User manual
Cloudevo

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Introduction

The software Cloudevo aggregates any number of cloud storage to a big united cloud. It is unessential from which provider you have your cloud storage. Cloudevo combines all of the different cloud services to one large cloud. This united Cloud is then mounted as a drive on your device. All files are encrypted securely on the Cloud drive. In addition to encryption, the software includes useful functions, which facilitate the handling, administration, and synchronization of the data in the Cloud. You can access your files in Cloud Drive from anywhere. Access your data in the Cloud, as if they were on a normal drive.

Use cases

Team work

Collaborate with your colleagues and share your files with them. Cloudevo synchronizes the files in the entire Team, so that all can access them.

Data backup

Backup your data by copying them in the Cloud Drive. In case of data loss, you can copy your data back from the Cloud Drive

Archiving

Many files are used only rarely and consume storage space on your hard disk. Outsource this data to the Cloud. There you can browse these files and folders if necessary.

Distribution

Do you want to distribute securely your files among friends and family. Then Cloudevo offers you a simple and fast platform for this job.

Setup

To set up the software on your computer, you must first download the installation file. You can find this on the website: Cloudevo Download. Once you have downloaded the installation file, start it. After the installation is completed, a shortcut appears on your desktop. Start the software.

Create account

After starting the software, you will see a window to create an account. Enter an email address and a password.

Note: Choose a secure password! Indirectly, this password is used for encryption. The security of your data in the cloud depends from the chosen password.

Important: Your password is neither stored on the servers of Cloudevo nor tranmitted these servers. If you forget your password or lose, there is no way to restore this.
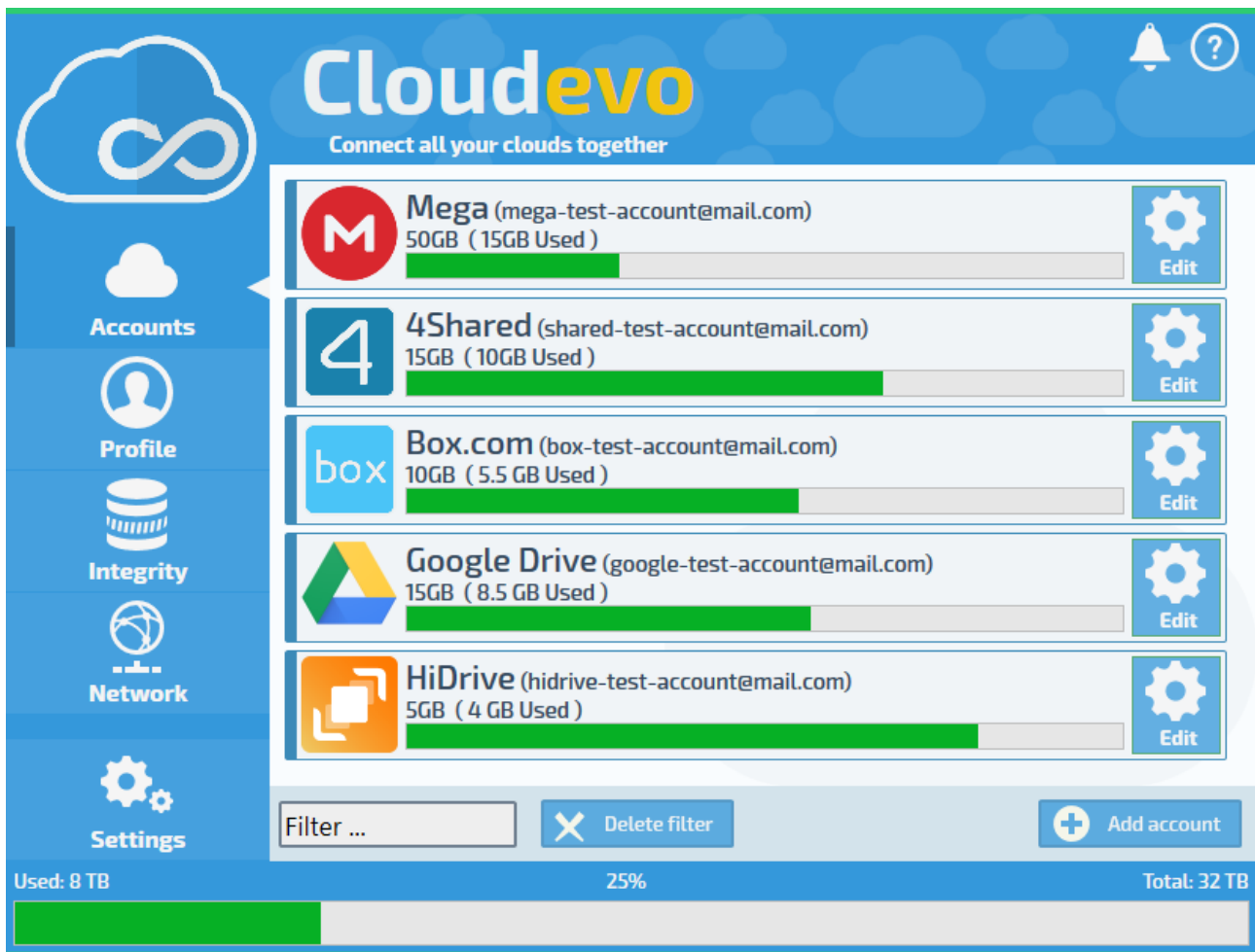
Following this, click the bottom button, to create the account.

Note: The account is created on the servers of Cloudevo. An Internet connection is required.

After you create your account, the application starts and the main window of the user interface appears.

User interface

After starting the application the user interface of Cloudevo appears.

Cloud accounts: In this menu item you will find a list of all the cloud accounts. These are integrated and can be used as a storage space in the cloud.

Profile: In this menu item, your profile, and a statistic is displayed with additional options.

Notifications: In this menu item you will see notifications about important events in Cloudevo.

Settings: In this menu item you can change the settings of the software.

FAQ: In this section you will find a collection of frequently asked questions and answers to Cloudevo.

Cache

Files frequently accessed by the user can be cached. The path for the cache can be set by the user. In the main menu under settings and under the sync tab, you can select the path.

> Note: The files from the old cache are copied to the new path. This copy operation is performed when you start the software next time. This operation can take a while depending on the size of the cache. Be patient.

Cloud storage services

After setting up the software and creating an account for synchronization, you can now add cloud storage services to Cloudevo.

> The software does not provide own storage space in the cloud. All your data is managed solely on the cloud services that you add to the software.

Universal Cloud Client

No matter on which Cloud service you want to save your data, Cloudevo can access it. If you are use different Cloud services, Cloudevo provides you with a uniform surface and interface.

Supported services

Currently, many cloud storage services are supported on which you can store your data partly free.

- Dropbox 2 GB Free
- Microsoft OneDrive 5 GB Free
- Box.com 10 GB Free
- 4Shared.com 15 GB Free
- Google Drive 15 GB Free
- HiDrive.com 5 GB Free
- Mega.nz 50 GB Free
- MagentaCLOUD.de 10 GB Free
- Yandex Disk 10 GB Free
- ~~Cubby.com 5 GB Free~~ (Service discontinued)
- HubiC Cloud 25 GB Free
- pCloud 10 GB Free
- Yandex Disk 10 GB Free
- CloudMe.com 3 GB Free
- DirectBox.com 5 GB Free
- DriveOnWeb.de 3 GB Free
- iDriveSync.com 5 GB Free
- OpenDrive.com 5 GB Free
- PowerFolder.com 5 GB Free
- Web.de 3 GB Free
- Freenet.de 2 GB Free
- gmx.net 2 GB Free
- MD.de 2 GB Free
- 1und1.de Office 50 GB Free (Customers)
- 1und1.de Home 50 GB Free (Customers)
- Livedrive.com 0 GB Free
- MyDrive.ch 200 MB Free
- BlauCloud.de 5 GB Free
- SofortCloud.com 10 GB Free

> The software supports both paid and free accounts of cloud storage services.

Add cloud storage accounts

You can add as many accounts as you want from different or even the same cloud storage services to the software.

To add a new account to a cloud service, follow these steps:

- Start the software
- Open the user interface
- Select the tab in the main menu: Accounts
- In the bottom action bar, click the button: Add account
- A window appears, in which all supported cloud services are listed
- Click the logo of the cloud service where you have an account
- A new window appears. Here you must enter your username and password so that the software will gain access to the cloud storage. Alternatively, you need to authorize some cloud services instead of enter user name and password. Click on the button: Perform authorization
- In the bottom action bar, click the button: Save

Finally, your entries are checked and the software logs in to the selected cloud storage service with the specified account. If an error occurs, you are notified with an error message.

> Important: Make sure that the software has Internet access. A new account can not be created without the Internet. If errors occur during the connection, add the software as an exception to your firewall.

Parallel usage

You can use Cloudevo in parallel to other Cloud software or your own in-house developed interface. Cloudevo creates a separate folder in the respective Cloud service, so your files in the Cloud storage dont get mixed. This allows you to use your cloud service as usual parallel to Cloudevo. The Cloudevo folder on your account can have different names:

- crypted-files
- CloudevoApp

Do not use these folders for your own files to avoid errors.

> Cloudevo ignores all files that are outside of these folders. These files outside of Cloudevo are not managed by Cloudevo, are not displayed in the Cloudevo drive and are not synchronized. Files outside of Cloudevo are insecure as they are not encrypted.

Space restrictions

When you add an account to Cloudevo, you can specify how much of Cloudevo's available space is allowed to be used. You can also change these restrictions later.

- Start the software
- Open the user interface
- Select the tab in the main menu: Accounts
- Locate the account in the list and click: Edit
- A new window appears. Here, you can enter a value under storage space restrictions.
- In the bottom action bar, click the button: Save

> Note: The entered values ??can be specified with the suffix: MB for MegaByte and GB for GigaByte.

> Example: Enter the value: 750 MB

Extensibility

According to your needs, this united cloud can be extended by simply adding more cloud accounts. Cloudevo supports both paid and free cloud storage.

Synchronization

Synchronization refers to the process of transferring files from your computer to the Internet and vice versa. With the software, you can upload all your data to the cloud storage accounts. Then you can then download the data at any time. This allows you to synchronize your files between multiple devices. Cloudevo automatically synchronizes your files as soon as you create or insert files in the cloud drive. You don't need to worry about it. Cloudevo uploads your data encrypted to the unified Cloud services. From other devices you can access your files from anywhere.

Incremental synchronization

The Smart Sync technology detects any changes to the files and the difference to previous version. To speed up the data transfer, only changes are synchronized and not the entire file. This will bring a significant speed advantage and reduces the data transmission.

Automatic unsynchronization

If the storage space on your device is run out, the program will start an automatic unsynchronization. Here, the oldest and least used files are deleted until enough disk space is available.

Conflict treatment

If you work in a Team on the Cloud drive, so it can happen, that multiple people create and edit files. Cloudevo detects conflicts, and resolves them by renaming.

> For example, create a file named TEST. Your colleague also creates a file with the same name. The software detects the two different files with the same name and renames the file of your colleague by adding a unique identifier to the name. This will allow you to see your file TEST and your colleague's TEST_IDxxxx file.

Availability

Your data will go with you, no matter where you are in the world. you can access your data from anywhere. Your account and the password are the key to your data.

Status of synchronization

In your file management program, you can see immediately what the synchronization status of the files are. A small icon indicates whether the data is available or whether its is synchronized currently.
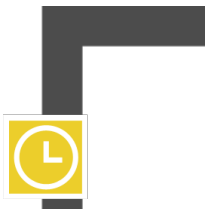
States of synchronization
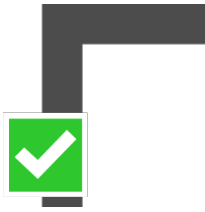
File is synchronized

This is a green icon in the lower left corner, is intended to express that the displayed file is saved to the hard disk and can be read now.

Synchronizing

This blue icon with the arrows in the lower left corner, is intended to express that the displayed file is requested for access, and now just downloaded.

Queue

This yellow icon with the clock in the lower left corner is intended to indicate that the displayed file has been requested for access and is now in the queue for downloading. In a short time, the download of the file starts automatically.

Not synchronized

This gray icon with the cross in the lower left corner, is intended to express that the illustrated file is located in the cloud, but not on the local computer. You can request the file to be able to access it.

Transfer of control

The displayed files in the cloud drive can be partially contained in the cache. This is indicated by the symbol in the corner of the file. However, you can manually influence the state by right-clicking on a file in your file management program and going to the Cloudevo sub-menu in the context menu.
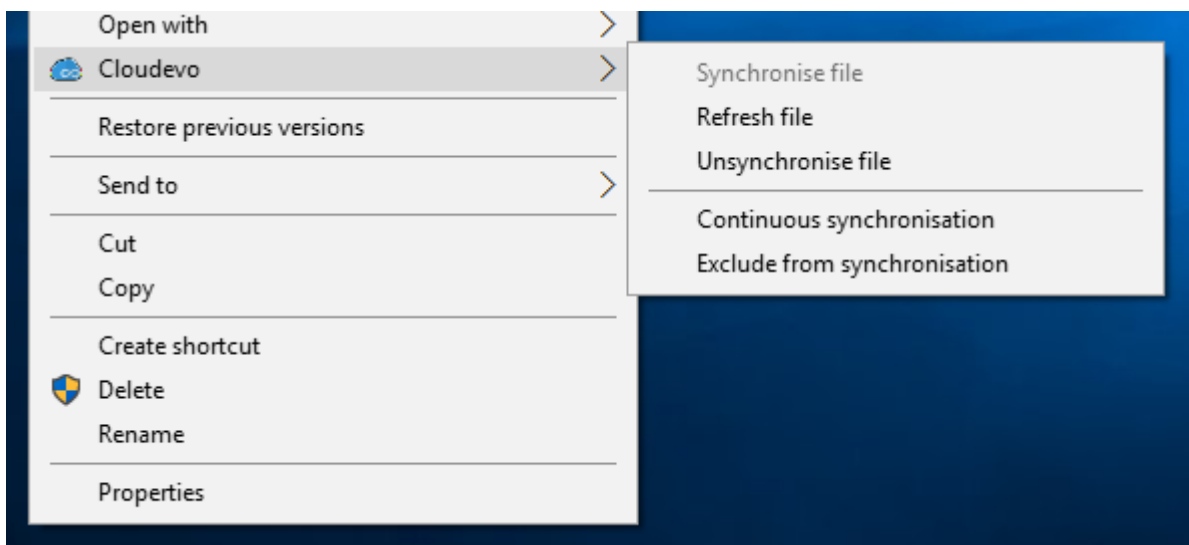
Synchronize file

This menu item allows you to download files and directories from the cloud.

Refresh file

This menu item allows you to download files again completely that are fully or partially contained on your computer.

Unsynchronize file

Use this menu item to delete a file or directory from the cache.

Continuous synchronization

Use this menu item to set a marker to the file so that this file is always cached and all changes on other computers are also downloaded from the cloud.

Exclude from synchronization

Use this menu item to place a marker on the file so that this file is temporarily not synchronized until the mark is removed.

Transfer window

If files are created or copied in the cloud drive, they must also be uploaded. As soon as the transfer starts, a small window with a transfer list appears. In a transfer list you can see when which file will be synced. Should certain files are not to be transferred now or not transferred at all, you can cancel the file transfer sinmply.
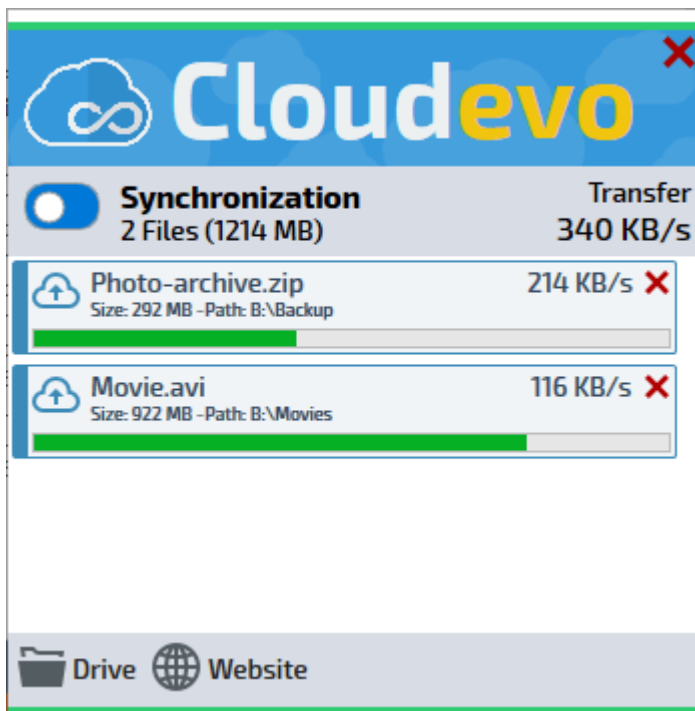
Transfer window options

In the transfer window, you have the option of using the gear icon to change the behavior of the transfer window.

Always on top: If this option is activated, no other window can overlay the transfer window.

Show on transfer: If this option is activated, the transfer window is displayed immediately when a transfer is active.

Cleanup

Any files you create or copy in the cloud drive are uploaded to the cloud. Files are also deleted or overwritten. Similarly, the files on the cloud store must also be removed. However, this deletion does not take place directly but is delayed by a few hours. This ensures that all other users who work with this file can finish their work.

Automatic cleanup

An automatic cleanup routine is started by the system to delete all files on the cloud storage, which are deleted in the cloud drive. The frequency of the execution is variable and depends on the total allocation of all cloud storage. The more cloud storage is occupied, the more often automatic cleanup routines are executed..

Manual cleanup

In addition to the automatic cleanup routine, you can also manually start a cleanup of the cloud storage accounts. This cleanup feature is available for every cloud storage account. If you start the cleanup manually, this is started immediately in the background and redundant files are deleted. This process takes a few minutes, depending on Internet bandwidth and data volume..

Cloud Drive

Once you have added your first cloud storage account, the cloud drive appears in This PC. The cloud drive is a centralized management of your files.

File management

Use your existing file management program which you are accustomed to. Like on a normal drive, you can

also create, copy, move, edit, or delete your files on the cloud drive. Rather, you can quickly locate and organize files. All actions you perform are captured and logged by the file system.

> Cloudevo ignore all files that are not managed by Cloudevo. This applies in particular to all files that you have uploaded to your cloud storage service before first use of Cloudevo. These files outside of Cloudevo are not displayed in the Cloudevo drive and are not synchronized. Files outside of Cloudevo are insecure as they are not encrypted.

Unlimited file size

Unlike many cloud services and file systems, the Cloudevo Cloud Drive does not have any artificial limitations on file size. The operating system constraints on the file size are 256 TB per file.

Cache

The files that appear in the cloud drive are the files that are managed and stored in the cloud. In order to reduve the memory space usage on your hard drive, only files that are used frequently are cached locally. The rest of the files you see as a placeholder. Open a placeholder file and the content of the file is downloaded immediately and will be presented. Edit your files directly in the Cloudevo Drive. All changes are immediately transmitted back to the Cloud.

Cache path

You can specify where the cache is located and where the used files are buffered. In the main menu under Settings, on the synchronization tab, set the path.

Offline Mode

With the Offline-Mode you can work as usual on your Cloudevo drive. Open cached files or create new one. Cloudevo is logging everything. All changes will be synchronized later when you have access to the internet.

Data-On-Demand

The long-term use of the software determines which files you use most frequently. These files you often use are stored priority. The remaining files are not stored locally on your hard disk, but in the cloud. With our Data-On-Demand technology, data is synchronized whenever you request this by opening for instance a file. Hence you save time for the transfer of unnecessary data and do not block the bandwidth of your Internet connection. Exclude just files or directories entirely from the synchronization.

Settings

The software provides you with options and settings to change the behavior of the software.

General settings

Start program with Windows

The program will start automatically each time you start the computer.

Check for updates and notify

The program automatically searches for a more recent version of the program and notifies you of an update.

Prevent hibernate during synchronization

While files are synchronized with the Cloud, hibernation or standby is prevented.

Language selection

Choose your language by clicking on a flag.

Synchronization

Cloud Assignment Strategy

An allocation strategy specifies the order in which the storage space of the cloud services is been allocated.

- Optimized for speed: Combination of cloud service for maximum speed
- Random: Files are uploaded randomly to a cloud service
- Strong fragmentation: Large files can be distributed on different cloud services
- Available disk space: Cloud services with a largest available storage space will be filled first
- Linear: Upload are allocated on the cloud services in the same order as there are arranged in the list
- Uniform allocation: All cloud services have about the same amount of data

Path for the cache

An allocation strategy specifies the order in which the storage space of the cloud services is been allocated.

Compression

Files can be compressed before uploading to the cloud to save storage space and transmission time.

- No compression : Files are uploaded without compression
- Fast compression : Files compressed quickly
- Medium compression : Files are compressed balanced
- Strong compression: All files are highly compressed before upload

Upload / download bandwidth restriction

Limit the bandwidth available for downloading or uploading the files. Enter a number to enable the restriction.

Security

The security of your data is important to us. All of your data and deserve the highest level of protection. For this reason, we do our best to provide you with a safe and user-friendly software. Your data belong to the part of your digital privacy. We ensure that nobody can access your data without your permission. We have developed a detailed concept to ensure the security of your data. We only use modern and through security institutions approved and recommended encryption method.

The security of the software is built on several layers.

Client-side encryption

Before the files are uploaded to the Cloud, they are encrypted with a strong security key. All your data will be securely encoded with modern AES-256 encryption. Only you have the key to your data. Only after the download of the files they are decrypted again. No cloud storage service has access to your private data.

Transport security

All your data, which is exchanged between your computer and the Internet, is also transmitted via secure transport channels. For this purpose, the software uses the modern TLSv12 (Transport Layer Security Version 1.2) protocol.

Fragmentation

To strengthen the security, files are divided into several fragments and upload to different cloud services.

The distribution of files takes place in fragments of the size 1 MB. Files smaller than 1 MB are not fragmented, but bundled into archives and filled to 1 MB.

Example: A 5 MB music file is thus divided into five fragments and uploaded on up to five different cloud storage services.

Example: Seven small text files each of 100 KB are bundled into an archive of size 700 KB, encrypted together with a key and uploaded to a cloud storage service.

Encryption technology

The figure below shows the procedure, which can be used for secure encryption and transmission of files. A file A is first divided into fragments (see section Fragmentation). Subsequently, each fragment is encrypted with AES-256, a random 16 byte initialization vector, and a random file key for file A. Each fragment is uploaded to a cloud storage, according to the selected occupancy strategy. In parallel, the encrypted metadata of file A is uploaded to a cloud storage and to a sync server. The metadata consists of the name, size, attributes, other file system internal data, and a random file key consisting of 32 bytes. These metadata are then also encrypted with AES-256, a random 16 byte initialization vector, and the metadata key.
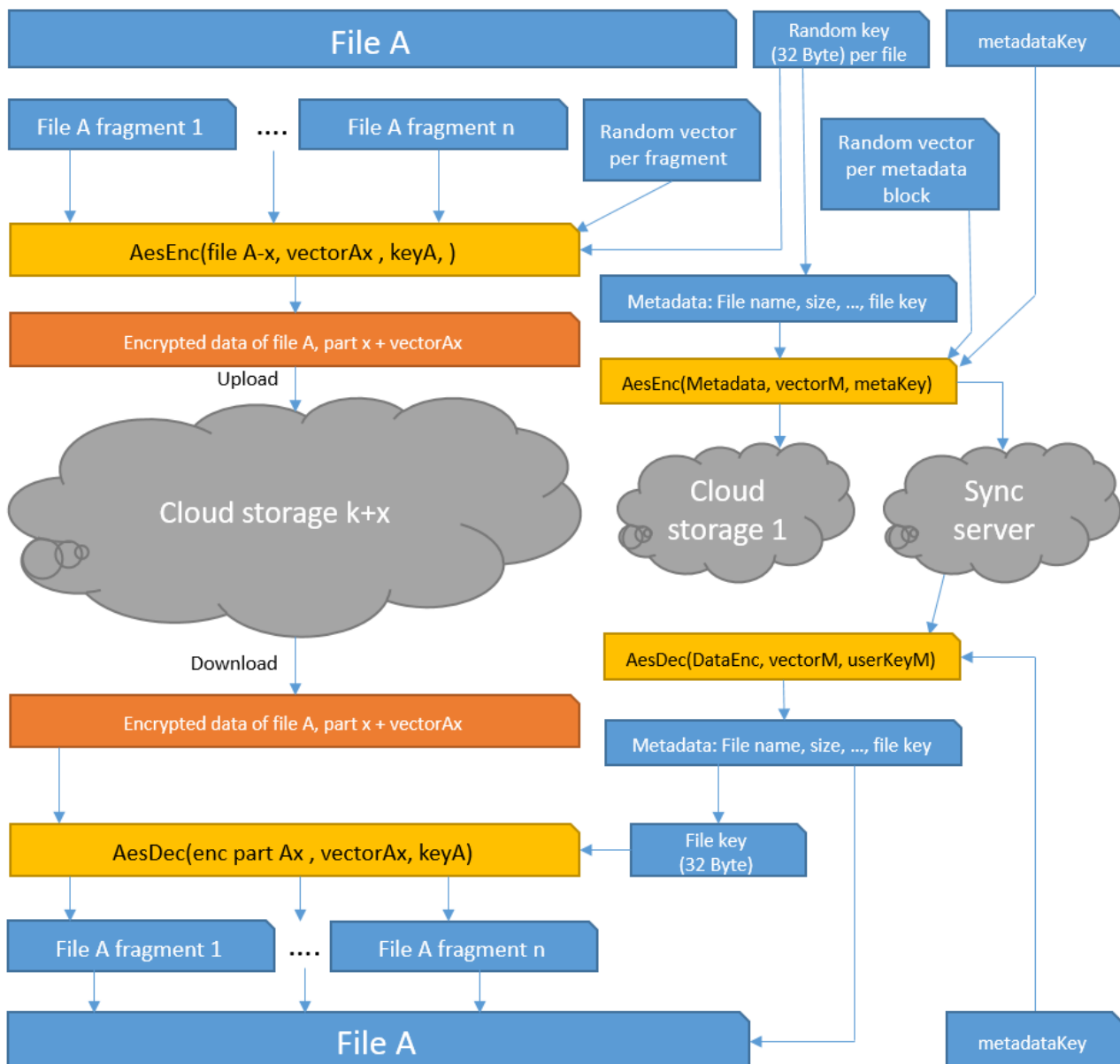
On a second device, the user can download his file A from the cloud storage. First, the encrypted metadata

is downloaded from the Sync Server or the primary cloud store. In addition, the encrypted metadata is decrypted with the key for metadata. Subsequently, the individual fragments of the file A are downloaded and decrypted with the file key from the metadata. In the end, the fragments are composed and can be retrieved as a file via the cloud drive.

> Safety instructions: All random numbers for the encryption are generated using a cryptographically secure random number generator (CSPRNG).

Compression

Optionally, all files will be compressed using the modern method before being uploaded. Thus, both the storage consumption in the Cloud will be reduced, as well as the transfer speed accelerated.

Integrity & Cloud-RAID

In addition to the numerous features for synchronizing, distributing, and encrypting files, the software can also monitor the integrity of data in the cloud and additionally perform a Cloud-RAID mirroring.

Integrity check

Your data is stored on different cloud storage services. If files are deleted from you or from a stranger, your personal data may be lost. The integrity check ensures your data is complete in the cloud. If an integrity check verifies that files are missing from the cloud storage, the affected files are uploaded again. The frequency of the integrity check can be configured in the settings:

- Settings
- Integrity
- Frequency of integrity check

During the integrity check, a log is created, which can be read under the menu item Integrity.

Cloud-RAID Mirroring

Your data is stored on different cloud storage services. Despite protection and backup, a cloud storage may fail. Temporary failures, such that the cloud is temporarily unavailable, or persistent failures when data is insufficiently secured, deliberately destroyed by an attacker, or simply the cloud storage service abandons its business activity. In all these cases, your valuable data is lost. To protect against a failure, all files are uploaded twice via the Cloud-RAID mirroring. Each on different services, to keep the failure as low as possible in case of damage.

Distribution

If Cloud-RAID is enabled on your system, the data is slowly being uploaded to different cloud storage services in the background. All available accounts can be divided into two groups. Group A are the primary cloud storage accounts, where the files are first uploaded quickly. Group B are the secondary cloud storage accounts where the files are later uploaded slowly in the background.

> Note: If you assign the mirroring groups manually, you have to take care that you always assign cloud storage accounts of same service provider to the same group.

> Note: The order of primary and secondary cloud storage is ignored during the upload in favor of the speed. In this case, a file is sometimes uploaded quickly to group B and then slowly to group A.

After the mirroring is completed, each file is located both on a cloud storage account in the Group A, as well as on a cloud storage account in the Group B. The progress of the mirroring can be tracked in the integrity tab on the main menu.

Review of mirroring

Verifying the integrity of the uploaded files is not limited to the primary cloud storage accounts. Mirroring files are also checked for availability on the cloud storage. When missing files on primary or secondary cloud storages, a repair routine is started that restores or uploads missing files again.

During the integrity check, a log is created, which can be read under the menu item Integrity.

Repair

An integrated repair routine can be used to restore or re-download missing files when manually deleting files on the cloud or in case of a failure of a cloud storage service. When the repair is started, all files on the cloud storage accounts are checked for availability. Missing or non-retrievable files are uploaded to other cloud storage accounts.
Start the repair routine:

- Open the Integrity tab in the user interface.
- Click on: Repair

> Note: The integrity check and repair are performed in the background. All events are listed in the log and are shortened to the last 100. Depending on the system load, this function can be delayed.

Migration of cloud storage

The software manages a large number of cloud storage accounts. If you want to remove a cloud storage from the account pool, the data contained in it will be lost. With the help of Cloud-RAID mirroring, you can easily remove cloud storage accounts from the account pool without experiencing a loss of data. This can be done even during operation, so you can continue working without interruption. However, for a fault-free process, you need to consider a few things.
Requirements:

- Before cloud storage accounts are removed, Cloud-RAID must be enabled.
- The integrity of the primary or secondary cloud storage must be 100%.
- Multiple cloud storage accounts may be deleted only from one group at a time

If the prerequisites are met, cloud storage accounts can be removed step by step from the account pool.

> Tip: To speed up the process of mirroring, you can start the manual repair. It detects missing files on the cloud storage and fixes the integrity by uploading the missing files to other cloud storage accounts.

Network and Internet

The software synchronizes the files via the connected cloud storage. In addition, files can also be synchronized via a direct connection between different devices. A direct connection can be established between the devices in the local home or company network. In addition, connections can also be established via VPN or as a peer-to-peer over the Internet. If a direct connection is established, the devices can exchange files and metadata.

Connection setup

All connections, both in the local network and over the Internet, are established as encrypted direct connections between two partners. These identify themselves by means of a given business ID and authenticate themselves by means of a cryptographic challenge. If authentication is successful, connections are approved and data is sent.

Summarized:

- Port: 9970
- Protokoll: TCP
- Sicherheit: TLSv12

Note: Ensure that the firewall does not block the connection.

Automatic search

Each time the application is started, an automatic search for other devices on the network is started. Found devices with compatible software are automatically authenticated if they belong to the same user or business group. This process starts approximately 10 seconds after the software is started and takes a few seconds or several minutes, depending on the size of the network.

Add connections

Devices that are not automatically found or are outside the local or virtual network can be added manually. For this purpose, the computer name, an IP address or a domain name can be used to search for a device and establish a connection. Procedure:

- ● Open the Network tab in the user interface
- ● Enter a computer name, an IP address or a domain name in the lower field
- ● Click on: Add

Note: If a computer is behind a router, you may need to share the appropriate port or set up a port forwarding.