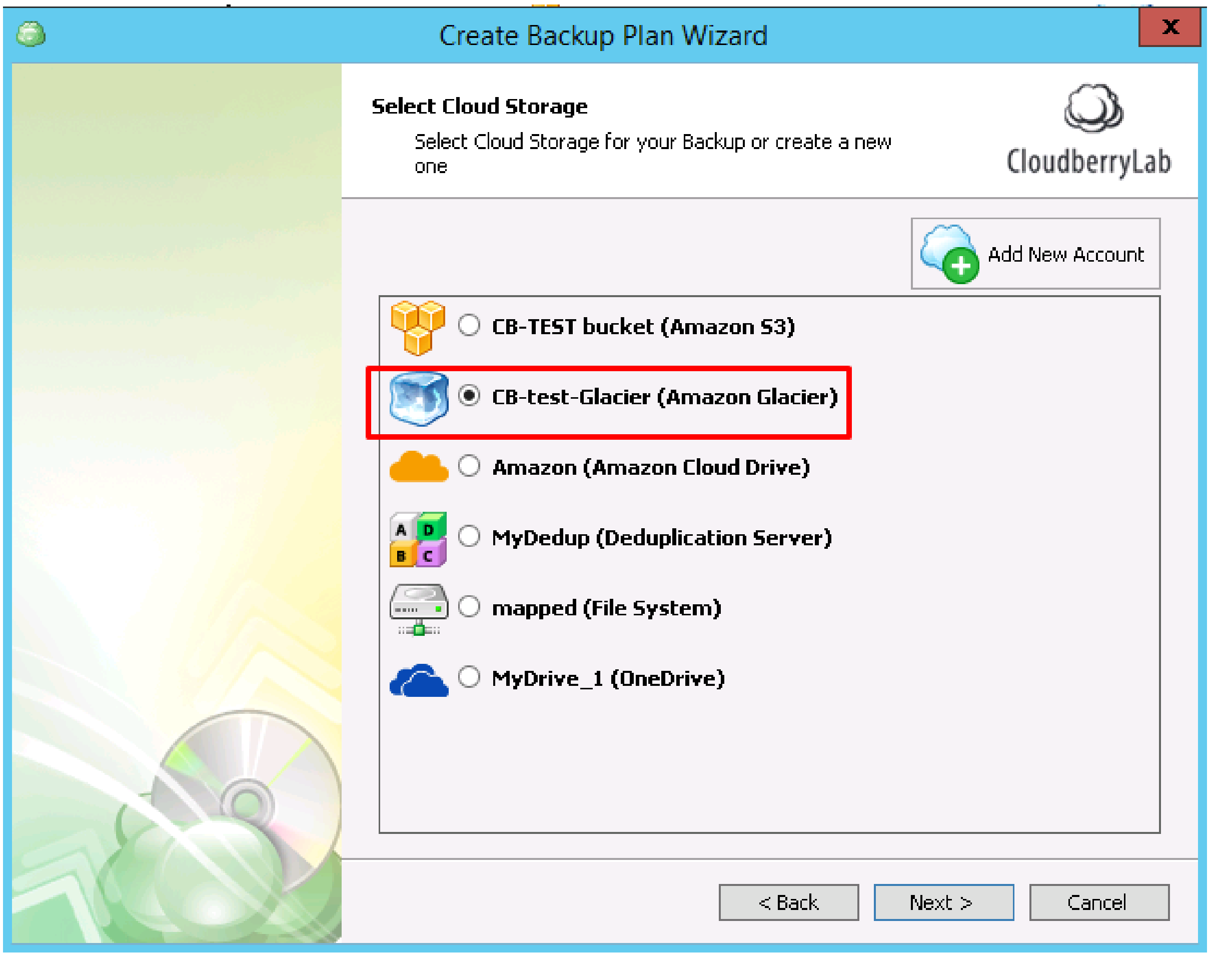
Create Vault

Vault name: cloudberrybackup_CB-TEST-VM

Region: US East (Northern Virginia)

Note: Vault name was generated automatically. You can specify another name. It is recomended to put each computer backup into unique vault.

4. If you have made backups to this vault before, it will take 3-5 hours to synchronize repositories. If no, the Glacier account will appear immediately, and you are ready to create a Backup Plan.
5. Press **Setup Backup Plan** at the **Welcome** tab to start the Wizard. Choose Glacier account as a cloud storage and specify the backup plan name.



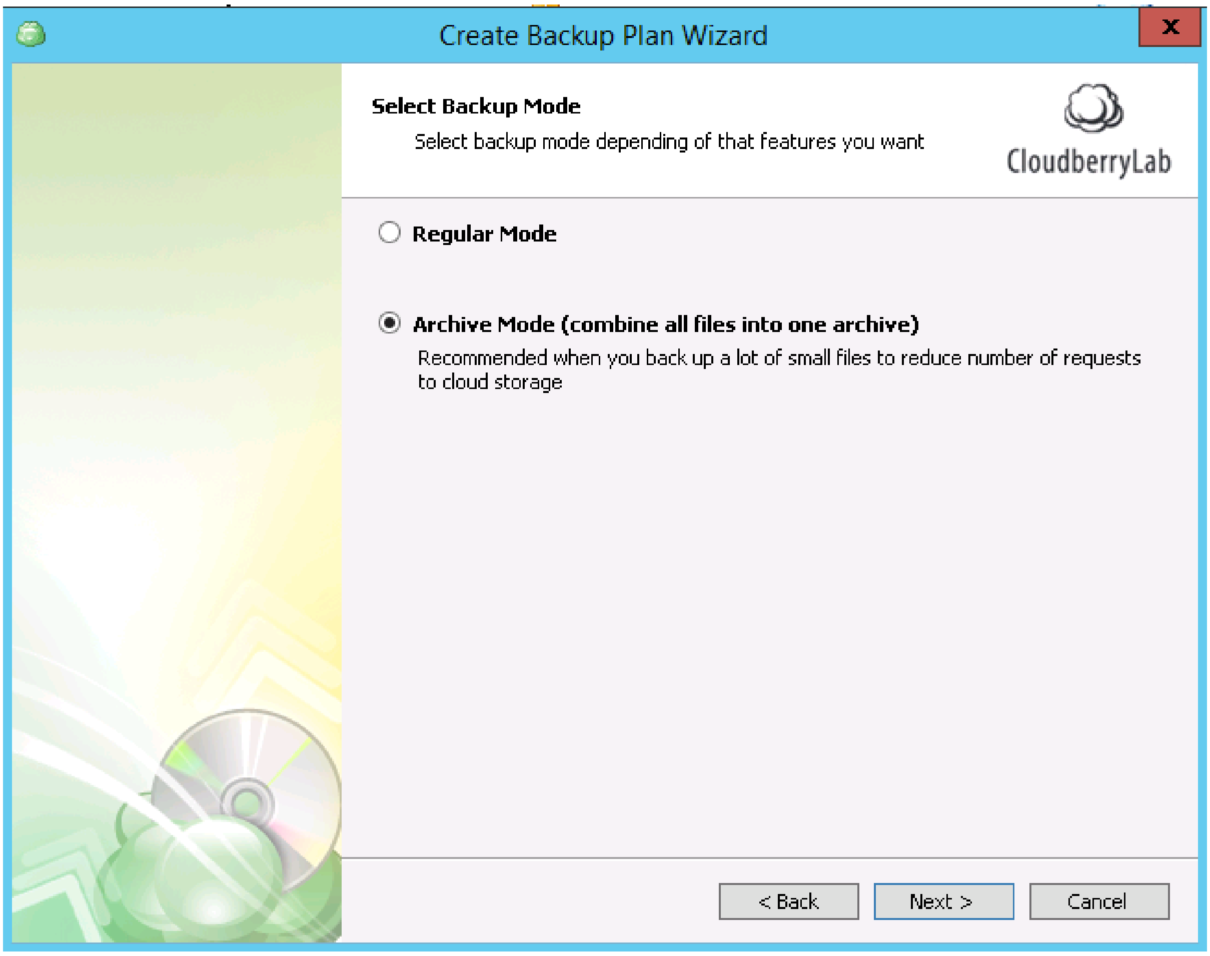
Create Backup Plan Wizard

Select Cloud Storage

Select Cloud Storage for your Backup or create a new one

○ CB-TEST bucket (Amazon S3)
● CB-test-Glacier (Amazon Glacier)
○ Amazon (Amazon Cloud Drive)
○ MyDedup (Deduplication Server)
○ mapped (File System)
○ MyDrive_1 (OneDrive)

6. On the next step, choose the backup mode. On the **Regular Mode**, files will be uploaded separately. On the **Archive Mode**, data will be compressed in the one file to save on requests charge.



Select Backup Mode

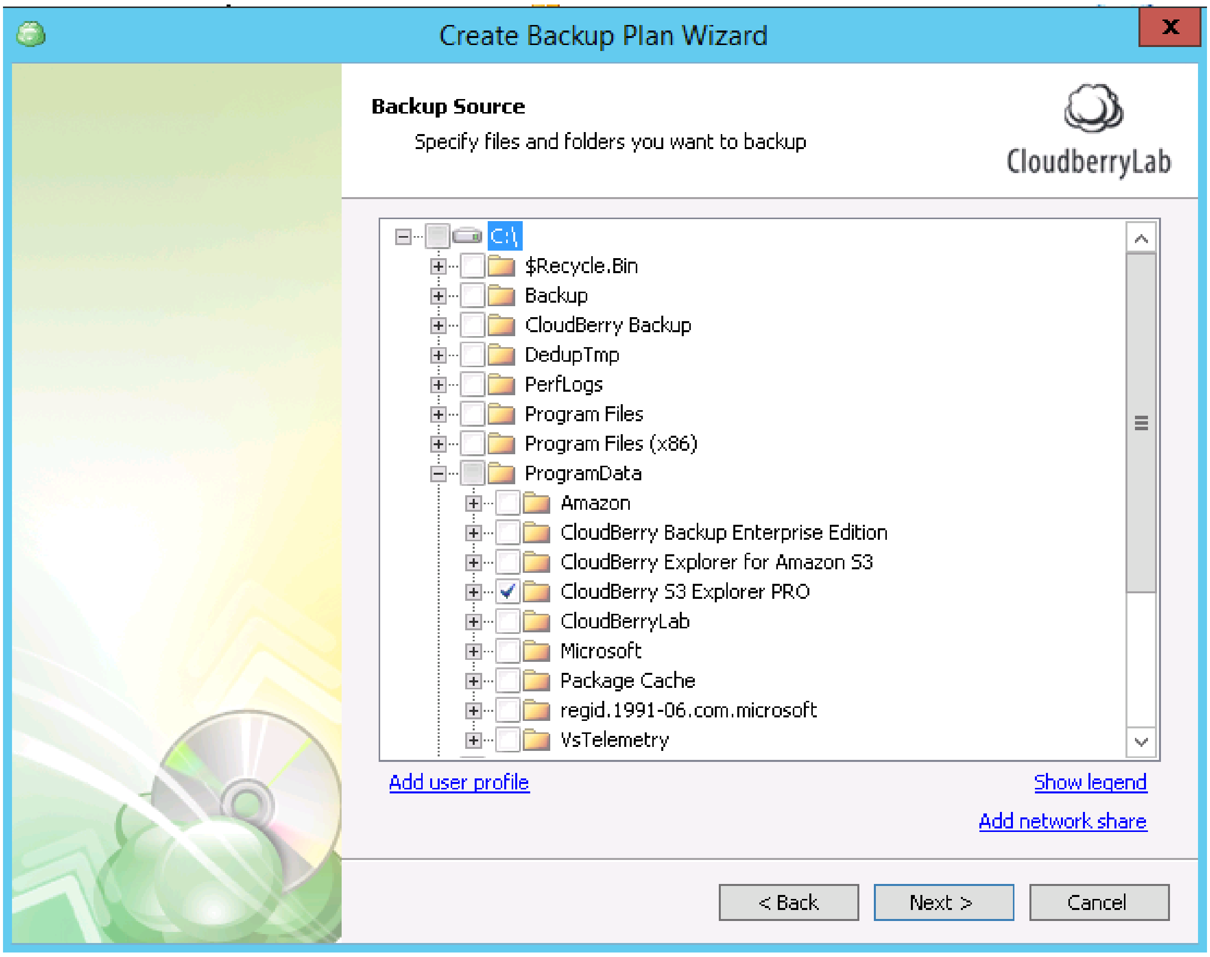
Select backup mode depending of that features you want

○ **Regular Mode**

● **Archive Mode (combine all files into one archive)**

Recommended when you back up a lot of small files to reduce number of requests to cloud storage

7. Then, specify the files for backup.



Backup Source

Specify files and folders you want to backup

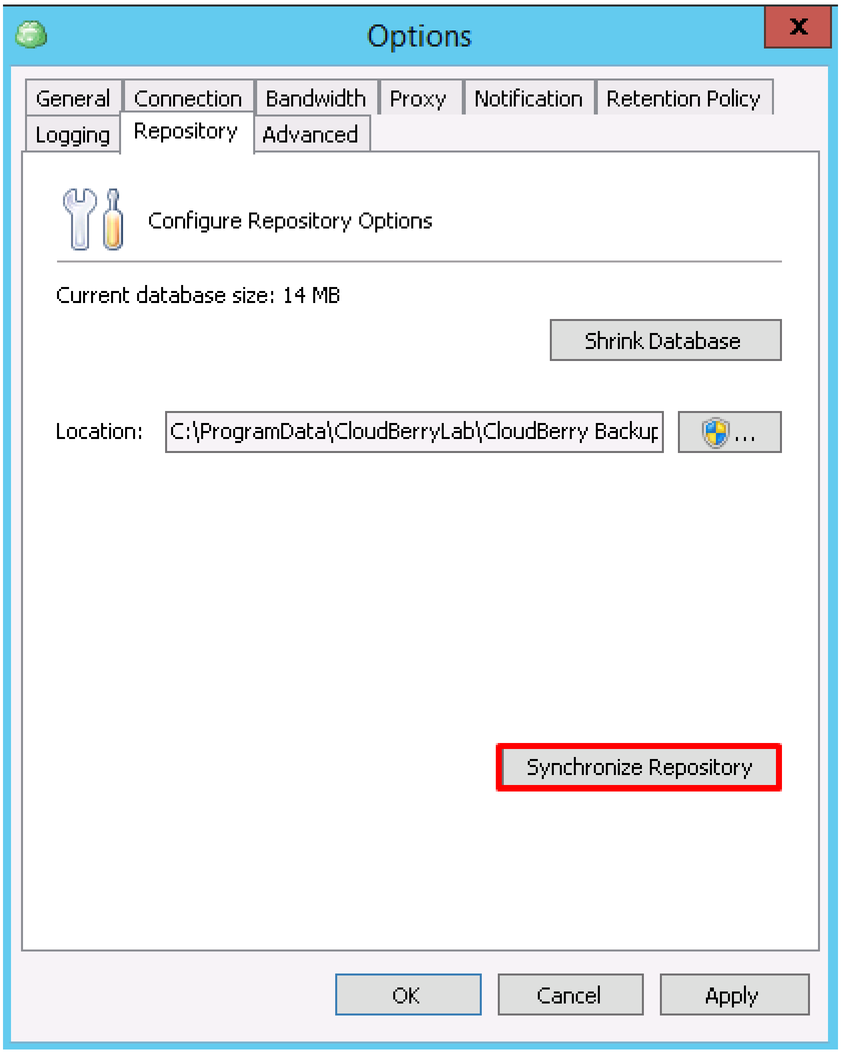
- □ C:\
  - □ $Recycle.Bin
  - □ Backup
  - □ CloudBerry Backup
  - □ DedupTmp
  - □ PerfLogs
  - □ Program Files
  - □ Program Files (x86)
  - □ ProgramData
    - □ Amazon
    - □ CloudBerry Backup Enterprise Edition
    - □ CloudBerry Explorer for Amazon S3
    - ☑ CloudBerry S3 Explorer PRO
    - □ CloudBerryLab
    - □ Microsoft
    - □ Package Cache
    - □ regid.1991-06.com.microsoft
    - □ VsTelemetry

8. Configure others options like encryption, compression, e-mail notifications, etc., and launch the backup plan to upload the data to Glacier.

Glacier Restore

If Glacier storage hasn’t been used for backup on the computer before, or its contents changed since the last backup, you need to synchronize it with local repository:

1. Open the **Tools** tab, press **Options** and switch to **Repository** section.



Options

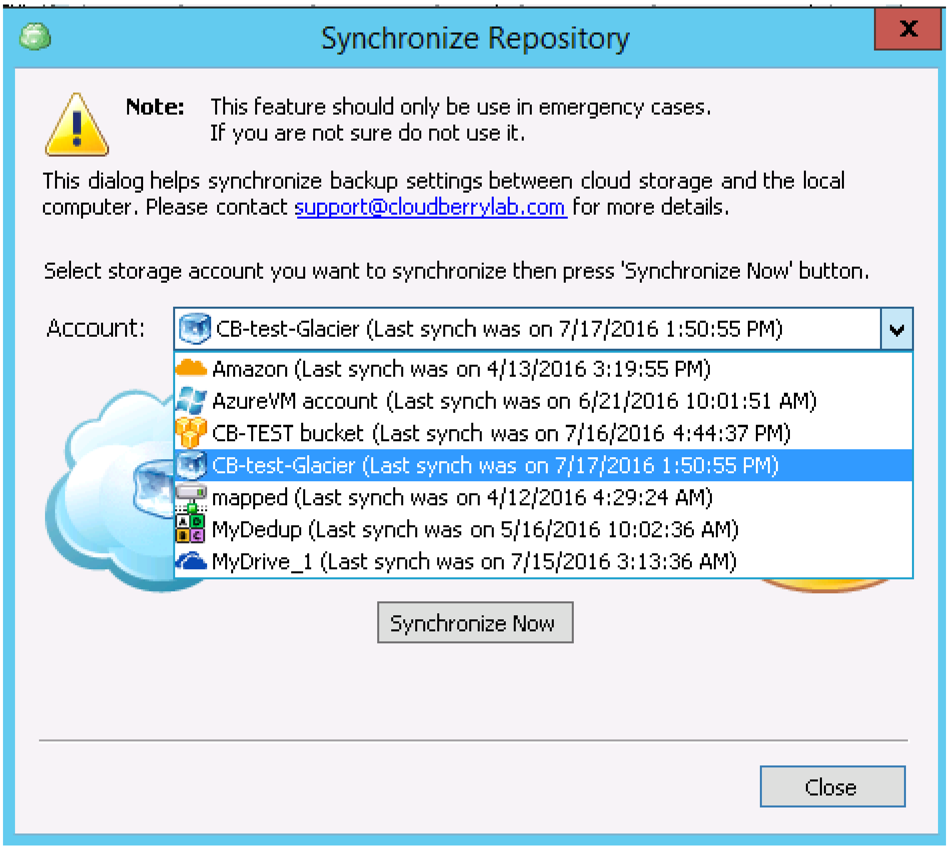
Configure Repository Options

Current database size: 14 MB

Location: C:\ProgramData\CloudBerryLab\CloudBerry Backup

2. Click on the **Synchronize Repository** button. On the next screen, choose the Glacier Account from the drop-down list and press **Synchronize Now**. ***Note***: *If you have made uploads during the*

last 24 hours, the Glacier Global inventory may not occur and files may not be available.



Synchronize Repository

Note: This feature should only be use in emergency cases.
If you are not sure do not use it.

This dialog helps synchronize backup settings between cloud storage and the local computer. Please contact support@cloudberrylab.com for more details.

Select storage account you want to synchronize then press 'Synchronize Now' button.

Account: CB-test-Glacier (Last synch was on 7/17/2016 1:50:55 PM)

- Amazon (Last synch was on 4/13/2016 3:19:55 PM)
- AzureVM account (Last synch was on 6/21/2016 10:01:51 AM)
- CB-TEST bucket (Last synch was on 7/16/2016 4:44:37 PM)
- CB-test-Glacier (Last synch was on 7/17/2016 1:50:55 PM)
- mapped (Last synch was on 4/12/2016 4:29:24 AM)
- MyDedup (Last synch was on 5/16/2016 10:02:36 AM)
- MyDrive_1 (Last synch was on 7/15/2016 3:13:36 AM)

If the data is already synchronized, you can start the recovery. Click **Restore** at the **Home** tab. This will start the Recovery Wizard.

Glacier retrieval options

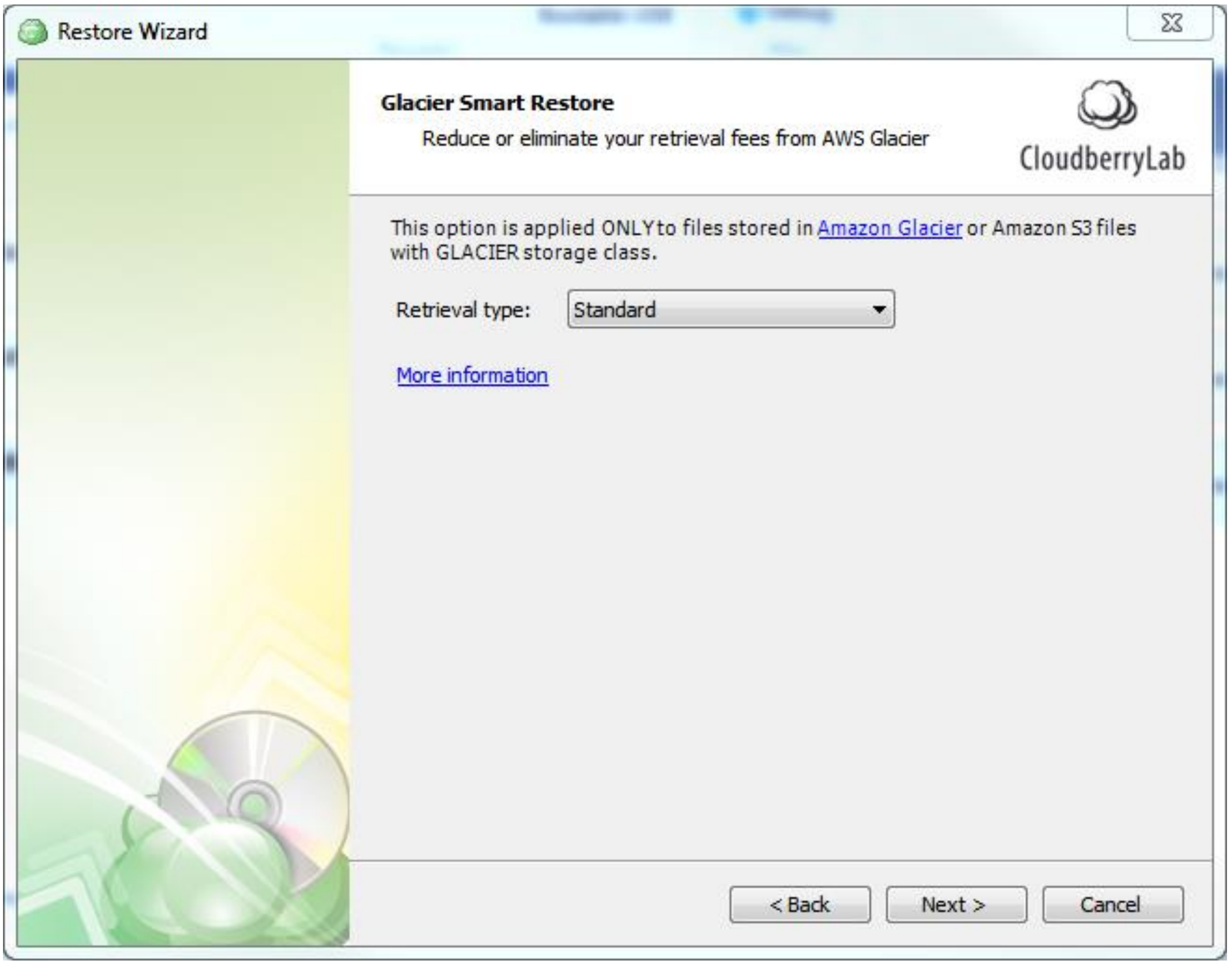
Formerly, if you wanted to retrieve your files from Amazon Glacier, the only way you could do so is via the so-called Standard retrieval. Well, not anymore. Amazon has introduced 2 new tiers:

- **Expedited**: for those who are willing to spend a little more for higher speeds. You can get you data in as little as 1 to 5 minutes. Retrievals cost $0.03 per GB and $0.01 per request. Note that there are some provisions that may impede smooth restoration. If you need to get your data back in this time frame even in rare situations where demand is exceptionally high, you can provision retrieval capacity. Once you have done this, all Expedited retrievals will automatically be served via your Provisioned capacity. Each unit of Provisioned capacity costs $100 per month and ensures that you can perform at least 3 Expedited Retrievals every 5 minutes, with up to 150 MB/second of retrieval throughput. If you exceed that limit, expect errors on the part of Amazon.

- **Bulk**: for those who want to limit expenses by sacrificing access time. It is perfect for planned or non-urgent cases, with retrieval taking anywhere from 5 to 12 hours at a cost of $0.0025 per GB and every 1000 requests amounting to $0.025.

The **Standard** tier with your typical retrieval hours (3 to 5) also remains, costing $0.01 per GB along with $0.05 for every 1,000 requests.

CloudBerry Backup 5.3 or newer allows you to select the preferable retrieval tier when setting up a restore plan.



This option is applied ONLY to files stored in Amazon Glacier or Amazon S3 files with GLACIER storage class.

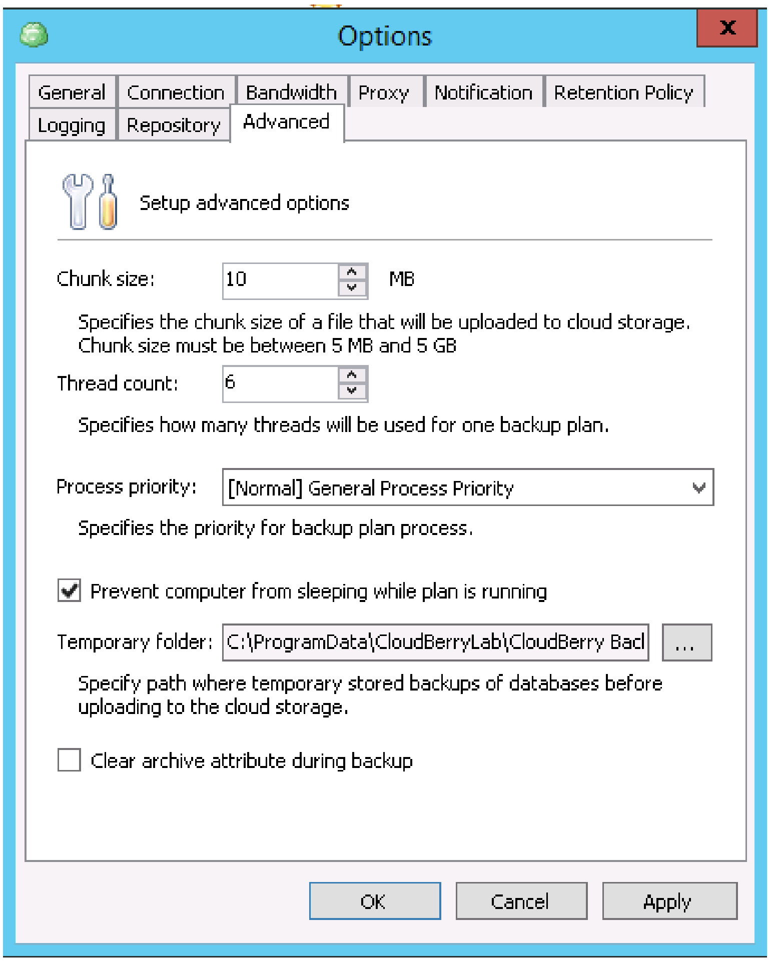
Retrieval type: Standard

More information

By default, the Standard tier is used to retrieve data. So if you don't explicitly specify the tier, expect the Standard fees and retrieval waiting time.

CloudBerry Backup Advanced Options

CBB has some features which can resolve specific cloud storage issues. They can be found on the **Advanced** tab of the **Options** window.



Chunk size: 10 MB

Specifies the chunk size of a file that will be uploaded to cloud storage. Chunk size must be between 5 MB and 5 GB

Thread count: 6

Specifies how many threads will be used for one backup plan.

Process priority: [Normal] General Process Priority

Specifies the priority for backup plan process.

☑ Prevent computer from sleeping while plan is running

Temporary folder: C:\ProgramData\CloudBerryLab\CloudBerry Bacl ...

Specify path where temporary stored backups of databases before uploading to the cloud storage.

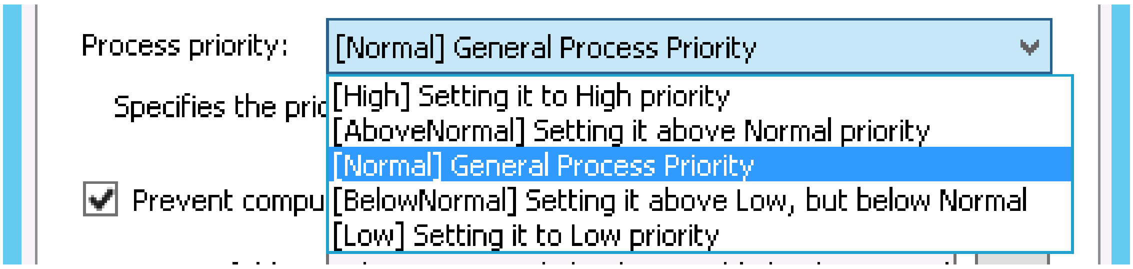
□ Clear archive attribute during backup

Multipart Upload

This feature breaks big files into the smaller chunks before uploading and then assembles them on the destination storage. This feature allows to:

- Ignore network errors and re-upload corrupted parts.
- Transfer data in multiple threads to increase the upload speed.
- Stop and start the upload at the Backup Plans tab.

At the **Advanced** tab, you can select the chunk size and specify number of threads. The bigger chunk size increases transmission speed, but it will take more time to continue interrupted transfer task.



[High] Setting it to High priority
[AboveNormal] Setting it above Normal priority
[Normal] General Process Priority
[BelowNormal] Setting it above Low, but below Normal
[Low] Setting it to Low priority

You can also assign CloudBerry Backup **process priority** to manage performance.

Clear Archive Bit

The Archive Bit (ArB) is a file attribute that is set when a file is created or modified. It basically indicates whether the file is a new one or modified, so the system can decide to archive it or just skip.

Let's look at an example:

- You create a new file. The Archive Bit attribute is automatically set for this file.
- A daily backup schedule starts from Monday. It performs a full backup, and it completes successfully. The ArB is turned off.
- If here were no file modifications on Tuesday, CBB incremental backup skips this file since the ArB turned off.
- You modify the file on Wednesday. The ArB automatically turns on again.
- Incremental backup starts on Wednesday. CBB backs up the modified file and turns off the ArB attribute.
- The ArB will stay turned off and CBB will skip the file until you modify it again.

It is possible to **clear archive attribute during backup** by checking the relevant box at the Advanced tab. The option may be useful if you have re-deployed CBB on the machine, and there were file modifications in between.

Command Line Interface

CloudBerry Backup has a command line interface, which can manage all backup or restore features. It may also be used in Pre/Post Actions in backup plans, or by external software. The interface tool is **cbb.exe**, which is located in the CloudBerry Backup root folder. By default, it's **C:\Program Files\CloudBerryLab\CloudBerry Backup**.

Here are some examples of CloudBerry Backup CLI usage:

- **Configure global settings**. For instance, run the next command to set bandwidth speed to 100Kbit/sec:

  ```
  cbb.exe -o -bw 100
  ```
- **Create a backup plan** using the next command:

  ```
  cbb.exe backup -a myStorage -f "C:\Users\Administrator\Documents\Image.bmp" -d "C:\Users\Administrator\Documents\Data" -ifm "*.rtf;*.bmp"
  ```

  CBB perform a one-time backup of **image.bmp** in **Administrator\Documents** and save all **.rtf** and **.bmp** files from the **\Data** folder to **myStorage** account. The backup process will be tracked in the Command Line.
- **Recover data.** Run the following command:

  ```
  cbb.exe restore -a "myStorage" -d "C:\Users\Administrator\Documents -rl original -rt latest -o
  ```

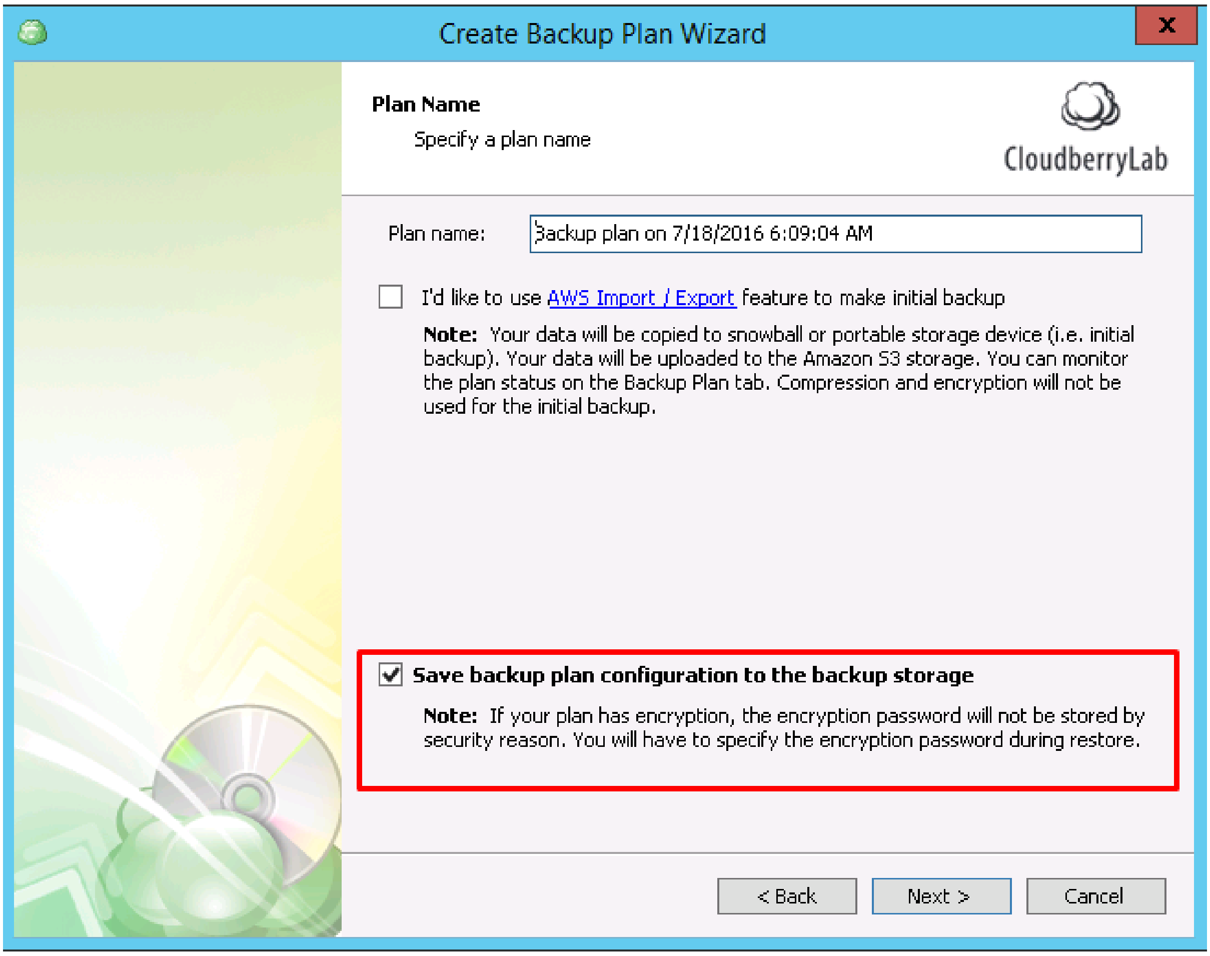
All files assigned to the **Documents** folder will be restored to their original location overwriting the existing files if any.

Full commands list and advanced scenarios can be found on the [Command Line Interface page](#).

How to Recover Jobs and Presets on the New Server

When the disaster happens, first step is the hardware renewal. Whether you get new computers or choose cloud services, the next thing is the restoration of backup service and data recovery. There should be some precautions made before:

1. Each Backup Plan should be created with the **Save backup plan configuration to the backup storage** option enabled. It won't take much storage space and helps to restore task configuration even if the initial machine is lost.



Create Backup Plan Wizard

Plan Name

Specify a plan name

Plan name: Backup plan on 7/18/2016 6:09:04 AM

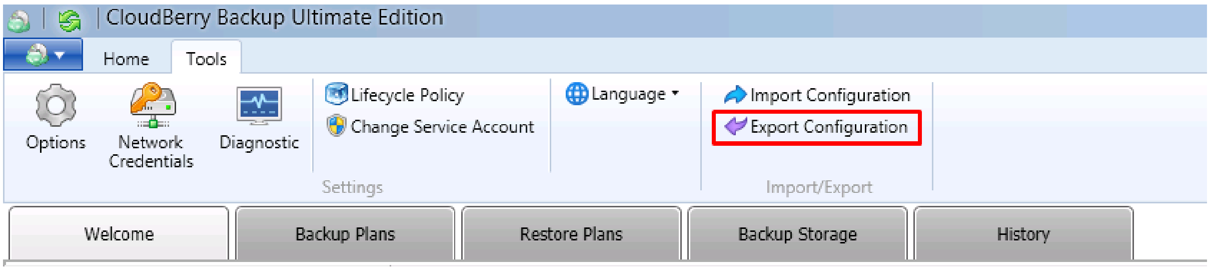
□ I'd like to use AWS Import / Export feature to make initial backup

Note: Your data will be copied to snowball or portable storage device (i.e. initial backup). Your data will be uploaded to the Amazon S3 storage. You can monitor the plan status on the Backup Plan tab. Compression and encryption will not be used for the initial backup.

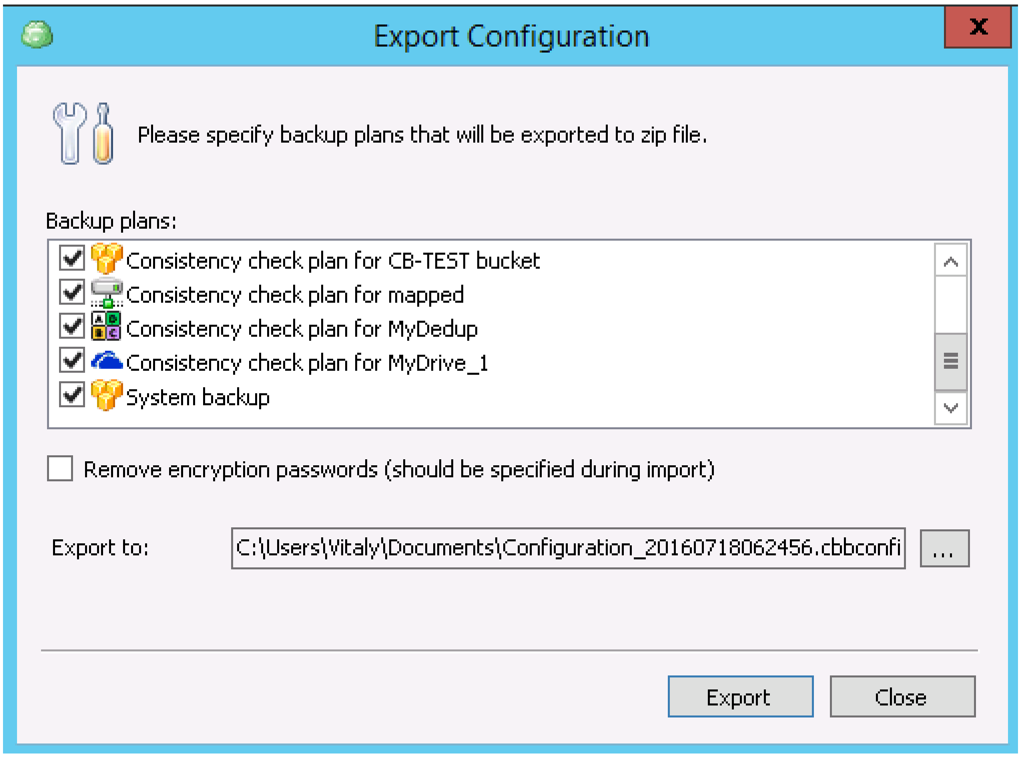
☑ **Save backup plan configuration to the backup storage**

Note: If your plan has encryption, the encryption password will not be stored by security reason. You will have to specify the encryption password during restore.

2. Preserve CBB settings to facilitate the recovery by pressing on **Export Configuration** button at the **Tools** tab.



3. On the window appeared, choose plans to be saved and specify export location. You may create a backup task for configurations file to recover it easier later.


Export Configuration

Please specify backup plans that will be exported to zip file.

Backup plans:

☑ Consistency check plan for CB-TEST bucket
☑ Consistency check plan for mapped
☑ Consistency check plan for MyDedup
☑ Consistency check plan for MyDrive_1
☑ System backup

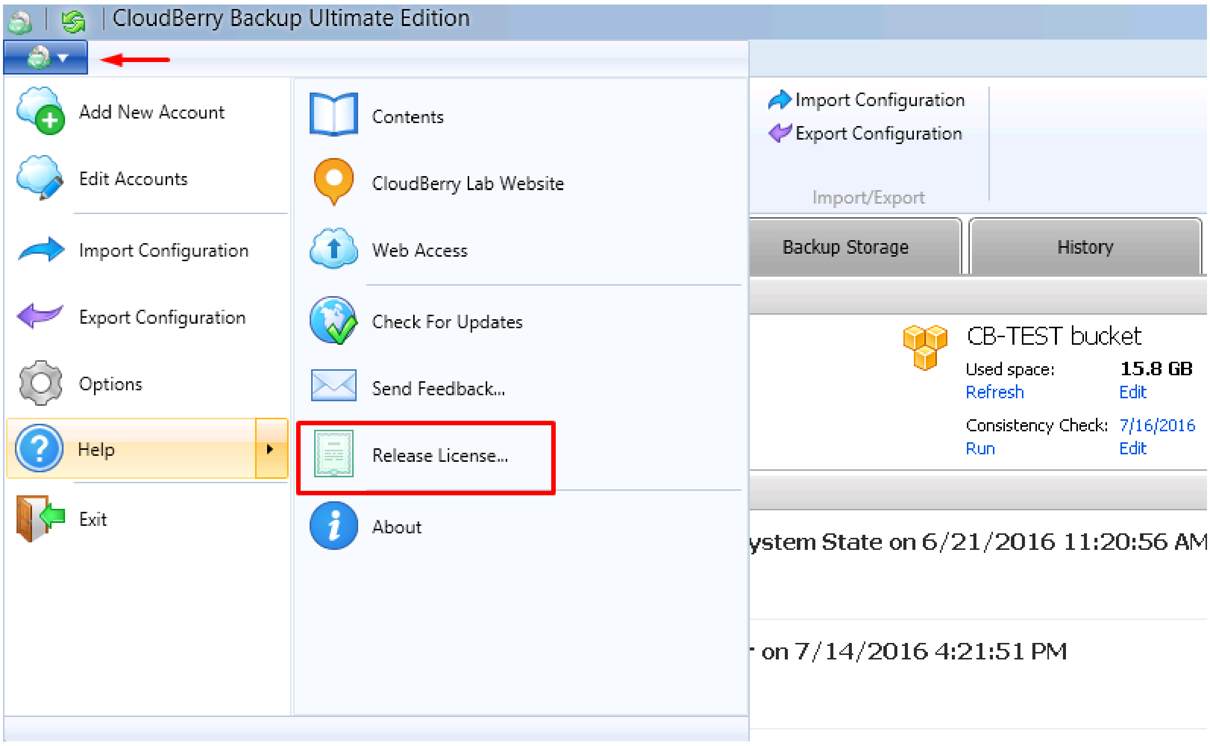
□ Remove encryption passwords (should be specified during import)

Export to: C:\Users\Vitaly\Documents\Configuration_20160718062456.cbbconfi

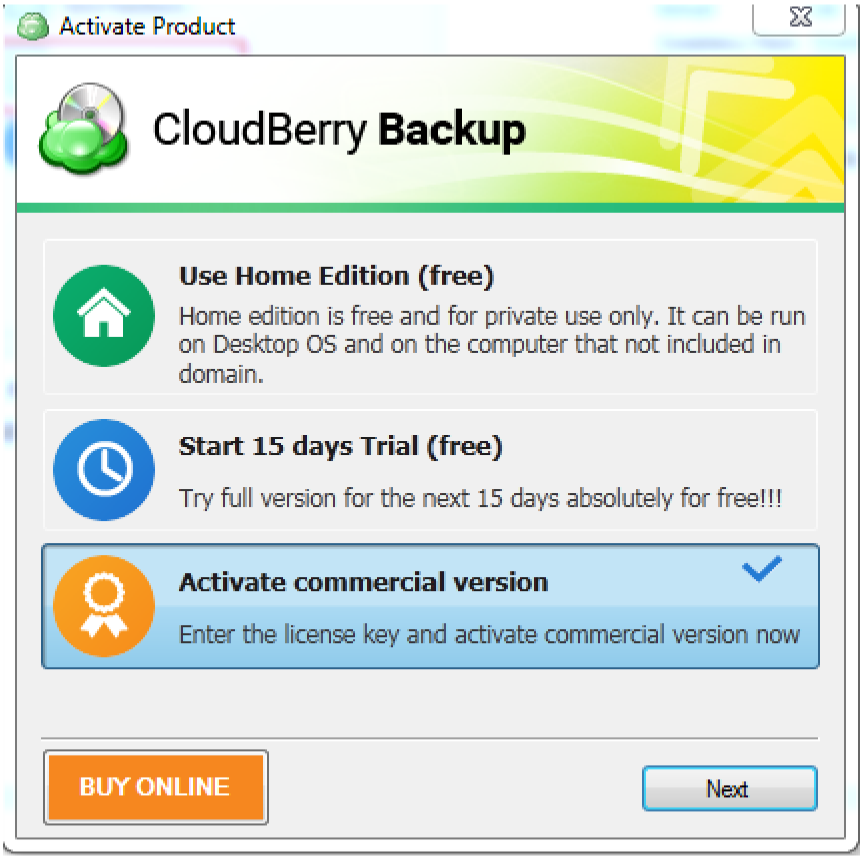
After all preparations are made, move to the new instance and proceed the following steps:

1. First of all, release the license to continue it on the new instance. You may contact the support to create a request or do it by yourself if the previous machine still accessible. Click on the

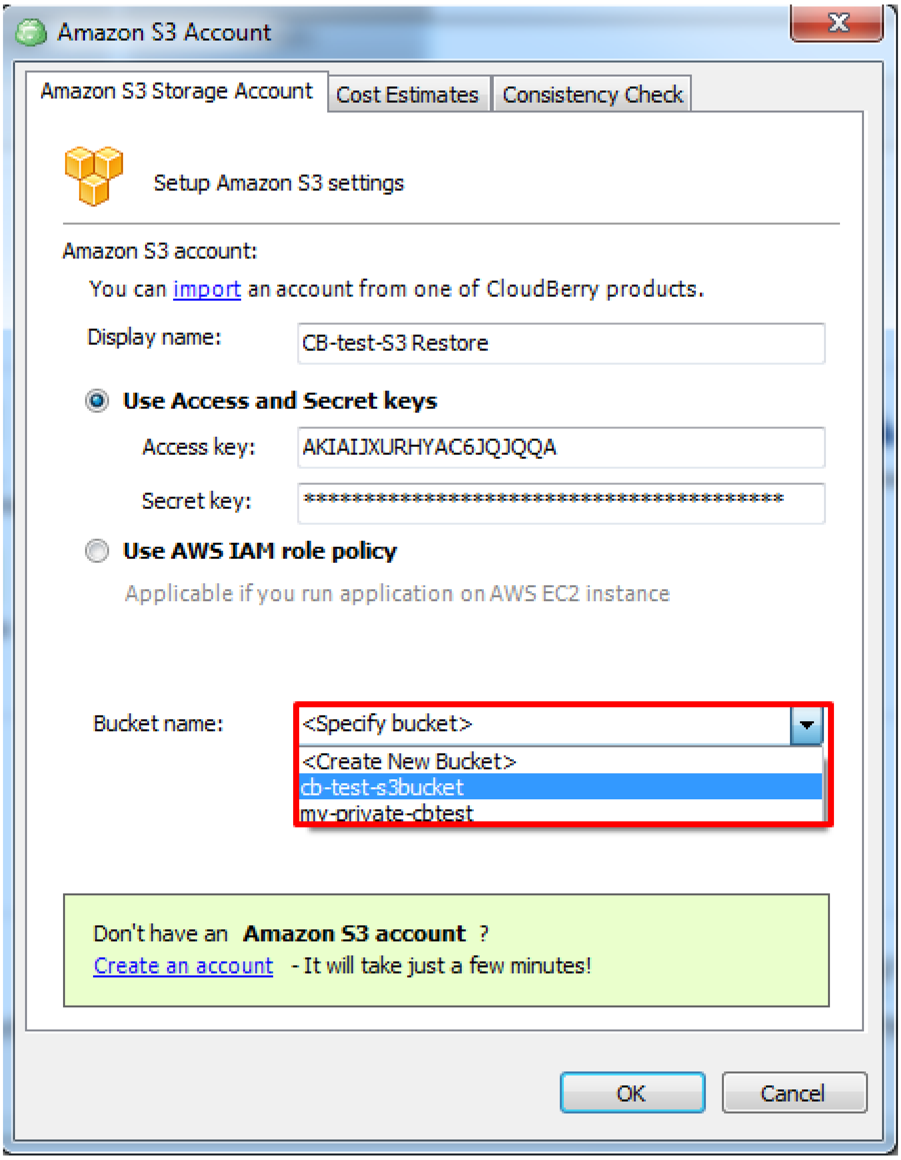
Main Menu button, choose **Help** section and press **Release License.**



2. Install CloudBerry Backup. On the first run, specify license key or start a trial.


Activate Product
CloudBerry Backup
Use Home Edition (free)
Home edition is free and for private use only. It can be run on Desktop OS and on the computer that not included in domain.
Start 15 days Trial (free)
Try full version for the next 15 days absolutely for free!!!
Activate commercial version
Enter the license key and activate commercial version now
BUY ONLINE
Next

3. Click on the **Main Menu** button and select **Add Account**. Choose the same bucket and display name as before and specify security credentials.



Amazon S3 account:

You can import an account from one of CloudBerry products.

Display name: CB-test-S3 Restore

● Use Access and Secret keys

Access key: AKIAIJXURHYAC6JQJQQA

Secret key: ***

○ Use AWS IAM role policy

Applicable if you run application on AWS EC2 instance

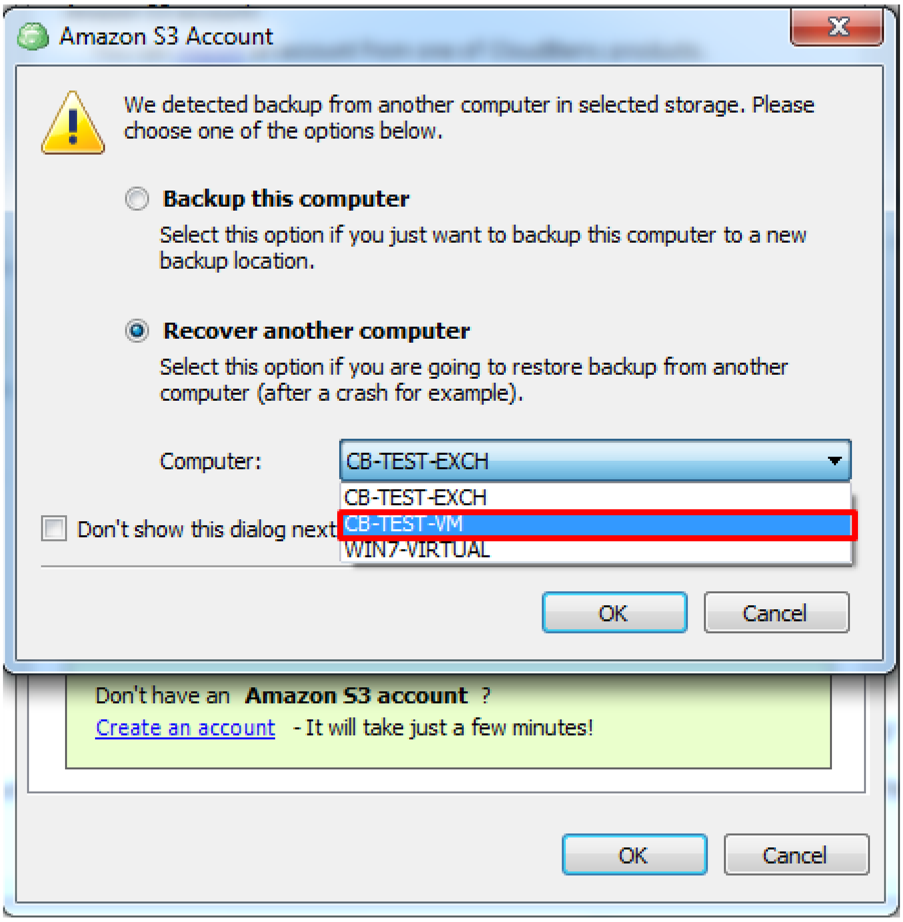
Bucket name: <Specify bucket>

<Create New Bucket>
cb-test-s3bucket
my-private-cbtest

Don't have an **Amazon S3 account** ?
Create an account - It will take just a few minutes!

4. There are three ways to restore jobs and presets on the new computer:
   a. After pressing **OK** while renewing the account, CloudBerry will scan the storage for previous backups. If there is one, CBB will ask if you want to recover another

computer. Select the previous machine from the drop-down list.



We detected backup from another computer in selected storage. Please choose one of the options below.

○ **Backup this computer**
Select this option if you just want to backup this computer to a new backup location.

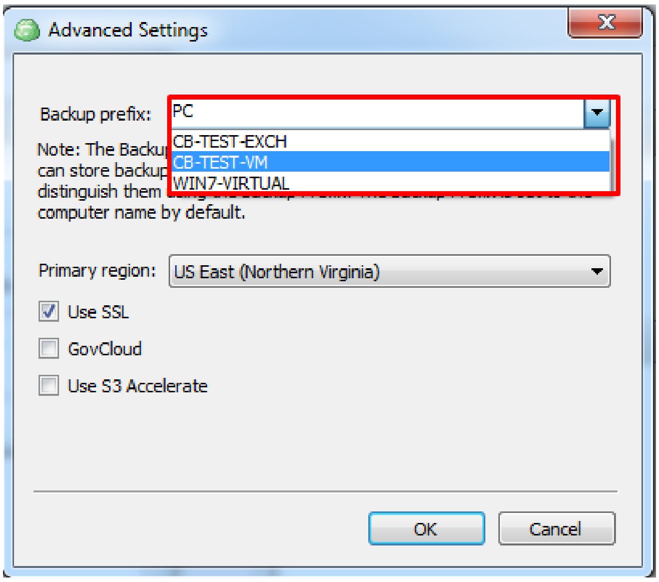
● **Recover another computer**
Select this option if you are going to restore backup from another computer (after a crash for example).

Computer: CB-TEST-EXCH

□ Don't show this dialog next

Don't have an **Amazon S3 account** ?
Create an account - It will take just a few minutes!

b. If the previous step missed, assign CBB to the previous computer via Backup Prefix. Press **Edit Account** in the **Main Menu,** choose the **Advanced Settings** option and specify the backup prefix of the desired computer. There is a drop-down list with existed prefixes on the storage too.



Backup prefix: PC

Note: The Backu
can store backup
distinguish them
computer name by default.

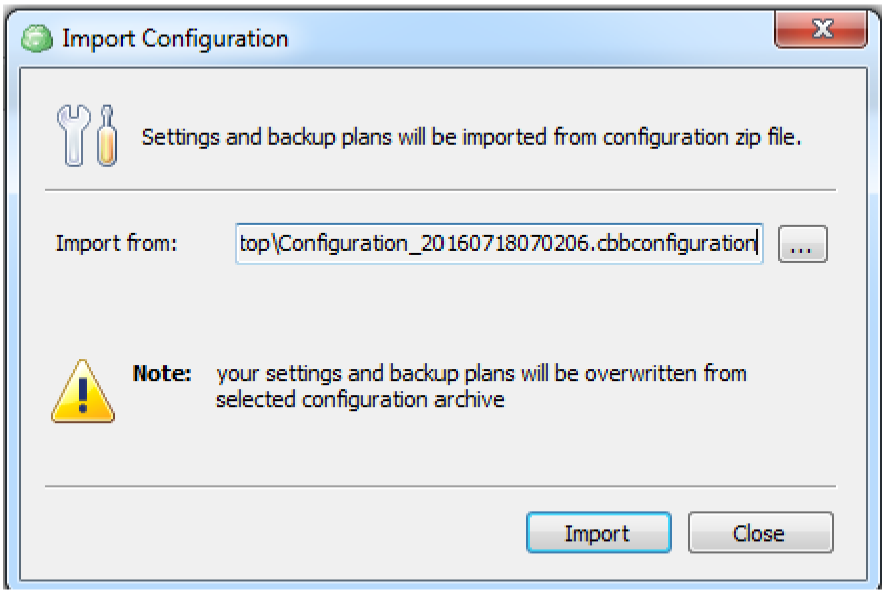
Primary region: US East (Northern Virginia)

☑ Use SSL

□ GovCloud

□ Use S3 Accelerate

c. You can also recover backup jobs and presets by renewing the configurations. Choose the **Import Configuration** at the **Tools** tab and specify the **.cbbconfiguration** file.

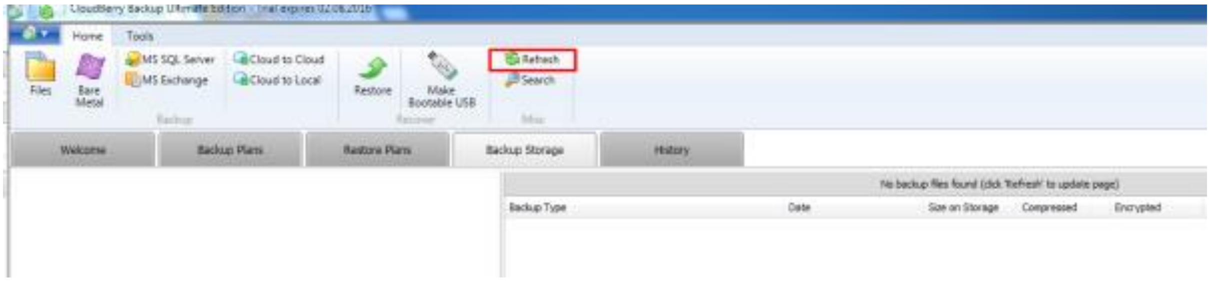


Settings and backup plans will be imported from configuration zip file.

Import from: top\Configuration_20160718070206.cbbconfiguration

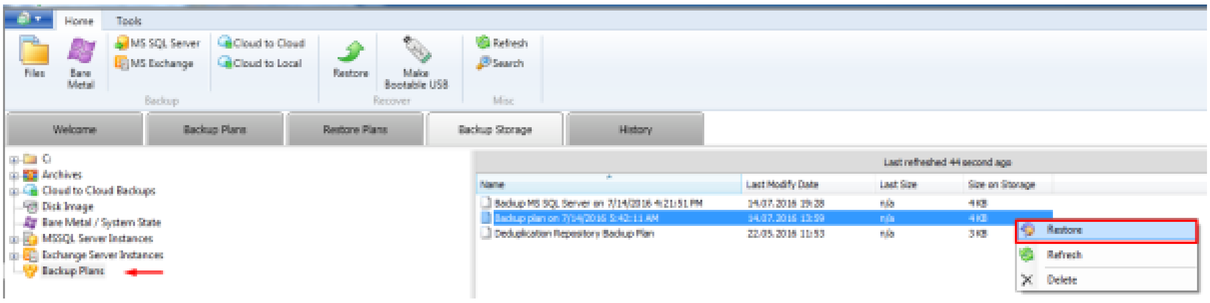
Note: your settings and backup plans will be overwritten from selected configuration archive

5. If used backup-prefix restoration, synchronize with the storage facility and renew backup plans by opening the **Backup Storage** tab and pressing **Refresh** button.



No backup files found (click 'Refresh' to update page)

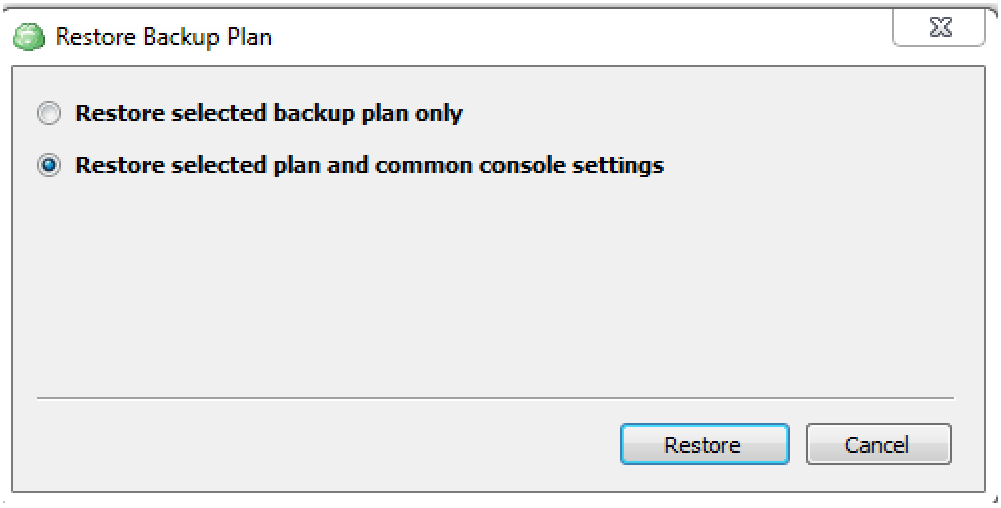
6. This displays the list of the storage contents. Choose **Backup Plans** section and right-click on the desired plan, press **Restore**.



Last refreshed 44 second ago

Name	Last Modify Date	Last Size	Size on Storage
Backup MS SQL Server on 7/14/2016 4:21:51 PM	14.07.2016 19:28	n/a	4 KB
Backup plan on 7/14/2016 5:42:11 AM	14.07.2016 13:59	n/a	4 KB
Deduplication Repository Backup Plan	22.03.2016 11:53	n/a	3 KB

7. Then choose **Restore selected plan and common console settings**.

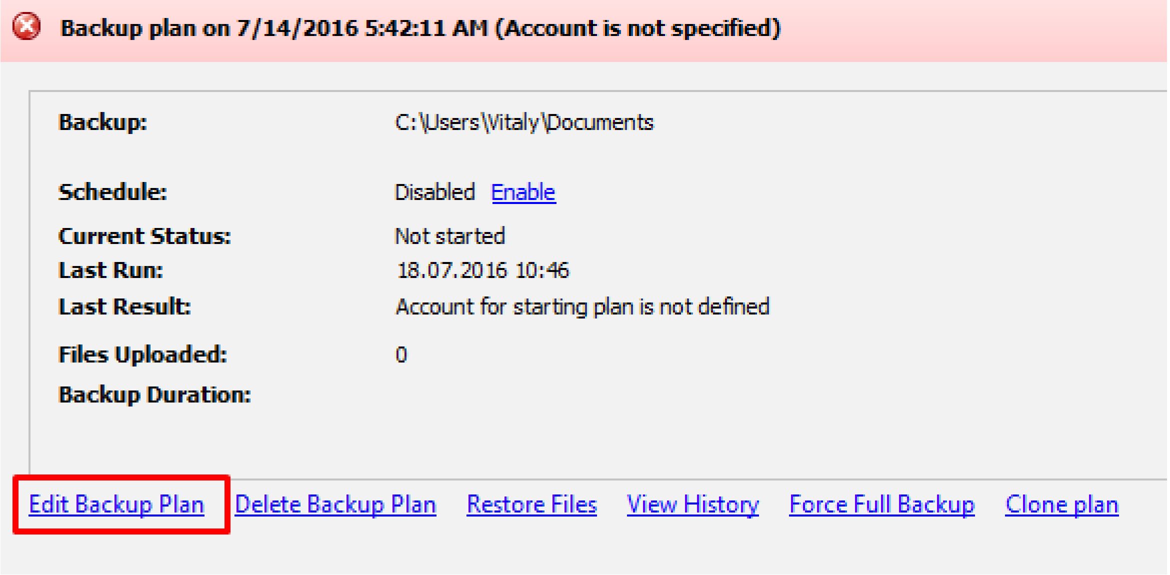


Restore Backup Plan

○ **Restore selected backup plan only**

● **Restore selected plan and common console settings**

8. Now plans are active at the **Backup Plans** tab. If you have specified the dissimilar name for the storage account, attach the plan to the storage manually by clicking on the **Edit Backup Plan** option.



Backup plan on 7/14/2016 5:42:11 AM (Account is not specified)

Backup: C:\Users\Vitaly\Documents

Schedule: Disabled Enable

Current Status: Not started

Last Run: 18.07.2016 10:46

Last Result: Account for starting plan is not defined

Files Uploaded: 0

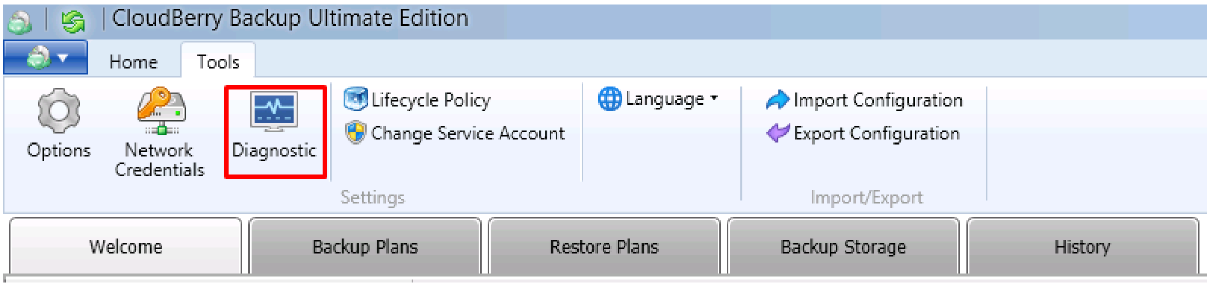
Backup Duration:

Troubleshooting

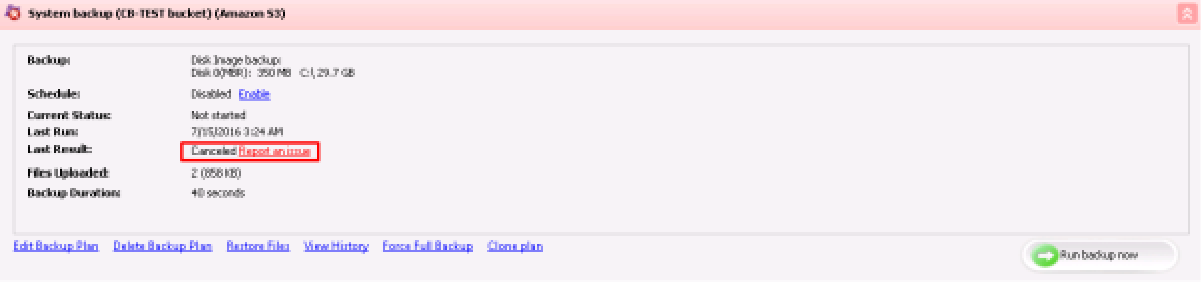
If something goes wrong with the CloudBerry Backup, we will do our best to help you. On the Customer Support page, you can find frequently asked questions, read about the common issues or create a support ticket.

You can also contact us immediately within CBB interface in a few ways:

1. Open the **Tools** tab and click on the **Diagnostic** button.



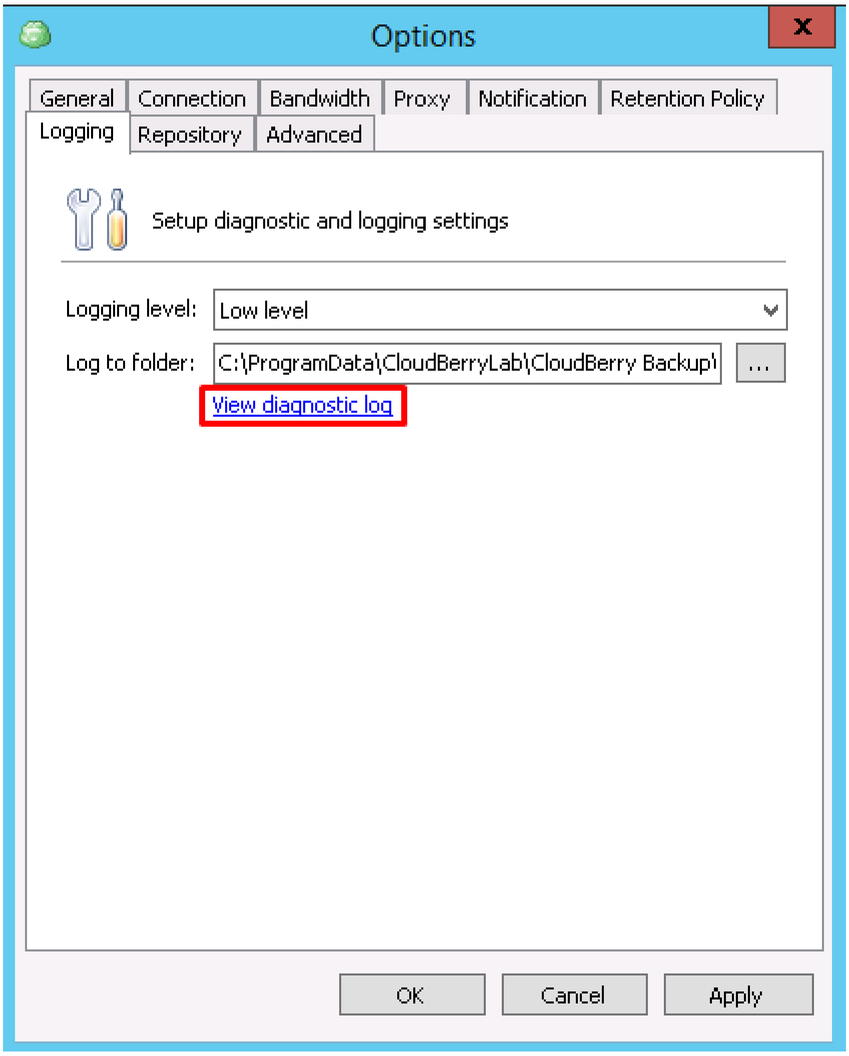
2. Press **Report an issue** in the **Last Result** line of the failed backup plan.



System backup (CB-TEST bucket) (Amazon S3)

Backup: Disk Image backup:
Disk 0(MBR): 350 MB C:\, 29.7 GB
Schedule: Disabled Enable
Current Status: Not started
Last Run: 7/15/2016 3:24 AM
Last Result: Canceled Report an issue
Files Uploaded: 2 (858 KB)
Backup Duration: 40 seconds

3. Open CBB **Options** and go to the Logging tab. Here you can set up logging level (not recommended to change without a need). Press **View diagnostic log** to contact the support.

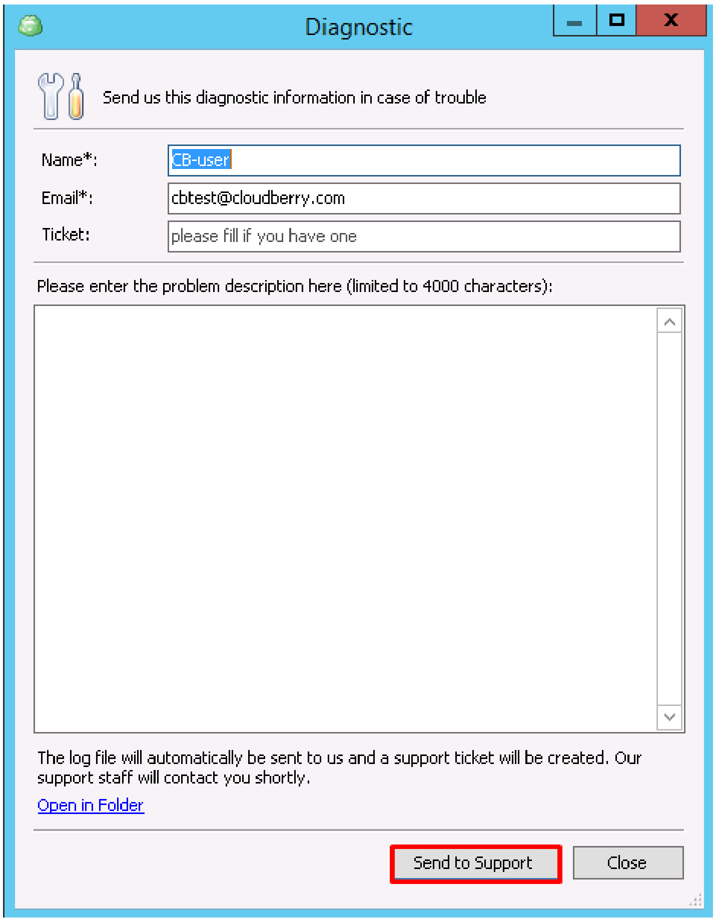


Setup diagnostic and logging settings

Logging level: Low level

Log to folder: C:\ProgramData\CloudBerryLab\CloudBerry Backup\

All these actions will open the **Diagnostic** window, where you can describe a problem and send logs to the CloudBerry Lab Support Team.



Send us this diagnostic information in case of trouble

Name*: CB-user

Email*: cbtest@cloudberry.com

Ticket: please fill if you have one

Please enter the problem description here (limited to 4000 characters):

The log file will automatically be sent to us and a support ticket will be created. Our support staff will contact you shortly.

Summary

Now you are aware of all fundamental features of CloudBerry Backup and know the basics of backing up to the cloud. To find out more, you may want to visit these resources:

- CloudBerry Lab Blog, where we introduce new features, publish guidelines and analyze cloud services market.
- CloudBerry Backup FAQ, where you can find the solution of typical issues.
- Customer success stories about CloudBerry Backup implementation.
- Videos page with guides and reviews.

If you still have questions left, don't hesitate to contact us! CloudBerry Backup is a ripe product for business tasks, but we still develop new features to keep pace with storage providers and customer demands.